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Analysis of Green Development Efficien Anshan City

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Abstract: *Green development is inevitable for current and future national and regional economic and social development. Based on the statistical data of Anshun City from 1999 to 2018, this paper comprehensively utilizes the super-efficient SBM model with non-expected output to examine its green development level. The results show that: (1) the development mode of Anshun City from "high input-high pollution-low output" to "high input-high pollution-high output" to "low input-low pollution-high output" in 1999-2018. "Development mode; (2) the efficiency of green development in Anshun City was significantly lower than the traditional efficiency in 1999-2016, and the green development reached an influential state in 2017; (3) the main reason affecting the improvement of the efficiency of green development in Anshun City is the excessive emission of industrial three wastes, followed by the severe waste of part of the resources; and (4) at present, the green development of Anshun City presents a good trend. To this end, the green development efficiency of Anshun City is explored to improve the reference for government departments to formulate policies related to green development and regional ecological security.*

Keywords: *Green development efficiency, SBM model, Anshun City, Indicator System*

1. Introduction

In recent years, Guizhou's economic and social development has made achievements that the world has witnessed. Since the 18th CPC National Congress, Guizhou has lifted 9.23 million people out of poverty, reducing the number of people in poverty by more than 1 million each year, and all 66 poor counties in the province have been lifted out of poverty. In contrast, all 9,000 poor villages have been eliminated from the list. However, the high-input, high-output, high-consumption, high-emission mode of economic development has brought some pollution to the environment, restricting the sustainability of Guizhou's economic and social development.2021 General Secretary Xi Jin ping emphasized during his visit to Guizhou that it is necessary to establish that green mountains are golden mountains firmly, guard the two bottom lines of development and ecology, and strive to walk out of a new path of ecological priority and green growth. Therefore, green development has become a critical current and future issue to be solved in all parts of Guizhou.

Presently, domestic and foreign studies have systematically considered and analyzed the primary connotation of green development(Song Xiaoxiao,2018;Yin Tao-tao,2021;Chang Tao-tao,2021), the system and method of measuring green development efficiency, and the changing characteristics and influencing factors of green development in different spatial and temporal scales[1-5]. In terms of research methodology, the primary purpose is to construct a scientific and reasonable green development evaluation system and then measure green development by comprehensively applying the DEA model and entropy weight method(Song Xiaoxiao,2018;HUANG Xiaoyong et al, 2022; QIAN Qiangming et al, 2013), TOPSIS model and entropy weight method(Yin Tao-tao Hou Wei,2021), ecological location posture model and Terre index(Hou Wei,2022), DEA-SBM model(Liu Xiping,2018; Dong Lu Yu,2022; MENG Wangsheng et al,2023; SUI Dangchen et al,2023; LI Yanjun et al,2014; BAN Glimmer et al,2016), kernel principal component analysis(Chang Tao-tao,2021), environmental RAM model and Bootstrap truncated regression model(Wang Bing et al,2014), etc.; and finally by comprehensively applying the spatial autocorrelation model, kernel autocorrelation model, kernel density model, and bootstrap truncated regression model. Finally, the spatial autocorrelation model(SUI Dangchen et al,2023; CAI Shao-Hong et al,2021; Tian Feng,2020), kernel density estimation(Song

Xiaoxiao,2018; Dong Lu Yun,2022; SUI Dangchen et al,2023), and Geodetector(CAI Shao-Hong et al, 2021) are used to analyze the spatial and temporal changes in green development efficiency and its influencing factors. Regarding the research scale, there are systematic analyses and reflections on the spatial and temporal. Changes in green development efficiency and it is influencing factors at the national scale(Hou Wei,2022; LI Yanjun et al,2014; Wang Bing et al,2014; QIAN Qiangming et al,2013) and regional scale(Song Xiaoxiao,2018; HUANG Xiaoyong et al,2022; Dong Lu Yun,2022; MENG Wangsheng et al,2023 ;SUI Dangchen et al,2023; CAI Shao-Hong et al,2021); there are also systematic analyses on the green development efficiency and its influencing factors at the provincial scale[6-15], the prefecture (city) and county scale[2], and the rural scale[16]. However, from the viewpoint of the available literature, there needs to be research on green development at the prefecture and municipal scales in southwest China, where the economy is relatively backward, and tourism development is the leading industry.

