

Research on the Impact of Digital Economy Development on Carbon Emissions

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Abstract: After the “30 · 60” dual-carbon target was put forward, low-carbon development has become the focus of attention in China. Reducing carbon dioxide emissions is not only conducive to the country building an environment-friendly society, but also conducive to high-quality economic development. In order to alleviate the pressure of carbon emission reduction in China, it is undoubtedly an effective way to stimulate the inhibitory effect of digital economy development on carbon emissions. In this paper, the panel data from 30 provinces in China from 2011 to 2019 were selected as a research sample. First, descriptive statistics are made on the current situation of digital economy and carbon emissions in China, so as to explain the impact of the development level of digital economy on carbon emissions.

1. Introduction

As carbon dioxide emissions continue to rise, extreme phenomena such as faster melting of glaciers, rising sea levels and the polarization of droughts and floods are occurring all over the world. In the increasingly serious global climate problem, all sectors of society have reached a consensus on promoting low-carbon development. As the largest developing country in the world, China's traditional energy is still the mainstay of China's economic development, and most of the environmental and energy problems need to be dealt with. However, there is still a big gap between our country and developed countries in science and technology level, so the task of reducing carbon dioxide emissions is very difficult. In the context of protecting the environment and reducing carbon emissions has become a global consensus, China has the responsibility and obligation to make its own contribution. Our government has been actively dealing with the problem of excessive carbon dioxide emissions.

2. Development of Digital Economy and Regional Carbon Emissions

2.1 Development Status of China's Digital Economy

Although digital-related technologies are extremely complex, they have developed rapidly in recent years, which makes the characteristics of variability and complexity reflected in the digital economy itself. As countries pay more attention to digital economy, digital technology has been further developed and widely used in various fields. It is precisely because of this that the potential of the digital economy has been further stimulated and has greater room for development. Compared with other industries, relevant industries in the field of digital economy are undoubtedly an emerging new industrial model. At present, countries not only regard it as an important power point to promote economic development, but also it is slowly affecting the relationship among individuals, enterprises and society.

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In general, China's supporting policies in the digital economy initially focused on promoting information construction and supporting the development of digital economy. At the national level, a series of provincial and municipal policies have been released at the provinces and cities. All of these policies reflect the great importance China attaches to the digital economy, and also show that the development of digital economy has risen to China's national strategic height.

After years of accumulation, there are abundant researches on digital economy and carbon emission. However, when the two are combined, there is still a certain gap in the number of relevant studies. There are still insufficient studies on the interaction between the development level of digital economy and regional carbon emission in our country. Whether the carbon emission reduction pressure can be alleviated by improving the level of digital economy development remains to be further explored.

2.2 Current Status of Regional Carbon Emissions

China's regional carbon emissions show a line that is rising year by year, indicating that our regional carbon emissions are rising year by year. Moreover, in order to enhance the national strength, the speed of economic development is faster and faster. However, the relationship between economic development and environmental protection has not been properly handled in the process of economic development, which not only consumes a lot of energy, but also pollutes the environment. As a result, it is the world's largest carbon emitter. Fortunately, after China's economic level reached a certain level, the national government began to transform China's energy structure and economic development mode, which reduced the demand for fossil energy and significantly slowed down the growth rate of China's regional carbon emissions. Then it promoted the development of carbon emission reduction.

However, as China is the largest developing country in the world, the consumption of traditional fossil energy is still in a leading position in the economic development factors, followed by a series of environmental pollution problems, especially the pressure on carbon reduction. Therefore, promoting the realization of carbon peak, carbon neutral and strategic goals has become the primary task of China. To further optimize China's energy structure and to promote China's economy to a higher quality of development, China will continue to make efforts to achieve this goal, this is the responsibility of a great country.

China's economic development speed is very fast, but the economic growth mode is still extensive. This also leads to our demand for energy is still increasing, carbon emission reduction situation is very serious. Therefore, strengthening the research on carbon emission related fields has the practical significance for understanding our energy consumption structure and rules, but also for our development of low carbon economy and promote energy conservation and emission reduction put forward the countermeasures and effective suggestions. Therefore, how to guide the development of digital economy and promote the cause of regional carbon reduction has become a topic that the academic circle pays close attention to. With the continuous introduction and improvement of Chinese carbon emission related policy, its growth rate will slow down more and more. Therefore, it is urgent to further optimize our energy structure and promote the development of our economy to a higher quality. Our country will also constantly put into efforts to achieve this goal, which is a big country.

