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GLOBAL ECONOMIC DECOUPLING: CASE OF CHINA

Abstract

The relationship between economic growth and economic decoupling has always been the focus of academic attention. The achievements of China's economy in the past 30 years have attracted worldwide attention, but with the rapid growth of the total economic volume, it has also paid a huge price in terms of resources and the environment. This paper discusses China's economic decoupling against the background of globalization based on the review of scientific literature from the perspective of the decoupling of economic growth and resources and environment, combined with the decoupling theory from the perspectives of energy, environment, resource efficiency and economic and industrial remodeling. Temporal and spatial evolution trends of decoupling develop-

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ment in the case of China are considered. The world is changing, and the way and form of China's integration into the world is also changing with science. Current environment of geopolitical tension between Russia and the United States affect how China can grasp the new trend of globalization, play the pivotal role of the «Belt and Road» in global production networks, and actively respond to the demand of global industry in this turbulent era. This necessitates a re-formulation and evaluation of China's economic development experience and related policy measures based on decoupling development of the global economy.

Key Words:

decoupling theory; circular economy; economic development; analysis and research; China's plan.

JEL: O13, Q50, Q56, Q58.

2 figures, 27 references.

Literature Review and Problem Statement

The results of long-term observation and comparative studies show that the rapid growth of population and the continuous strengthening of human economic and social activities have a decisive impact on the increase of atmospheric CO2 concentration and global warming (Houghton, 1996; Soytasa et al., 2007). Among them, the carbon emissions caused by economic activities, especially the traditional energy consumption mainly based on fossil fuels, have become the main anthropogenic cause of climate warming (Intergovernmental Panel on Climate Change, 2007). Therefore, the relationship between economic growth and energy carbon emissions has always been the focus of academic attention. At present, existing studies mainly focus on the overall relationship between economic growth and carbon emissions (Chen et al., 2010; Liu & Chen, 2009), such as cointegration, causality, EKC curve relationship, and the main factors affecting carbon emissions in the process of economic development and their effects

(Zhang, 2003; Zhu et al., 2009). The above research provides important theoretical inspiration for low-carbon economy and low-carbon urban planning based on carbon emission reduction, but most of the existing research focuses on exploring the relationship between economic growth and carbon emissions in a certain period in the past and their related factors. On this basis, regulation policies and measures are proposed to block this correlation, that is, an attempt is made to transform the two from synchronous coupling development to asynchronous coupling rupture (Zhong et al., 2010). There is a lack of research on how to measure and evaluate the blocking effect and development trend of the link between economic growth and carbon emissions.

The decoupling theory is a basic theory proposed by the Organization for Economic Cooperation and Development (2002) to describe the blocking of the link between economic growth and resource consumption or environmental pollution. This means that economic growth can be decoupled from resource consumption or environmental pollution, so as to realize the decoupling of the two. As a measure of the coupling and rupture relationship between human activities (driving force) and resource and environmental pressure, decoupling analysis has become a new hot field in academia in recent years. Scholars at home and abroad have carried out evaluations on environmental pollution and economy (OECD, 2002), transportation and economy (Tapio, 2005), energy consumption and economy (Ayres et al., 2003), cultivated land occupation and economy (Song et al., 2009), circular economy (Deng & Duan, 2004), and ecological economic development (Zhou et al., 2007) and other aspects of decoupling research. In terms of carbon emission and economic decoupling, Taiwan scholars Jianming Li et al. (2005) conducted research on the decoupling index of carbon dioxide emissions and economic growth in Taiwan; Guiyang Zhuang (2007) used the Tapio decoupling index to analyze the global 20 greenhouse gas emissions including China. The decoupling characteristics of major powers in different periods were analyzed; Li and Qing (2010) conducted a decoupling analysis on the relationship between the industrial added value of Shanxi's industrial sector, its energy consumption input and carbon dioxide emissions, and concluded that it is one of the pillar industries of the province's national economy and shows an expanding link between GDP and energy input and carbon dioxide emissions.

In general, the current research on decoupling is still in the theoretical stage, and there is a lack of empirical research on the application of decoupling theory, especially in terms of China's economic growth and energy. Based on existing research, this paper attempts to explore the decoupling relationship and degree of China's economic growth and energy by constructing a decoupling analysis model and analyze the time and space evolution trends of the decoupling development so as to provide a measure. The dynamic analysis model for monitoring and forecasting the degree of decoupling between China's economic growth and coordinated energy development provides a theoretical reference for the formulation and evaluation of China's economic development and related policy measures based on the decoupling development of the global economy.