Anshun City is located in the center of Guizhou, rich in tourism resources, with two five-star tourist attractions within its territory, mainly using tourism as a driving force for regional economic development. Therefore, this paper takes Anshun City as the research area, takes green development as the research object, and takes the statistical data from 1999-2018 as the basis comprehensively applies the super-efficiency SBM model with non-expected output to examine the level of its green development and its influencing factors, and puts forward the regional green development strategy, intending to provide references for the relevant departments to formulate the green development policy.

2. Overview of the Study Area, Data Sources and Research Methodology

2.1. Overview of the Study Area and Data Sources

Anshun City is located in the center-southwest of Guizhou Province, bordering the provincial capital Guiyang City in the east, Liupanshui, Qianxinan Prefecture, Qiannan Prefecture, and Bijie in the west. It spans longitude 105°15′03″ to 106° 33′44″ east and latitude 25°21′04″ to 26°37′46″ north, with a total length of 142 kilometers from north to south and 133 kilometers from east to west. It has a subtropical monsoon climate and is located in the watershed zone of the Wujiang River basin of the Yangtze River system and the Beipanjiang River basin of the Pearl River system, with rich tourism resources and two 5A-level scenic spots. The gross industrial product in 2019 was 229.851 billion yuan. Coal consumption was the primary energy source in Anshun in 2010 and 2019, with a consumption share of more than 70% and a maximum of 82%. From 181, 195, 730 tons in 2010 to 225, 002, 860 tons in 2016.

Data from the 1999-2018 Guizhou Statistical Yearbook, China Urban Statistical Yearbook, Anshun Municipal Statistical Bulletin and Environmental Bulletin and other data.

2.2. Research Methodology

2.2.1. Construction of an Indicator System

Table 1: Input and output indicators

	norm	Variable Definition	unit (of measure)
Input	principal	Total investment in fixed assets of the whole society	billions
	labor force	Employed persons, end of year	all the people
	land resources	Built-up area	km^2
	renewable energy	Total energy consumption	Tons of standad coal
	water resources	Total water supply	m^3
Expected outputs	GDP	Gross regional product (GDP)	billions
Non-expected outputs	Industrial wastewater	Total industrial wastewater discharge	t
	Industrial SO_2	Total industrial sulfur dioxide emissions	t
	Industrial fumes (dust)	Total industrial fume (dust) emissions	t

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Based on existing research, they are combined with the investigation to solve the problem. The selection of indicators in this paper includes inputs, desired outputs, and non-desired outputs; input indicators also include capital, labor, land resources, energy, and water resources; selected output indicators are expressed in terms of regional GDP, and non-desired output indicators include industrial wastewater, industrial SO2,industrial fume (powder) dust. The specific meaning of each indicator is as follows:

Capital is the total investment in fixed assets of the whole society, in billions of dollars. Labor is the number of employed persons in tens of thousands at the end of the year. Land resources are the built-up area in square kilometers. Energy is the total energy consumption converted to standard coal; the unit is 10,000 tons. Water resources are the entire water supply in cubic meters. See Table 1 for details.

2.2.2. Selection of research methods

Measurement methods of economic development efficiency are mainly parametric and non-parametric, and the non-parametric method is used more often because it has the advantages of not having to establish a functional relationship and allowing for inefficient behaviors. The most representative non-parametric process is DEA, which assesses the efficiency based on the "input-output value," i.e., the comparison between output and input, and it is primarily used in the measurement of traditional efficiency. However, because in urban development, the "output" has good desired outputs and terrible non-desired outputs, the efficient development model obtained by the traditional DEA method may have problems at the cost of the environment. To accurately measure the green development efficiency of Anshun City, this paper draws on the practice of most scholars. It introduces non-expected outputs based on the SBM model proposed by Tone (2001) [17]. Then it draws on the method of Wang Teng (2018) to construct a super-efficient SBM model considering non-expected outputs [18], which is used for comparing the sizes of DMUs with green efficiency values of 1. The formula it is as follows:

