

The Major Challenges and Strategies for the Development of Green Economy in China's Mountain Regions Based on the Theory of Comparative Advantage

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Abstract Based on the theory of comparative advantage, this paper analyzes the major challenges facing the development of green economy in China's mountain regions. The results show that in the development of green economy, the mountain regions have factor endowment and development conditions with comparative advantage, but they are also facing more challenges. In the future, the mountain regions need to make favorable development measures based on their own comparative advantages from the following four aspects: at the top design level, it is necessary to ensure green development through institutional innovation; at the regional level, it is necessary to lead green development through the differentiation strategy; at the industrial level, it is necessary to support green development through transformation and innovation; at the social level, it is necessary to focus on protecting vulnerable groups and give full play to the role of women to promote sharing of green development achievements.

Key words Green economy, Mountain regions, Economic development, Comparative advantage

1 Introduction

The area of China's mountain regions accounts for two-thirds of the country's total land area^[1]. Since the reform and opening up, the economy in the mountain regions has gained rapid development by following a low-level industrial transfer, but due to some problems such as slow population growth, increasing aging population, shortage of resources, environmental degradation and rising costs of labor and resources, the traditional mode of development in the mountain regions has been difficult to exist, and there is an urgent need to develop green economy.

The mountain regions have factor endowment and location conditions with comparative advantage such as biological resources, tourism resources, green energy resources, human resources, market resources and development opportunities, which can ensure the development of green economy in the mountain regions.

By analyzing the main challenges facing the development of green economy in the mountain regions as well as the comparative advantages, this paper makes the recommendations for the development of green economy in the mountain regions, to provide a reference for the sustainable economic development of China's mountain regions.

2 Challenges

2.1 Small economic aggregate The small economy has always been a major bottleneck in the economic development for China's

mountain regions, and also a major challenge facing the green economy of the mountain regions. Due to small economy, the economic development of the mountain regions is difficult to avoid the formula of "treatment after pollution" once adopted by developed countries. In the first phase of economic development, a number of state-owned enterprises are usually introduced and the township enterprises are vigorously developed.

At the second stage, the foreign investment is vigorously attracted and the export-oriented economy is developed. At the third stage, the strategic emerging industries are vigorously developed, and both the scale and speed of development are emphasized. Due to small economy and insufficient fiscal revenue, there is inadequate investment in R&D, and the economic development transition from quantity to quality will be very difficult.

2.2 Low industrial level Over the years, the mountain regions rely on low labor costs and low resource prices to undertake the transfer of a large number of low-level industries. From the structure of three industries, the proportion of the primary industry is declining, but the proportion of heavy industry in the secondary industry is too large, and the structural problems of the tertiary industry are very prominent.

From the industry point of view, the primary industry of the mountain regions is restricted by unsound environmental infrastructure construction and agricultural non-point source pollution, and the agricultural development is seriously blocked^[2].

Since China is still in the early and middle period of industrialization and urbanization, the strong demand for steel, chemicals, cement, manufacturing and other secondary industries will continue for 10–15 years^[3], which makes some mountain regions constantly eliminate the traditional industry and some other mountain regions introduce traditional industries again.

2.3 Insufficient innovation support First of all, the growth of innovative enterprises in mountainous areas is inadequate. In the mountain regions, there is a shortage of high-tech industry enterprises and small and medium-sized science and technology enterprises.

Secondly, it lacks independent intellectual property rights. The number of patent applications or number of licenses is on the rise in the mountain regions, but the applications of patent of invention are rare.

Thirdly, it lacks innovative talents. The colleges and universities are rare in the mountain regions, there is a serious shortage of scientific and technological innovation resources as well as innovation-oriented talents, and most of enterprises in the mountain regions seriously lack high-level leading talents.

2.4 Resource price and value distortion The value of land, water, minerals and other elements in the mountain regions is seriously underestimated, and the social costs caused by environmental damage are free from production costs and production earnings.

Compared with the traditional model of economic development, the green economic development model has the obvious advantage of low resources and the environment costs of green economy full life cycle, but the competitive advantage of green production is not fully played, seriously affecting the development of green economy in the mountain regions.

3 Comparative advantage analysis of developing green economy in the mountain regions

3.1 Theory of comparative advantage The theory of comparative advantage first appeared in *Political Economy and Taxation Principle* of David Ricardo in 1817. The theory of comparative advantage is an economic theory about the work gains from trade for individuals, firms, or nations that arise from differences in their factor endowments or technological progress.

The closely related law or principle of comparative advantage holds that under free trade, an agent will produce more of and consume less of a good for which they have a comparative advantage^[4]. The theory of comparative advantage plays an important role in the study of international trade, and later increasingly becomes the theoretical basis of regional economic development.

For the mountain regions with wide coverage and low level of economic development, the economic development emphasizing comparative advantage has more important theoretical value and far-reaching practical significance.

3.2 Green resource advantages of the mountain regions

The mountain regions have biological resources, tourism resources, green energy resources and other green resources. With good biological resources, the unique biological resources of the mountain regions are a major comparative advantage of developing green economy in the mountain regions.