Decoupling: definition and theoretical overview

«Decoupling» originated in the field of physics as the mutual relationship between two or more physical quantities where a response relationship no longer exists (Li et al., 2008). At the end of the 20th century, the OECD introduced the concept of decoupling into agricultural policy research, and gradually expanded it to the environment and other fields (Chen & Du, 2006). Experts in the field of OECD environmental research define decoupling as breaking the link between economic growth and environmental shocks or making the two change out of sync (OECD, 2002). Usually, according to the Environmental Kuznets Curve (EKC) hypothesis, economic growth generally brings about an increase in environmental pressure and resource consumption, but when some effective policies and new technologies are adopted, it may lead to lower environmental pressures in exchange for the same or even faster economic growth with resource consumption; this process is called decoupling (Song et al., 2009), which is generally expressed as an inverted U-shaped curve relationship. Decoupling research ideas are widely used in the environmental field. The design of decoupling indicators is based on the driving force-pressure-state-impact-response framework (DPSIR), which mainly reflects the relationship between the first two, that is, changes in the elasticity of growth during the same period as stress (e.g., environmental pollution) (OECD, 2002).

The OECD divides decoupling into absolute decoupling and relative decoupling. Absolute decoupling refers to the environmental variables related to it remaining stable or declining while the economy is developing, also known as strong decoupling; relative decoupling refers to changes in both economic development indicators and environmental damage indicators, but the ratio of changes in environmental damage indicators is lower than that of economic development. The situation where the rate of change of environmental variables are all positive but the rate of change of environmental variables is smaller than the economic growth rate is also called weak decoupling (OECD, 2002).

In recent years, decoupling theory has been widely used in the relationship between economic growth and environmental quality. Decoupling theory holds that when the economic development of a country or a region does not come at the expense of environmental degradation, that is, its resource utilization and pressure on the environment do not increase with economic development, it is called a decoupling relationship; otherwise, it is called a coupling relationship. We conclude that, according to the current situation of global economic development, there will be relatively few cases of absolute decoupling, mainly because the prerequisite for absolute decoupling is that the production efficiency of resources exceeds the economic growth rate.

The aim of the article is a deep analysis of the global economic decoupling in the case of China.

Methodology

This paper intends to use the decoupling theory to analyze the relationship between China's economic development and energy, environmental pollution, and resources. First, through data collection, the development trends between China's economic development and energy consumption variables, environmental pollution variables and resource consumption variables are obtained. Second, the decoupling coefficients of China's economic development and energy consumption variables, environmental pollution variables and resource consumption variables are obtained from the formula $DIt=\Delta Pt \div \Delta Pt$. Finally, through the value of the decoupling coefficient and its development trend, a brief overview of China's green economy development is obtained.

When $DIt \geq 1$, the growth rate of resource consumption or pollutant emission is not lower than the economic growth rate, showing a coupling relationship. In the fully coupled stage, the higher the decoupling coefficient, the higher the dependence of economic development on resources and the greater the damage to the environment. When $0<DIt<1$, the growth rate of resource consumption or pollutant emission is lower than the economic growth rate, which constitutes a relative decoupling relationship, representing relatively efficient resource use efficiency or relatively low degree of environmental damage. When $DIt \leq 0$, the increase in resource consumption or pollutant discharge is less than 0, which constitutes an absolute decoupling relationship, which means that resource consumption or pollutant discharge decreases along with economic growth.

Research Results

Application of the economic decoupling theory in the world today

Decoupling theory and its impact on circular economy

The decoupling theory was first put forward by German scholars and is widely used in Western countries, especially European countries. *Decoupling* means that in the process of industrial development, the total amount of material consumption grows with the growth of the total economic volume at the beginning of industrialization, but will reversely change at a specific stage later, so as to realize the rapid development of economic growth at the same time as material consumption decreases. There are two main evaluation models for mainstream decoupling theory research: (1) research on the relationship between total material consumption and total economic growth; (2) research on the IU curve of material consumption intensity (Yin & Xiao, 2002). The basic idea of the de-

coupling theory and model is to reveal the relationship between economic growth and the pressure of economic growth on the environment.