$$\min \rho = \frac{1+\frac{1}{m}\sum_{i=1}^{m} s_i^- / x_{i0}}{1-\frac{1}{q_1+q_2}\left(\sum_{r=1}^{q_1} s_r^+ / y_{r0} + \sum_{t=1}^{q_2} s_t^{b-} / b_{t0}\right)} \tag{1}$$

$$\begin{aligned} & s.t. \\ & \sum_{j=1, j\neq j_0}^{n} x_j \lambda_j - s^- \le x_0 (i = 1,\dots,m) \\ & \sum_{j=1, j\neq j_0}^{n} y_j \lambda_j + s^+ \ge y_0 (r = 1,\dots,q_1) \\ & \sum_{j=1, j\neq j_0}^{n} b_j \lambda_j - s^{b-} \le b_0 (t = 1,\dots,q_2) \\ & 1-\frac{1}{q_1+q_2}\left(\sum_{r=1}^{q_1} s_r^+ / y_{r0} + \sum_{t=1}^{q_2} s_t^{b-} / b_{t0}\right) > 0 \\ & \lambda_j, s_i^-, s_r^+, s_t^{b-} \ge 0 (j = 1,\dots,n, j \ne j_0) \end{aligned} \tag{2}$$

Where n is the number of DMUs; j is a particular DMU (j = 1,...,n); m, q_1, q_2 denote the number of inputs, desired outputs, and non-desired outputs; x_j, y_j, b_j are the m-dimensional inputs, q_1 -dimensional desired outputs, and q2-dimensional non-desired outputs variables of the j DMU; x_0, y_0, b_0 are the inputs, desired outputs, and non-desired outputs variables of the particular DMU; s_i^-, s_r^+, s_t^{b-} denote the input, desired output, and non-desired outputs Relaxation quantities; λ_j is the weight vector. $\rho \ge 0$, For a particular DMU, it is efficient when and only when $\rho \ge 1$ is used.

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3. Results and Analysis

3.1. Analysis of Results of Green Development Efficiency Measurement

3.1.1. The Difference in Mean Values of Green Development Efficiency and Conventional Efficiency

The data were measured using the super-efficiency SBM model and CCR model that consider non-desired outputs to compare the magnitude between green development efficiency and conventional efficiency, and the results were obtained as follows in Table 2, the mean value of green development efficiency is 0.3053 smaller than the mean value of traditional efficiency. Table 3 shows the results of the t-test for the Difference of efficiency means; from the results, the Difference of efficiency means is significant at a 1% confidence level and the mean value of green development. Efficiency is significantly smaller than the mean value of traditional efficiency, which indicates that the past development model of Anshun City does have the problem of incoordination of economy, environment, and resources.

Table 2: Comparison table of green development efficiency and traditional efficiency in Anshun City

particular year	Green development efficiency	Traditional efficiency
1999	0.2607	0.9462
2000	0.2649	0.9347
2001	0.2651	0.8475
2002	0.2413	0.742
2003	0.2415	0.6575
2004	0.2622	0.5926
2005	0.2712	0.5389
2006	0.2663	0.4878
2007	0.294	0.5177
2008	0.3413	0.6037
2009	0.3699	0.6802
2010	0.4148	0.6714
2011	0.4673	0.7372
2012	0.5159	0.8018
2013	0.5459	0.8849
2014	0.5607	0.87
2015	0.5963	0.9067
2016	0.8113	0.9787
2017	1.0288	1
2018	1.2755	1
average value	0.4647	0.77

Table 3: Difference in means t-test

variant	Green development efficiency		Traditional efficiency		difference (the result of subtraction)
	Sample size	Mean value of efficiency	Sample size	Mean value of efficiency	Difference in efficiency means
efficiency value	20	0.4647451	20	0.7688604	0.3052153***

Note: *** indicates that the results are significant at the 1% confidence level.

