

Review on the Current Status of Uneven Distribution of Education Resources in China and Its Influence on the Economic Development

Lingxin Lu, Hongtao Chen, and Peishi Wu

Abstract—Ever since the establishment of the People's Republic of China, the country suffered from intense poverty and stubborn unbalanced resource distribution. The central government implemented various of different policies to cope with distinct historical phases, namely relief-type poverty relief, structural reform promoted poverty relief, development-oriented poverty relief, tackling key problems in poverty relief and targeted poverty alleviation respectively. On entering the TPA era, China implemented signature measurements including health, education, resettlement, traditional industrial support etc. to better solve the poverty problem from country level to the household level specifically. This paper provides an in-depth analysis towards the background of poverty alleviation as well as the measurements accordingly in order to better elaborate the situation, leading to the detailed analysis in the uneven distribution of educational resources. Gini coefficient as well as the statistics from the official websites present more academic perspectives to better explain the possible and potential influencing factors for the unbalanced distribution of educational resources, and the probable solutions will be discussed later with more details and data sets. Reasons of how the enhance of educational resources distribution structure could stimulate the local economy will be symmetrically studied in the latter session and relevant supporting policy suggestions would be provided in order to reach the goal.

Index Terms—Economic development, education inequality, Gini coefficient, poverty.

I. INTRODUCTION

When the People's Republic of China was founded, the country suffered greatly from poverty brought by the many wars that happened within the country [1], [2]. As part of the reform of the rural cooperative movement, the government has accumulated a large amount of agricultural resources to stimulate the country's industrial growth [3]. These resources

guaranteed the basic needs of farmers at a lower level, and constantly encouraged the use of agricultural products in rural areas to establish companies that could bring long-term benefits [4], [5]. Nevertheless, because of some inevitable factors in the nature and different economic situations. Many lived in areas with mountains, extremely dry weather, high possibility of being attacked by natural disasters. Factors such as natural disasters and transportation restrictions would inevitably lead to severe and consistent economic limitations so as to poverty, especially to those dwellers who live in mountain areas with extreme weather conditions. These areas, containing many outdated architectural forms with appalling sanitary condition, were mainly occupied by minorities [6], [7]. According to the 2019 Statistical Communique on National Economic and Social Development released by the National Bureau of Statistics, around 5.51 million people are still suffering from poverty so far [8].

Despite the environmental factors, there are definitely other contributions to the uneven distribution of social and economic development in China. In a broader sense, poverty, though often reveal the materially senses like household income and average GDP, could also refer to spiritual things, such as incapability, absent of opportunities, and chances to receive social services [1], [9], [10]. Education, by improving the quality of the population, could promote the development of poor areas and hinder the intergenerational transmission of poverty [11]. When the PRC was founded, 80% of the population was illiterate [12]. Under this scene, the government implemented Compulsory Education law (CEL) to promote primary and secondary education over the country in 1989[1]. As a result, the rate for illiteracy of rural labor dropped to 28% in 1985, and further to 2% in 2015 [1].

Furthermore, behind the fact of high literacy ratio, problems such as misdistribution of educational resources were found. It is well acknowledged that the regional equality of educational resources stabilizes the society in many aspects, while the cross-regional unbalanced distribution of educational resources acts as the decisive factor of developmental excess or stagnation cross-regionally [6]. As the initial approach for unevenly distributed educational resources, the 22nd Meeting of the Tenth NPC Standing Committee [13], reviewed and passed the new Compulsory Education Law, stating the significance of the educational balance, requiring the rational faculty allocation and alleviation for the targeted regions in need. Moreover, the Political Bureau of the Central Committee of China reviewed and passed *Outline of China's National Plan for Medium and*

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Long-term Education Reform and Development in 2010, looking forward to achieving equalization of basic public education services, which was then proposed to be promoted by enhancing the staff quality, formulating the rural school layout, etc. Clearly, at this node of time, the government first projected long-term prospect and make progress for the goal set. Although it is observed that the government strategies alleviate this education crisis in certain levels in present days, the status rarely changes.