Inspired by the theory of decoupling, scientists of the Roman Club formally proposed the goal of quadrupling the global resource revolution in 1995, pointing out that technological progress can be used to reduce the use of resources by half while increasing social welfare by a factor of two, so as to finally ensure that the quality of the environment is not worse than it is now while the economy is growing. The OECD Environment Ministers Meeting in 1996 and the UN's *Sustainable Development Strategy* outline in 1997 both accepted the concept of «quadruple». The quadruple revolution has been promoted as a government program.

Among the three basic principles of reduction, reuse, and recycling that circular economy follows, the first is the reduced use of materials. Therefore, the decoupling theory is an important factor in circular economy and has a profound impact on its development. The initial establishment of the decoupling theory makes people believe that material consumption will eventually continue to decrease, and the future of material resource security and environmental pollution pressure will be more optimistic. The development of circular economy reflects the need to realize the harmonious development of global society, economy and environment

Through literature analysis, it is understood that the traditional economic development method entails achieving economic growth by continuously turning resources into waste, ignoring the organic connection and symbiotic relationship between various industries within the economic structure, ignoring the social and economic system and natural ecology. The laws of transmission, migration and circulation of material energy and information between systems have led to the shortage and depletion of many natural resources, causing major damage to the economy, society and human health. Circular economy is based on the principle of coordinating the relationship between man and nature, simulating the operation mode and law of the natural ecosystem to realize the sustainable use of resources. At the same time, circular economy also lengthens the production chain, promotes the development of the environmental protection industry and other new industries, increases employment opportunities, and promotes social progress. At present, in the export-oriented economy, a company must obtain a «green» pass including energy-saving product certification, energy efficiency and other signs before entering the international market; this requires the international community to develop a circular economy. Only on the basis of the development of circular economy can coordinated development of economy, society and environment be realized.

China's circular economy development and application model based on the decoupling theory

At present, the economic development zones in some areas of China adopt the strategy of increasing materialization to a certain extent to achieve rapid economic development, but their material resources are limited, and the

material consumption will be very large, causing environmental pollution. The material reduction model requires achieving the development goal of eco-economic efficiency and low-carbon development. At the current development speed of China, a circular economy development model is suitable for China's national conditions, so the C (China) model is proposed. Model C is also known as the 1.5-2 Development Strategy, that is, while China will quadruple its economic output by 2020, it will allow resource consumption and pollution generation (pollution emissions need to be strictly controlled) to increase by a maximum of about 1.5 times. In exchange for 2 times the consumption of natural capital, 4 times the economic growth and corresponding social welfare will emerge. This model will give China's GDP growth a buffer stage of about 15 to 20 years. After 15 to 20 years of economic growth mode adjustment, it will eventually reach a stage of relative dematerialization, that is, achieve the shift from relative to absolute decoupling.

Based on this, starting from specific conditions, we can gradually adjust the existing industrial structure, take the decoupling theory as the theoretical framework, and incorporate the goal of building a circular economy into the general framework of economic development through the development of a dematerialized economy. Among them, to achieve better economic and social development effects with less resource consumption and waste discharge (especially various solid wastes). In 20-50 years, on the basis of ensuring rapid economic development, it will be realized in three stages towards 1.5 to 2 times the ecological efficiency increase. The goal of the first stage would be to strive for the overall growth rate of resource consumption and pollution emissions to be less than the rate of economic growth. According to industrial restructuring and resource reduction standards, an eco-industrial park is established using the principle of recycling to minimize waste discharge and conserve and utilize resources. The stable stage of circular economy development would follow. On the one hand, through industrial transformation, high-tech manufacturing and knowledge-based tertiary industries would be led to promote economic growth, and on the other hand, resource consumption and solid waste would show zero growth while achieving economic growth. Additionally, the promotion of circular economy development would combine continuing to promote economic and social development and significant reductions in resource consumption and pollution emissions, and achieve an ecological and economic efficiency of 1.5-2 times (Wang, 2006).