3.1.2. Comparative analysis of the Time Evolution of Green Development Efficiency and Conventional Efficiency

The efficiency values are plotted in Figure 1, from which it can be seen that the conventional efficiency has been above the green development efficiency until it reaches the effective state. The traditional efficiency had a significant continuous decline from 1999-2006, from 0.9462 to 0.4878, a drop of 0.4584, or 48.45%; after 2006, it steadily increased until it reached the effective state in 2017, rising by 0.5122, or 105%. From the raw data, the decline in the value of traditional efficiency before 2006 was due to a decrease in labor inputs and only a slight increase in energy and water inputs; the rise in conventional efficiency after 2006 was due to a continuous increase in all types of resource

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inputs.

The green development efficiency changed very little from 1999 to 2006, fluctuating at the low level of 0.25; from 2006 to 2015, the value of green development efficiency began to rise steadily and slowly, from 0.2663 to 0.5963, an increase of 0.33, or a rise of 123.92%. After 2015, the value of green development efficiency saw a successive surge from 0.5963 to 1.2755, realizing the transformation from a medium to a high level, and 1.2755, realizing the transition from a medium to a high level. From the raw data, the reason is that in 2016, the country introduced the "Outline of Economic Green Development Plan," which put forward to protect the ecological environment vigorously, coupled with the fact that in 2016, the country entered the "13th Five-Year Plan" period, the country's concern for environmental issues is increasingly high. In response to the national call, Anshun City has increased the control of industrial pollutant emissions; industrial emissions of three wastes have dropped significantly, and industrial sulfur dioxide and industrial smoke (dust) emissions have been reduced by more than half. Overall, the efficiency value of green development in Anshun City in the past 20 years has shown a clear upward trend, and the green development measures implemented in the Past has had a significant positive effect, realizing the transformation of green development from ineffective to practical.

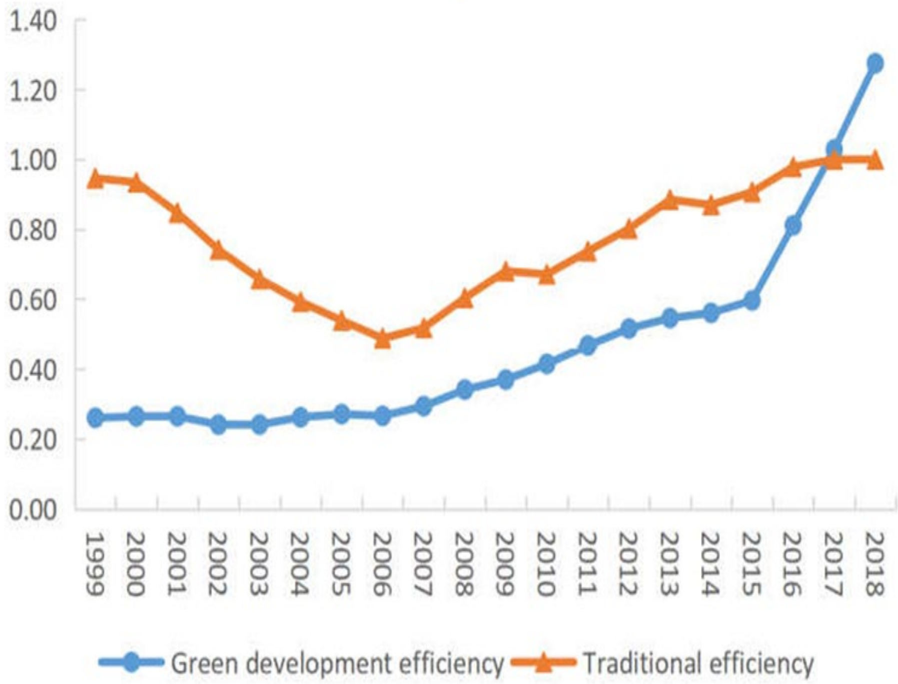

Figure 1: Time evolution of green development efficiency and conventional efficiency

3.2. Input-Output Redundancy Insufficiency Analysis

When the efficiency value of the decision-making unit is less than 1 (inefficient), its input-output indicators have redundancy and insufficiency to explore better the main reasons for the changes in the green efficiency value of Anshun City in each year from the perspective of input-output and to put forward more targeted recommendations; this paper measures the redundancy and insufficiency of input-output. It obtains the results as follows Table 4:

Table1: Input-Output Redundancy and Inadequacy

particular year	Input redundancy					Non-expected output redundancy			egree of shortfall inexpected outputs
	mployed persons, end of year	total investment in fixed assets	Total energy consumption	Total water supply	Built-up area	Industrial sulfur dioxide emissions	Industrial wastewater discharge	Industrial fume (dust) emissions	GDP
1999	-91.31	0.00	-67.10	-80.53	-46.82	-98.50	-98.01	-97.25	5.69
2000	-90.32	0.00	-66.11	-78.42	-46.23	-98.13	-97.68	-96.40	6.99
2001	-87.88	0.00	-61.35	-74.59	-36.01	-97.34	-97.07	-95.50	18.00
2002	-83.72	0.00	-54.54	-65.61	-49.49	-96.46	-96.16	-93.88	34.78
2003	-78.25	0.00	-47.18	-61.26	-35.79	-95.80	-95.16	-92.78	52.09
2004	-70.65	0.00	-34.88	-49.45	-12.26	-94.80	-93.68	-90.33	68.76
2005	-62.71	0.00	-21.79	-35.96	-3.33	-93.86	-92.22	-87.44	85.57
2006	-53.51	0.00	-11.71	-25.50	-6.14	-92.65	-90.43	-83.37	105.01
2007	-48.14	-13.32	-14.18	-12.66	0.00	-91.39	-86.58	-79.45	93.11
2008	-45.83	-27.69	-12.75	-12.27	0.00	-90.05	-85.34	-74.05	65.55
2009	-46.56	-44.81	-19.87	-16.90	0.00	-89.35	-85.04	-63.07	46.81
2010	-35.48	-47.13	-13.16	-9.31	0.00	-86.60	-73.27	-41.54	48.72
2011	-28.48	-46.00	-10.40	0.00	-4.08	-83.52	-59.41	-67.42	33.92
2012	-27.74	-51.92	-11.83	0.00	-1.77	-82.13	-53.14	-65.05	22.70
2013	-29.26	-59.38	-16.61	0.00	-6.47	-81.40	-56.72	-67.41	10.55
2014	-20.44	-60.89	-10.87	0.00	-3.96	-78.04	-53.07	-69.07	12.28
2015	-16.71	-64.73	-10.47	0.00	-6.29	-74.27	-51.34	-64.38	7.29
2016	-12.27	-46.97	-8.34	0.00	-3.93	-31.94	-30.84	-16.68	0.00
2017	0.00	0.00	0.00	3.23	0.35	0.00	2.69	16.77	0.00
2018	5.14	202.13	2.00	0.00	0.00	11.11	0.00	0.00	0.00
average value	-46.21	-13.04	-24.56	-25.96	-13.11	-77.26	-69.62	-66.42	35.89

3.2.1. Chronological Analysis, 1999-2018

From 1999 to 2006, there was a development pattern of "high inputs, high pollution, and low output." Except for capital, all other input indicators had redundancy, and the monotony of industrial emissions was as high as 90 percent, while GDP output shortfalls also rose yearly. The irrational development model and the simultaneous have seriously undermined the quality of economic development. Existence of three problems: waste of resources, environmental pollution, and low economic standards.

From 2007 to 2010, there was a development pattern of "high input, high pollution, high output." Except for land resources, all other resources are overinvested, especially labor and capital, with input redundancy close to 50 percent; the monotony of industrial three-waste emissions and expected output shortfalls still need to be lowered. However, compared with the pre-2006 period, the redundancy of inputs and outputs has declined, so the efficiency of green development has increased, although it is still in the lower middle range.

From 2011 to 2015, there was a development pattern of "high input, high pollution, high output." The redundancy of water resources inputs fell to zero, the monotony of labor and energy inputs dropped significantly, capital inputs still exceeded the reasonable target value, and there was an excess of land resources inputs; industrial emissions of three wastes decreased but were ineffective, and redundancy was still at a high level, and there was a significant drop in the expected output shortfall. The resource utilization rate has improved, but the amount of resource inputs is still higher than a reasonable value, and there is no effective treatment of pollutant emissions, increasing green development efficiency. However, it is still only at a medium level.