This paper gives an overview of poverty alleviation since the founding of The People's Republic of China. By means of poverty alleviation measurements, an in-depth understanding of the situation in poverty-stricken areas in China is obtained, and education is taken as an entry point to find out what role it plays in poverty alleviation. We studied multiple dimensions of phenomenon influenced by the government educational and economic policies. We also further studied the educational and resource-oriented misdistribution regionally and representative countermeasures which, combined with our case study, implies us plausible solutions to Guizhou. This paper aims to study the feasible approaches government can adjust toward this issue, with a series of past-policies investigation, and elicit ideal policy suggestions.

II. LITERATURE REVIEW

Poverty has been a long-existed problem in China, which is also the topic of those existing studies.

As a matter of course, the government, drawn corresponding principles in different historical background. Before the year of reform and opening-up, the government firmly persist in the system of rural cooperation, severely suffered from the great leap and cultural revolutionary, making people cannot even reach the basic standard of living. After the reform and opening-up, the old social situation was obsoleted, followed by house-hold contract responsibility system, parts of national poverty issue were greatly reduced. During 1986-1993, the government started the trend of focusing on the less-developed areas other than the eastern areas with advantages. Enter the millennium (1994-2000), the government have initially perfected the policies toward the remote areas, where different levels of administrative units have engaged supports. During 2001 to 2012, under the same condition of rural poverty alleviation, the government started to implement policies for the self-restoration ability of rural areas instead of mere resources input. Since 2013, China entered the last stage of poverty alleviation, stating to totally eliminate poverty by the end of 2020. In these seven years, the work of poverty reduction operates under the instruction of precise level execution [14].

In the meantime, the Chinese government implemented various polices on the development of traditional industries and emerging industries, finance, health, education and resettlement. However, the way how education work and its effects are little known. It is necessary to systematically analyze the role of education in the rural China. This study investigates the reasons and current situation that education drives economy after reviewing the history of poverty

alleviation in the poverty-stricken areas. This study also proposes suggestions to improve education after realizing human capital is the goal of promoting economic development and poverty alleviation.

III. RURAL POVERTY ALLEVIATION POLICIES

A. *Relief-Type Poverty Relief (1949-1977)*

After the PRC was founded, the society waited for innovative development, where 70% of population lived in a substandard and low-welfare environment. In order to promote the country's rapid economic growth and social development, China began to implement the plan of equal distribution, which also unified the basic medical insurance policy throughout the country, including supporting and relieving policy, preferential treatment and resettlement. Secondly, the designated production teams would make appropriate arrangements to ensure necessity (food and clothing, education of children and adolescents, and funeral) for the unemployed who cannot afford to live due to the shortage of labor demand, etc [4]. Moreover, in order to comprehensively promote industrialization, China has established urban barriers represented by the household registration system, that no worker shall be recruited in rural areas without the permission from the Department of Labor. Under the background of the urban-rural division, the people's communes, having the dual functions of administration and production, became the most grass-roots administrative group of the government and the sole units that managed poverty alleviation work in rural areas. However, due to the relatively scarce social resources and low level of economic development in China at that time, the poverty alleviation and security system undertaken by the government was only limited to the minimum standard of living, sometimes even failing to meet the minimum standard [14].

B. *Structural Reform Promoted Poverty Relief (1978-1985)*

In 1978, China began entering the stage of management system reform and large-scale poverty alleviation, as the former collective management system of people's communes were not as contributive as expected. In its place were the household contract responsibility system, the rural contract responsibility system with the extension of land contract period [5]. Since 1982, agricultural constructions, mainly focusing on poverty alleviation, were carried out in some areas like Hexi, Ningxia, etc [15]. Agricultural construction in arid and coastal areas has set as a leading demonstration area for regional poverty alleviation. In addition, the State Council promulgated the "Notice on Helping Poor Areas To Change their Appearance As Soon As Possible" in 1984, which defined the basic principles of poverty alleviation in China and put forward preferential policies for poverty-stricken areas, becoming a historical guiding document for a long time [14].