3. Conclusions and Countermeasures and Suggestions

3.1 Research Conclusions

In the context of the dual-carbon target era, this paper selects panel data of Chinese provinces in the past nine years as research samples. The results of this paper show that there is a significant positive correlation between the digital economy level and regional carbon emissions. The author

guesses that there may be two reasons. On the one hand, the development and utilization of energy of our country has provided support for the development of digital economy. On the other hand, the development of our digital economy and the cause of carbon reduction are not deeply integrated. In view of this, the development of the digital economy may lead to an increase in carbon emissions rather than carbon reduction. In the context of double carbon goal, carbon reduction is an important mission of our country. Our country should plan digital economy and carbon emission reduction, promote the deep integration of digital revolution and energy revolution, and stimulate the restraining effect of digital economic development on regional carbon emission, so as to provide an effective way for our country to realize the double carbon goal.

3.2 Countermeasures and Suggestions

3.2.1 Break Down Data Barriers and Promote the Convergence and Integration of Energy Big Data

This shows that while promoting the development of digital economy, it will also increase the pressure of carbon emission reduction under the double carbon strategy. Therefore, China should make efforts to break through data barriers and promote the collection and integration of energy big data. On the one hand, the development of data sharing can be promoted by issuing relevant control policies and establishing consistent norms. On the other hand, planning needs to be developed within energy companies to facilitate data sharing among different business units. Therefore, the relevant energy industry data can be standardized management, improving the construction of relevant normative laws and promoting data sharing among energy enterprises.

3.2.2 Guiding Green Innovation through the Development of the Digital Economy

With the continuous improvement of the development level of digital economy, our country can fully use the digital platform to optimize the allocation of relevant resources, guide financial resources to those environment-friendly energy enterprises and have the potential of green innovation, provide strong financial support for the research and development of energy technology, improve the level of energy development and utilization. Thus, a good cycle of two-way promotion between the development of digital economy and the development of carbon emission reduction can be realized, and the deep integration of digital revolution and energy revolution can be further promoted. In addition, all regions should seize the opportunity, actively respond to the national call, and adhere to the implementation of the national strategy of innovation-driven development. We should also pay attention to innovation education, cultivate innovative talents, stimulate the potential of green innovation, provide good external conditions for green innovation, and then stimulate the promoting effect of the development of digital economy on carbon emission reduction, so as to provide an endless power for the realization of the double carbon goal.

3.2.3 Promote the Deep Integration of the Energy Revolution and the Digital Revolution

Through the previous analysis, we know that the traditional way of economic development of our country is too dependent on energy consumption, which brings a series of energy problems and environmental problems. Therefore, on the one hand, we can comprehensively utilize a series of digital technologies to optimize our energy consumption structure, transform our economic development mode, and push our economy towards the direction of high quality and high level. On the other hand, digital plays a strong role in promoting information dissemination. Therefore, we can also spread the new energy consumption concept to the public and energy enterprises through the construction of relevant Internet platforms. This can not only enable the public to live a low-carbon life in daily life, but also improve the energy utilization efficiency of energy enterprises and reduce carbon dioxide emissions. This promotes our carbon reduction project to advance, help the realization of double carbon goal.

4. Conclusion

The research results found that there is a positive correlation between digital economy

development and regional carbon emissions in China. On the one hand, on the one hand, the development of digital economy itself has led to energy consumption and increased carbon emissions; on the other hand, it may be because the development of digital economy and carbon emission reduction are not deeply integrated, resulting in the development of digital economy does not drive the development of carbon emission reduction, but will increase carbon emissions. Therefore, this paper presents a series of valid suggestions. It will also stimulate the inhibitory effect of the digital economy on carbon emissions, and help to achieve the “30 · 60” dual-carbon strategic goal.

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