In terms of the advantages of tourism resources, it is cool in summer and warm in winter in the mountain regions, so they are natural resort for people to go away for summer holidays. The mountain regions with well-preserved ecology are natural resources

for ecological tourism, with a natural comparative advantage. The mountain regions with rich cultural heritage are the scarce resources for humanities and ecological tourism.

In terms of green energy resources advantages, in general, the mountain regions have a lot of rivers with concentrated water fall, which are easy to develop, thus having good prospects for hydropower development, so they can be developed into the base sending electricity from west to east. It is always windy in the mountain regions, so there is good wind power development prospect. These regions can build large wind power station.

3.3 Human resources advantages On the one hand, the mountain regions create a large number of students for the colleges and universities across the country each year. The mountain regions can develop various preferential policies and measures to encourage them to contribute to the construction of their hometown.

In recent years, to speed up the pace of development of the mountain regions, the local and provincial governments link the provincial departments with poor towns in the mountain regions, and link economically developed cities and counties with the towns in the mountain regions for poverty alleviation.

The deputy magistrate is sent to take a temporary post in the mountain regions, and excellent teachers are also selected to give assistance to improve schooling in the mountain regions, support the construction of the mountain regions and help the mountain regions to cultivate talents in mountainous areas.

3.4 Market resources advantages In terms of the market resources, the mountain regions are a big market to be developed. Previously, there was sluggish development in traffic, water conservancy, communications, education, culture, health care, tourism, housing and other aspects in the mountain regions, and the market development was slow.

With the economic development, the mountain regions usher in the policy of all-round support, and due to the natural low-cost advantage in production factors of the mountain regions, the mountain regions have broad market development space, and there is a huge business opportunity and development potential.

3.5 Development opportunities advantages The development strategy of the central and western regions, precision poverty alleviation and other policies bring new opportunities for mountainous development.

Great urban industrial structure adjustment pressure and difficult urban employment issues attract the attention of a large number of people in city to the mountain regions; some come to the mountain regions to rent land and some vigorously develop farming and breeding industry, which not only brings funding for the mountains, but also brings more and more information and technologies, policy preferences and development prospects for the mountain regions to boost the development of the mountain regions.

4 Recommendations

4.1 Strengthening institutional innovation to ensure green development from the top level design Firstly, we must establish

lish green values, and change the unsustainable development model at the expense of environmental and social harmony only focusing on GDP.

Secondly, it is necessary to change the role of government, further clarify the government's service functions, reduce government intervention in the market and companies, and establish government supervision and accountability system to improve the efficiency of government operation.

Finally, it is necessary to establish an innovative institutional mechanism. There is a need to innovate upon the elimination mechanism of lagged output capacity, ecological compensation mechanism, resource protection mechanism, compensation mechanism and incentive mechanism.

4.2 Leading the green development through the differentiation strategy at the regional level On the one hand, we should give full play to and explore the comparative advantages of the mountain regions in biological resources, tourism resources, green energy resources, human resources and market resources, so as to become the unique competitive advantages of the mountain regions and develop them into corresponding characteristic industries.

On the other hand, it is necessary to improve green transformation compensation mechanism for the resource-exhausted mountain regions. For resource-exhausted mountainous areas, there is a need to improve the green transformation compensation mechanism, promote the reasonable compensation paid by the resources use areas directly for resource exploitation areas, and at the same time, the state finance should give the necessary supplement.

4.3 Supporting the green development through transformation and innovation at the industrial level In terms of agriculture, it is necessary to vigorously develop green agriculture. It is necessary to transform the agricultural development policy only emphasizing yield to the agricultural development policy only emphasizing quality through technological innovation, to achieve agricultural ecological security, resource security, environmental safety and agricultural product safety.

Finally, it is necessary to promote green agriculture development through the innovation of agricultural management system. In

terms of industry, we should speed up the construction of green industrial system, vigorously promote the construction of green industrial park, vigorously develop strategic new industries, and accelerate the transformation and upgrading of traditional industries.

In the case of the green finance industry, it is necessary to vigorously promote the construction of the green credit system, increase the credit support for the environment-friendly projects, strengthen the financial support for the new energy industry and green leading enterprises in the mountain regions, and at the same time, quit the loans which do not meet the national green credit requirements.

4.4 Focusing on the protection of vulnerable groups and giving full play to the role of women at the social level By increasing employment opportunities, increasing financial transfers and increasing direct subsidies, it is necessary to adopt many ways to increase support for the vulnerable groups in the mountain regions to promote the sharing of development results.

This is the fastest policy arrangement for poverty reduction and economic development in the mountain regions. It is necessary to give full play to the role of women in supporting green economic development, broaden women's work areas, raise women's job opportunities, liberate women from traditional green areas such as environmental protection and craftsmanship, encourage them to participate in non-traditional areas, especially in some high-tech areas, to promote sharing of green development results.

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(From page 3)

been significantly improved. Affected by resource constraints, new technology promotion, product upgrade and other factors, the value-added is increased, the market demand will be more vigorous, and the price will rise steadily.

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