C. *Development-Oriented Poverty Relief Drive (1986-1993)*

Since 1986, as relief poverty relief has become less

effective, China has begun to focus on implementing efficiency-first development strategies. The Chinese government has adopted a series of important measures, including the establishment of specialized poverty alleviation units, the allocation of financial input and fiscal subsidy policies and the supporting standard of these poverty-stricken areas was determined. By targeting key areas, the backward condition of the old revolutionary base areas, border areas and other poverty-stricken areas could be solved in certain levels [7]. In 1986, the State Council established the "Leading Group for Economic Development in Poverty-stricken Areas" and the "Poverty Alleviation Office of the State Council", which marked China's shift from moral relief to institutional development, focusing on development-oriented poverty alleviation in "old revolutionary base areas, areas where ethnic minorities live intensively, outlying areas and poverty-stricken areas".

D. Tackling Key Problems in Poverty Relief (1994-2000)

Through former reformative politics, only parts of China, where the minorities played dominant role, were still in the criteria of poverty. In this case, the number of SDPC was increased to 594, where the supervisions were held tells that the government clarified the specific object in basic units and the corresponding responsibility of the local government [16]. Furthermore, the overall operational units were supported by the anti-poverty project in multiple dimensions, NGO, for example, greatly reducing the burden of different levels of government. At the same time, government stipulations of relative policies that visualized the money flow raised in response. To add on this point, international organizations have invested more than 5.5 billion RMB in poverty alleviation in China. The above-mentioned strategies not only serve as solid backing for the rural urbanization but also act as foreshadowing for the strategies at the rest of quarters. Effectively, the headcount dropped to 3.5%, composed of the population in the most undeveloped and outdated by 21th area, which is an unprecedented challenge [8].

E. Consolidation-Oriented Comprehensive Poverty Alleviation (2001-2012)

Clearly, the government planned to improve the rural household condition step by step steadily, meant to establish a well-off society. According to Chinese rural poverty alleviation development outline: focusing on planting industry would greatly encourage agricultural industrialization management, symbolizing government's emphasis on self-restoration ability of local economics instead of mere resources input. In this case, local intensification of education was suggested, which states "Education drives the economy" as a positive cycle. The government had also made up special department taking charge of special departments that were set to help to targeted villages, representing the variety of aspects the targeted are getting support from[17].

F. Targeted Poverty Alleviation (Since 2013)

In 2013, China's special poverty alleviation has entered the last and most challenging stage, where Xi Jinping stated to

completely eliminate poverty from China from which the leftover underdeveloped condition has been endemic historical issues. On the other hand, some remote regions are at risks of returning to poverty. Regarding the unideal condition, CPC in 2015 pointed out that all the families that did not meet the standard of moderate prosperity would be supported in many ways accordingly. Via conducting TPA policy, the poverty-relief mission is progressing smoothly, combined with meticulous field researches and rigor executions. According to Chinese Government Website, the last 52 counties below the poverty line have successfully solved the requirements three guarantees and the water sanitation [18].

IV. MEASUREMENTS

A. Poverty Alleviation through Traditional Industrial Development

Due to its superior natural resources, Bijie provides a complex and diverse ecological environment for the growth and reproduction of various organisms and favorable conditions for the development of characteristic agriculture. Bijie focused on the construction of ecological system and industrial system. According to the Guizhou Government Website, within five years, four national, two provincial, three municipal, and four county-level forest parks are built for tourism [21].

Bijie closely centers on the overall goal of "ecological beauty, strong industry and prosperous society", focusing on the construction of ecological system and industrial system.

With the approval of the State Council and the implementation of the Plan for Further Promoting The Reform and Development of the Bijie Experimental Zone, 23 ministries and commissions of the state have formulated 28 differentiated policies to support the reform and development of the Bijie Pilot Zone [21].

Since products are mostly consumer goods of daily life, Bijie formed a large number of rural township enterprises cluster industrial agglomeration phenomenon. In recent years, the expansion of the industrial cluster scale has become effective. Relying on the endowment of coal resources, Bijie has attracted enterprises to settle in the experimental zone and introduced such major projects as China Resources Dafang Coal power integration. Similarly, Bijie Economic Development Zone, led by Zhenxing Group, has introduced more than 40 supporting enterprises and gradually formed an enterprise cluster dominated by truck. The settlement of these enterprises lays a solid foundation for expanding industrial scale and accelerating the formation of industrial clusters.