From 2016 to 2018, it is the development mode of "low input-low pollution-high output." The value of green efficiency proliferates, the redundancy of resource inputs and non-desired outputs decreases dramatically, the degree of deficiency of desired outcomes falls to 0, and the green development of Anshun City reaches an effective state. This is because of the introduction of the "Outline of Economic Green Development Plan" and the "13th Five-Year Plan" period, the state's concern for ecological issues is increasing, and the Government has been making more efforts to solve the problems of resource waste and environmental pollution.

3.2.2. Analysis of Indicators

Input indicators include the number of employed persons at the end of the year, total investment in

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fixed assets, total energy consumption, total water supply and the built-up area and the redundancy of all five input indicators have a negative average value, a severe waste of resources. Among them, the labor input redundancy is the highest, with an average value of nearly 50%, and the problem of labor surplus is prominent. This is mainly due to the rise in fertility rate, aging, increasing migrant workers, etc. The key challenge to be solved is how to create more jobs and improve the quality of the labor force to increase the employment rate in future development. The redundancy of energy and water inputs is the second highest, with an average value of around 25%. As a major industrial city in southwest China, Anshun consumes many energy and water resources. At the same time, coal is a non-renewable resource, and water resources have a very long regeneration cycle, so over-consumption will inevitably lead to resource depletion, so how to improve the utilization rate of coal and water resources is a problem that needs to be seriously considered in the future development of Anshun City. The average value of capital and land input redundancy is around 13%, which is low compared with the other three input indicators. However, judging from their temporal trends, capital input redundancy was 0 until 2006, increased after 2006, and declined after 2015. It is analyzed that before 2006, because of the low level of economic development, there was not much capital available for investment, so the redundancy was 0. After 2006, to stimulate rapid economic growth, capital investment was increased through the introduction of foreign money, government assistance, and other methods, forming a capital-led growth mode, and the redundancy of capital investment continued to grow until it entered the 13th Five-Year Plan period when the monotony of capital investment increased. The monotony of capital investment has been growing until the "13th Five-Year Plan" period, when it began to decline. The redundancy of land input was high from 1999 to 2004 and was below 10% after 2004. This phenomenon is closely related to the geographical environment of Anshun City because the landscape of Anshun City is primarily hilly and mountainous, with less constructive land. In the early stage of development, a large amount of land can be used, so the land input redundancy is high, and as the economy develops the constructive land. It is decreasing, and the land resources that can be used are also declining, so the land input redundancy is minor in the later stage.

Undesired outputs include industrial sulfur dioxide, industrial wastewater, and industrial smoke (dust) emissions. The redundancy of all three emissions is very high, especially in the early stage of development, with redundancy of nearly 100 percent, much higher than the other two types of indicators. This is mainly because Anshun City is an industrial city, and due to the need for industry to drive the city's rapid economic growth in the early period and the lack of environmental governance and protection, the industrial emissions of the three wastes were too high and were not significantly reduced until 2016.

Desired output, represented by GDP, needed to be improved in Anshun City before 2017. Input redundancy coincided with desired output deficiencies, indicating that Anshun City's economic development before 2017 relied mainly on a large number of resource inputs but was limited by the utilization rate of the resources, which resulted in the level of the economy not being able to reach the reasonable target value.

Comparing the redundancy insufficiency of the three types of indicators horizontally, the mean value of non-desired output redundancy is much higher than the mean value of input redundancy and desired output insufficiency, which indicates that the severe environmental pollution problem is the main reason restricting the improvement of the green efficiency value of Anshun City. Moreover, one of the reasons why the economic level is lower than the reasonable target value is the lower resource utilization rate, so the second focus of improving the green efficiency value should be improving the resource utilization rate. In terms of time, the redundancy and insufficiency of all three indicators show a fluctuating trend of reduction over time, indicating that the problems of resource waste and environmental pollution have been effectively improved. In terms of improvement results, removing non-desired output redundancy is more significant than input redundancy, indicating that ecological pollution treatment's effect is superior to improving resource utilization.