B. Poverty Alleviation through Emerging Industry Development

By 2013, where the gross economic development of Guizhou has reach upon 80 billions of RMB, with an annual growth rate of 12.5%. As the top growing province in China, coal mining, washing industry 5.6 billion), wine, beverage, and refined tea manufacturing (5.0 billion) were composed of more than 2 out of 5 of the entire Added value of secondary industry (25.3 billion). Clearly, at this time frame, industrial

upgrading and diversification are imminent for improving provincial GDP, or more importantly, supporting local poverty-alleviation progress [19].

In 2014, considering the natural factors in Guizhou: stable low temperature with certain altitude, interwoven rivers that generate great amount of electricity with little charges, cost-effective land price and labor, the industry of "big data storage" were exploited. Around 2015, certain official documents were signed, intended to mark Guizhou as a national demonstration base for big data. In response to these beneficial characteristics in Guizhou, Guizhou-Cloud Big Data Industry Development Co., Ltd. (GCBD) was formed in 2014, and quickly gathered its top-tier partners such as Apple and Tencent. In just 5 years, 7 of the world's top 10 Internet companies such as Apple and Qualcomm have settled in Guizhou, the construction of Apple's largest data center in Asia, China-India IT industry clusters and big data training colleges have settled in Guiyang and Tencent Global Trial operation of the first phase of the secure data center. After 2015, The big data storage industry thrived, and its output of the big data storage industry has increased by two to three times, as an integral part of Industry of Guizhou, proved to be outputting 100 billions of GDP in 2019 [20].

C. Financial Poverty Alleviation

The government in Guizhou have limited financial budget and expenditure. For a better illustration, the annual provincial available financial resources did not even reach half of that of Sichuan, in 2013, combined with the fact that the available financial resources per capita in Tibet are around four times of that of Guizhou. This situation pushed the Guizhou government to focus on the maximum return and efficiency of its fiscal allocation. The Guizhou government distributed certain ratio of financial resources on its Tourism and cultural industry. The government, considering its competitive industry, invested deeply on supporting the "Five Hundred Project", which is composed of 100 industrial parks, 100 modern and efficient agricultural demonstration areas, 100 tourist sights, 100 demonstration, and 100 urban complexes [21].

In shortly four years, the overall investment for the Five Hundred Project has reach upon 1.9 trillions. On the other hand, in the first half of the year, the "Five Hundred Projects" economic income doubled. The provincial "100 industrial parks" achieved a total industrial output value of 486.5 billion yuan, an increase of 95.8% from the first quarter; "100 modern and efficient agricultural demonstration parks" achieved a total output value of 105.353 billion yuan, and achieved sales revenue of 89.243 billion yuan, respectively increasing 123.0% and 126.7%; the number of newly added enterprises (including individual industrial and commercial households) in "100 demonstration small towns" was 2,423, and the total tax paid by enterprises was 1.300 billion yuan, an increase of 115.2% and 110.4%, respectively; "100 urban complexes" At the end of the period, the number of employees reached 36,000, an increase of 33.3%; the "100 tourist attractions" achieved a tourism income of 86.746 billion yuan and a reception number of 129 million people, an increase of 148.2% and 130.8%, respectively, basically

doubling the economic income. As a result, the provincial GDP from 80 billions in 2013 to 1 trillion in 2015, reaching upon 1.17 trillion in 2016 afterward, An increase of 10.5%, the growth rate ranks among the top three in the country for six consecutive years. The proportion of Guizhou's GDP in the national economy has steadily increased. In 2016, it was 1.58%, an increase of 0.05% points from the previous year [18].

D. Health Poverty Alleviation

In 4 decades of reform and opening, certain areas of China have been well developed and accumulated large amount of resources. Therefore, problems such as health resources misdistribution came out, drawing special attention to the rural area where the medical resources are scarce. Such issue raised severe influence on people's sanitation and health, and then devastating their living standard in underdeveloped areas [22]. Statistics in 2006 shows that the phenomenon of peasant families returning to poverty due to unaffordable medical expenses is especially prominent. Since then, the government has many countless reforms on the domestic health care system. For example, the initiation of Essential Drug System has greatly reduced the price of specific types of medicine, making them assessable for general population [23]. The problem of the accessibility of health resources has been reduced in certain level but can still pose a problem [16].

Turning to 2020, under the special condition of COVID-19, the *Opinions of the CPC Central Committee and the State Council* [28] on deepening the reform of medical security system were released, listing "Improve the cost protection mechanism for medical treatment of major epidemics" as an important content. Namely, at the time they adjust the improper prices of certain medicines, they also set up the welfare for the people who could not afford treatments. This tactic, potentially, will serve as a milestone for the health poverty alleviation in rural China.

E. Poverty Alleviation through Resettlement

Since 1950, resettlement has been built into China's development program. According to statistics, 1.3 million people were displaced and relocated by the Three Gorges Dam alone [25]. In the 1990s, development projects in China displaced an estimated 10.3 million people. Resettlement has improved their people's living conditions, freed them from the harsh ecological environment and provided more employment opportunities, making people accepted to move.

Bijie is located in the contiguous poor area of Wumeng Mountain. With serious rocky desertification, barren land and multi-ethnic groups, the project of resettlement from inhospitable areas is an important shortcut to solve the task of poverty alleviation there. Under the great support of Evergrande Group, Bijie had moved 279,000 people with a relocation rate of 97.89 percent by August 2019. According to the standard of 20m² per person, a fully equipped room with basic household appliances and furniture is allocated to the rural households. Additionally, the resettlement area has complete infrastructures, supporting schools and hospitals, as a completely independent living area [26]. Through the consortium assistance, the local government's support and the

efforts of target of poverty alleviation, the impeccable public facilities, employment rate and follow-up industry promotion have achieved great results.

F. Poverty Alleviation through Education

The basic status of poverty alleviation through education is determined by "supporting wisdom first". Education can improve the population quality, put an end to the intergenerational transmission of poverty and power the development of poor areas [11]. Due to the urgency of teacher turnover, the Ministry of Education has implemented the "Special Post Plan for exchange of Famous Teachers and Principals", which regularly recruits special teachers of primary and secondary schools to teach in poverty-stricken schools for 3 years, which adopts an incentive and guarantee mechanism.

In order to promote basic capacity building, Bijie has arranged the reconstruction and expansion of 100 poorly built rural compulsory education schools, 10 ordinary senior high schools and 18 schools threatened by geological disasters. By 2019, 687 schools in Bijie have paired up with better schools in the East. In terms of vocational education, with application-oriented undergraduate as the leading role, higher vocational colleges as the backbone, and secondary vocational schools as the foundation, such structure has taken place in order to form a modern educational system [27]. We will further analyze the current situation and reasons of education inequality, thus give corresponding suggestions.

TABLE I: AVERAGE YEARS OF SCHOOLING (AYS) AND GINI FOR EACH SUBGROUP

| | | AYS | Educational Gini Coefficient |
|----------------|-------------------------------|----------|------------------------------|
| Total sample | | 8.877064 | 0.21911 |
| By hukou | rural | 7.223953 | 0.17756 |
| | urban | 10.40541 | 0.21695 |
| By income rank | lowest income household | 6.663455 | 0.23261 |
| | lower middle income household | 7.721758 | 0.20753 |
| | middle income household | 9.044802 | 0.1877 |
| | upper middle income household | 10.19983 | 0.17674 |
| | highes income household | 11.3704 | 0.16259 |
| By gender | Male | 9.092393 | 0.20959 |
| | Female | 8.670124 | 0.30935 |
| By region | East | 9.537973 | 0.2057 |
| | Central | 8.326907 | 0.21541 |
| | West | 8.457442 | 0.23372 |
| By age | [18,22] | 10.92789 | 0.1468 |
| | [22,26] | 11.13818 | 0.17173 |
| | [26,32] | 9.956243 | 0.20183 |
| | [32,38] | 8.929315 | 0.21586 |
| | [38,44] | 8.431173 | 0.29018 |
| | [44,50] | 8.80884 | 0.19527 |
| | [50,56] | 7.77894 | 0.22256 |
| | [56,62] | 7.39006 | 0.25063 |
| [62,70] | 7.481262 | 0.26852 | |

Resource: J. Yang et al. / International Journal of Educational Development 37 (2014) 2–10.