4. Conclusions and Policy Implications

By analyzing the green development level of Anshun City from 1999 to 2018 through the comprehensive application of the super-efficient SBM model with non-expected outputs, the following conclusions are drawn:

(1) An analysis of the green development efficiency and traditional efficiency in Anshun City from 1999 to 2018 found that the green development efficiency was significantly lower than the traditional efficiency, indicating that there was indeed an incoherence among the economy, resources, and

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environment in the past development.

(2) In 1999-2006, the efficiency of green development was very low, with severe problems of resource waste and industrial pollution, and low economic level, which was the development mode of "high input-high pollution-low output." 2006-2015, the efficiency of green development increased steadily, but the absolute value was still low. 2016-2018, the efficiency of green development saw a continuous surge, rising to 113.92% in only three years, and the development mode gradually changed to "low input-low pollution-high output." In 2016-2018, there was a continuous surge in green development efficiency, with an increase of 113.92% in only three years, and green development has reached an effective state from ineffective, and the development mode has gradually transformed into "low-input-low-pollution-high-output." However, overall, the value of green development efficiency in Anshun City in the past 20 years has shown an apparent upward trend, indicating that implementing green development measures has a significant positive effect, realizing the transformation of green development from ineffective to practical.

(3) The time series trend analysis of the green development efficiency results using EVIEWS reveals that the value of green development efficiency shows a clear upward trend with an increasing rate of increase. The smoothed data after first-order differencing is regressed using the MA (3) model and predicts that the green development efficiency will continue to rise in 2019, reaching more than 1.4.

(4) Through the analysis of input-output redundancy insufficiency degree, it is found that in the past, Anshun City had severe problems of resource wastage and environmental pollution, in which the high industrial three-waste emission is the main reason restricting the improvement of the efficiency of green development, followed by the excessive resource input. Over time, the above problems have been effectively improved, and the improvement results show that the effect of environmental pollution control is better than the effect of resource utilization enhancement.

In response to the findings of the study, and conjunction with the current development situation of Anshun City, the following policy insights are proposed for its future green development:

(5) Vigorously develop clean energy and change the energy consumption structure. The Government and relevant departments have formulated applicable incentive policies and adopted a combination of government subsidies and social capital to invest in the development of clean energy, such as wind, water, and solar power, to increase the proportion of clean energy utilization and reduce the ratio of coal consumption.

(6) Further, reduce industrial pollution emissions so that high-tech industries become a new growth pole. Excessive industrial pollutant emissions are a considerable difficulty Anshun City faces in the process of green development; However, in recent years, industrial emissions of three wastes have been reduced, from the point of view of the absolute value of emissions, industrial emissions of three wastes in Anshun City are still ranked more ahead of Guizhou Province. In the future development, there is a need to reduce further the emission of industrial pollutants, which can be achieved through the introduction of new technologies, new equipment to reduce the output of pollutants, through industrial optimization and upgrading and industrial transformation, change the situation of industrial push economic growth, so that high-tech industries become a new pole of economic growth, and achieve sustainable economic development.

(7) Rational use of natural resources and solving the problem of labor surplus. Energy, water, and labor are the most seriously wasted resources regarding input redundancy. In the future, it is necessary to improve the efficiency of natural resource utilization through more effective production technology. Against the background of an aging population and an increasing number of migrant workers, it is necessary to solve the problem of excess labor resources by increasing the number of jobs, upgrading the quality of the labor force (e.g., offering adult education classes, intensive training courses before starting particular assignments, etc.), and strengthening the welfare protection for retired people.

(8) At present, Anshun City's green development efficiency is high and has reached an effective state, and the city's development shows a good trend. It is necessary to seize the vital opportunity of "Guiyang-Zunyi-Anshun Economic Circle" and Guiyang City and the neighboring towns to improve the cooperation mechanism, form complementary advantages, and make itself into a benchmark of economic development with the influence of the province and even an important power source of the national economic high-quality development.

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