V. THE CURRENT STATUS OF EDUCATION RESOURCES

Alone with the considerable growth of annual years of schooling (AYL), the educational inequality still acts as a problem from every now and then. Since the endemic educational condition deeply relies on its local financial capacity, which could be determined by layers of taxes, the expenditure on education of government varies through regions. In this case, the central government was designed to offset the educational-disadvantaged area. However, the involving of Central government's power does not factors

comprehensively [28], [29]. In fact, there are still many long-existing dilemma and political failure. In urban areas, at the time the upper class inputing the best educational resources by utilizing their social status, the peasant workers and their children suffered greatly from the household register system [30]. Specifically, the existence of household register system hampered the right of the peasant-worker's children receiving equal educational resources, which is one of the main factors that aggravates the problem of social stratification. In rural areas, at the background of inflowing of rural population to cities, the government removed the rural education surcharge, stating to reduce the peasant's burdens. However, this intervention of government cut off the external investment in an unexpected way. The poor province will be in bad situation from lacking to effective interprovincial distribution. In this case, it has been appealed that the government of county and provincial level should financially devote to the overall educational distribution of China, with intensifying executive power on the practice of compulsory educational policy. The following Table I illustrates the average years of schooling and GINI coefficient for each subgroup in China.

VI. CAUSES OF EDUCATIONAL INEQUALITY

A. Hukou

On account of the separate urban and rural registration system, people receive education in the place where the residential certificate (hukou) is registered. Therefore, rural students are at a disadvantage in terms of education, especially in receiving good quality education, which is conducive to obtaining higher degrees [35].

B. Income

Families with higher social status and better economic support could utilize these powers to provide their children with a better education opportunity. More specifically, there are two forms of the inequality effect of social stratification. The first is using different admission procedures, such as students with high academic achievement only need to be paid tuition fees, while students with low academic achievement have to spend extra expenses on selecting schools. To some extent, dominant groups have turned their power into educational privileges. Another form is the disadvantaged groups cannot undertake the risk and educational returns for entering a high level of school [36].

This phenomenon is quite common in rural areas, where children abandon their educational opportunities in order to support their family. It seems to be a rational choice made by disadvantaged groups under great economic pressure.

C. Gender

Gender differences are not a major factor in overall educational inequality. In today's society, women enjoy equal access to education, enabling every female student to receive basic education. Although there is still an educational gap between men and women, this is partly due to the educational system and other reasons such as culture, customs, and feudal

morality [37].

D. Age

Before the reform and opening, the China's overall educational popularity is highly limited, cause majority of people, who are seniors now, lacking basic education. As a comparison, following the forceful movement of compulsory education policy, the fundamental education has completely popularized and executed to overwhelming majority [38].

E. Region

Regarding above mentioned contributing factors for educational inequality, regional did not act as a crucial role, but still could not be neglected. The developed areas, eastern, for example, will have more financial investment on its local education, which will have great effect after laps of chains reaction. Those educational advantage in developed area will ultimately abstract talents to settle, causing the vicious circle of educational development in developing regions. Thus, developing area should put more effort and resources on educational findings and improve their competitiveness [35].

VII. THE CURRENT STATUS OF EDUCATION INEQUALITY IN GUIZHOU

The occurrence of poverty is multifaceted, and development economics considers that human capital is an important link to achieve economic growth. Inadequate education is a crucial part of this. Without the support of good education, human capital cannot be accumulated and used as a factor of production to achieve economic development and get out of poverty. The following Table II illustrates the number of schools and type accordingly.

TABLE II: NUMBER OF SCHOOLS AND TYPES

| Item | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------------------------------|--------|--------|--------|--------|--------|
| Regular Higher Education Institutions | 55 | 59 | 64 | 70 | 72 |
| Secondary Vocational Education | 209 | 206 | 195 | 192 | 183 |
| Vocational Senior Secondary Schools | 133 | 129 | 120 | 119 | 110 |
| Regular Secondary Schools | 2604 | 2558 | 2536 | 2499 | 2468 |
| Primary Schools | 192850 | 193511 | 197069 | 202061 | 207839 |

Resource: Guizhou Statistical Yearbook 2019.

A. The Existing Status of Lack of Educational Resources

1) Basic education

According to the Guizhou Provincial Bureau of Statistics, the enrollment rate of school-age children is 99.7%, and the graduates of primary school entering into junior secondary schools is 100%. The retention rate of nine-year compulsory education is 91%. The state has 2468 regular secondary schools, 2.8162 million students in the school. There are 6,951 primary schools, 162 fewer than the previous year, a decrease of 2.28%. The number of students is 3717,297, an increase of 96,527 or 2.67% over the previous year. The number of students enrolled are 675,210, an increase of 24,737 over the previous year, or an increase of 3.80%. The ratio of students to teachers is 17.89:1. For the minority nationality education, there are only 129 regular secondary schools. According to the data from the Sixth National Census in 2010, ethnic minorities account for 36.11% of the province's permanent residents. Compared with the Fifth

Census in 2000, the population of ethnic minorities declined by 2.24 % [36].

2) Vocational education

Guizhou currently has 183 schools in secondary vocational education, nine fewer than the previous year, a drop of 4.69%. The number of students on campus was 472,182, a decrease of 6.15% over the previous year. The number of students enrolled was 166,564, a decrease of 9.01% over the previous year. There are 6 specialized secondary schools for adults, with 54,728 students, 18,542 students, 1,443 faculty and staff, and 1,067 full-time teachers. There are 110 vocational high schools with an enrollment of 228,535 students, 11,979 faculty and staff, and 10,506 full-time teachers. Other institutions have 110 faculty and staff, 89 full-time teachers.

In addition to recruiting students in Guizhou and surrounding areas, colleges also take the initiative to contact with western regions and developed coastal areas. To meet the demand for talents in this region, colleges also send graduates to overseas and domestic economically developed regions to ensure the smooth flow of "export". The employment rate of secondary vocational graduates is over 96% [36].

3) Higher education

Higher education is a symbol of a region's economic development, especially play an important role in the process of training local qualified personnel. The rate of senior secondary school graduates entering into institution of higher education achieved 36% in 2018. Among 72 regular institutions of higher education, there are 21 comprehensive universities with 10,429 full-time teachers and 53,964 graduates with degrees or diplomas, an increase of 2 over the previous year. Besides this, there are 49 technical schools with 69,735 enrolled students and 9 training units for postgraduates, with 20,946 students (including 913 doctoral students and 20,033 master students), an increase of 2,355 over the previous year [36].

B. The Impact of Lagging Educational Development on the Economic Development of Guizhou

Poverty alleviation through education means to improve the comprehensive quality of the poor population, promote local development and achieve the goal of poverty alleviation through education funding and investment. Due to the backward concept of education, the policies issued by the State Council only tend to start with the overall education situation of the government and the whole country without fully considering the local needs, and the lack of higher education, the economic development of Guizhou lag behind.

1) The backward development of basic education is not conducive to creating a good environment for economic development

Soft environment construction is one of the decisive factors in regional economic development. This is particularly prominent among the minorities in Guizhou. The popularization of basic education is an effective way to improve the quality of the population. However, the popularization of basic education among the minorities is relatively low and their thoughts are relatively conservative,

which leads to the lack of atmosphere and motivation for economic development. For example, as more than 90% of the Miao nationality in Guizhou are engaged in agricultural production, there is a large area of poverty, and their traditional customs are quite well preserved. Therefore, the popularization of compulsory education in the Miao community in Guizhou is restricted not only by the common factors from the popularization of compulsory education in rural areas, but also by the deep factors from the the Miao nationality's own traditional customs.

2) The backward development of vocational education restricts the improvement of labor productivity

Vocational education can directly improve the understanding of the process of production requirements and labor skill proficiency, improve the social operation function of machines and reduce losses, shorten the time and cost of learning and mastering new technologies, so as to directly promote the improvement of labor productivity. However, vocational education in Guizhou has low social recognition, and the conservative ideas of the masses are deeply rooted, thus making skilled talents have no corresponding social status. In addition, some vocational colleges still use the discipline-based curriculum system in the professional training plan. Theoretical knowledge is still taught as the core of the course, and the competency-based course model basically remains at the conceptual level, ignoring the needs of future jobs and cultivation of students' application ability and innovation ability. Therefore, the acquisition of these basic technologies and the backward thinking restrict the improvement of labor productivity.

3) Higher education is the key to the accumulation of human capital

Through the empirical analysis of Wangxin's results, he found that higher education can improve the stock of human capital, which is the key to the accumulation of human capital, and also promotes the rise of labor force level. For Guizhou, where economy is relatively backward, developing higher education can promote the improvement of science and technology, and thus making the economy grow rapidly [37].

VIII. POLICY SUGGESTIONS

"Modern Education is the most important means of the formation and development of human resources" [38]. During the critical phase of poverty alleviation, enhancing the science and culture quality as well as the technical capability of the ethnic groups in poverty areas are efficient ways of targeted poverty alleviation, stimulating their enthusiasm to effectively avoid the poverty-returning. Therefore, supporting the development of education career and enhancing per capita could be one of the most crucial ways for the regulation of ethnic groups regions. In this section, a few policy suggestions would be provided in the perspectives of helping the education industry.

A. Consolidating the Elementary Education

The smooth development of the regional economy requires decent soft environment, consisting mainly the overall

cultural quality of the entire population of residents. In the case of Guizhou province specifically, the government should ensure the following issues: firstly, continuously consolidate the 9-year compulsory education, ensure kids of the proper ages to accept the high-level compulsory education. Secondly, supervise the quality of teachers and arrange seminars and courses for them to upgrade their capabilities in different perspectives. Thirdly, open the trial bilingual courses in the ethnic-group areas to let more citizens master the usage of Mandarin, enhancing their communication capability in order to guarantee the future possible relationship building as well as the business negotiation with potential partners. Fourthly, organize the official speeches and presentations to spread the national policies and development orientations so as to let the ethnic groups know deeper about the central government's latest spirit.

B. Developing the Vocational Education

In less developed areas, the vocational education could be the most essential part in the whole education system since it could provide the local industrial vacancies and factories with the proper specific talents. Regarding the local demand, various of relevant vocational education institutes focused on agricultural technique, internet application, electronic engineering, infrastructure etc. could be established accordingly to better stimulate the local industrial development with high-tech perspectives. Meanwhile, the demo basis centers could be built to provide standard instruction and empirical study environment for the small and medium institutes, and at the same time, cultivate more vocational talents in the real practical situation. Last but not the least, keep the demand-oriented benchmark in the talent-educating process, provide both the general courses and the precise seminars for different talents' needs.

C. Promoting the Higher Education

Business and economics play more and more significant roles in the modern agriculture and manufacturing industries, hence a great number of related talents with this sort of background are needed in the long-term regional development. The national subsidy policies should be used thoroughly to attract high-class talents and even overseas talents, and at the same time, the key talents in ethnic groups should also be promoted and encouraged to retain for the building of teachers in the local education system. At the same time, cross-regional and cross-school resources sharing platform could be established to borrow teaching resources from other appropriate schools and institutes.

D. Improving the Education Environment in Poverty Regions

One of the important reasons for the lack of development in education industry is that the payback period of such investment is relatively long, and the internal rate of return is low comparing to other investment targets. Education, with more social responsibility value, is not an ideal investment target for the investors, especially in poor areas where the tuition fee is low, and the value-added projects are limited. Therefore, the governments should lead the investment,

providing stimulating policies and budgets to those social investors so that they could have the incentive to invest their money into the education sectors. Besides, special and targeted projects could be tailor-made in order to provide more proper plans for the talents' buildings.

E. Integrating Resources and Enhancing the Industry Support

Enhancing and integrating the industry resources could be one of the most effective ways to stimulate the local development, in which the latest international-level high-tech applications could ensure the continuous learning mechanism of the existing talents. The continuous upgrade of the existing talents, in turn, could stimulate the industrial development and upgrade as well, forming a positive circle correspondingly.

F. Strengthening the Regulation

To fully realize the targeted poverty alleviation, the local government should pay attention to the accuracy of the information, the dynamic balance of the tendency, the follow ups of the post-TPA phases and the regulation of the whole process. For the budget consuming and the staff's cost, an entire regulation system should also be established so as to best allocate the limited resources to maximize the possible output. Moreover, the post-investment management is also of great importance as the long-term management and guarantee mechanism.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Lingxin Lu and Hongtao Chen together conducted the research, analyzed the data and wrote the paper; Peishi Wu supervised the whole study procedure. Lingxin Lu and Hongtao Chen have the same contribution.

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