General analysis of China's economic development in the context of decoupling of globalized economy

Decoupling analysis of China's economic development and energy consumption

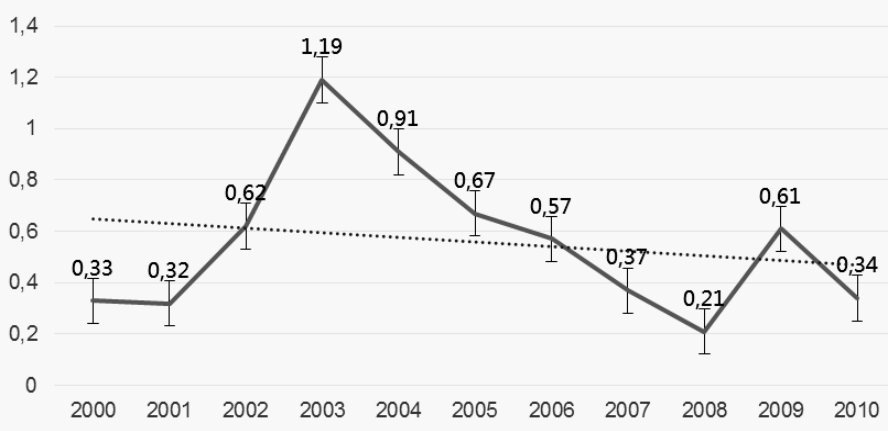
In the decoupling analysis of China's economic development and energy consumption, the GDP is used as an indicator of economic development, and the total annual energy consumption is used as an indicator of energy consumption.

The data comes from the *China Statistical Yearbook (1999-2011)*. From 1999 to 2010, Chinese national economy grew rapidly, from 8,967.71 billion yuan in 1999 to 4,012.02 billion yuan in 2010, an increase of 3.5 times; the total energy consumption also showed a trend of increasing year by year, but its growth rate was slow. In terms of GDP growth rate, the growth rate was 135%.

The decoupling coefficient of China's GDP and total energy consumption is obtained from the formula $DIt=\Delta Pt \div \Delta Pt$, as shown in Figure 1.

Figure 1

Decoupling coefficient plot of China's GDP and total energy consumption



It can be seen from Figure 1 that from 2000 to 2010, except for 2003, the decoupling coefficient between China's GDP and energy consumption ranged from 0 to 1, and its development trend can be roughly divided into three stages. The first stage was from 2000 to 2003, during which the decoupling coefficient between China's GDP and total energy consumption increased year by year: from 0.33 to 1.19. In 2003, $DI>1$, GDP and energy consumption formed a coupling relationship. From 2003 to 2008, the decoupling coefficient between China's GDP and total energy consumption showed a decreasing trend year by year, from 1.19 in 2003 to 0.21 in 2008. After 2008, the decoupling coefficient between China's GDP and total energy consumption showed a shocking trend, but all below 1.

Looking at the decoupling coefficient of GDP and total energy consumption in the past 10 years, there is a relative decoupling relationship between the two, indicating that between 2000 and 2010, China's energy use efficiency has improved to a certain extent, and the growth rate of Chinese energy consumption is lower than that of domestic energy consumption. In 2003, the decoupling coefficient between China's GDP and total energy consumption was greater than 1, which was closely related to the new and expanded steel projects in coastal areas that year.

Decoupling analysis of China's economic development and environment

In the decoupling analysis of China's economic development and environment, the GDP is still used as the indicator of economic success, and the emission of chemical oxygen demand and sulfur dioxide is used as the environmental indicator. Chemical oxygen demand (COD) is the amount of oxidant consumed when a certain strong oxidant is used to treat a water sample under certain conditions. COD is an important indicator of the organic pollution of water body, which can reflect the overall pollution of water body. The greater the chemical oxygen demand, the more serious the water pollution by organic matter. Sulfur dioxide is an important indicator for detecting air quality. In the atmosphere, sulfur dioxide will oxidize to form sulfuric acid mist or sulfate aerosol, which is an important precursor for environmental acidification. When the concentration of sulfur dioxide in the atmosphere is above 0.5ppm, it has potential effects on the human body; when it is 1-3ppm, most people begin to feel irritation; when it is 400-500ppm, people will experience ulcers and pulmonary edema until death by suffocation. Sulfur dioxide has a synergistic effect with soot in the atmosphere. When the concentration of sulfur dioxide in the atmosphere is 0.21ppm and the concentration of soot is greater than 0.3mg/1L, the incidence of respiratory diseases will increase, and the condition of patients with chronic diseases will deteriorate rapidly.

According to the *China Statistical Yearbook (2003-2011)*, from 2002 to 2010, Chinese chemical oxygen demand emissions remained relatively balanced; especially during China's Eleventh Five-Year Plan period, chemical oxygen demand emissions showed a gradual decline, which was a welcome trend. Although the sulfur dioxide emission is slightly higher than the chemical oxygen demand, its development trend is basically the same. In addition, during this period, China's sulfur dioxide emissions also gradually increased. During the Eleventh Five-Year Plan period, sulfur dioxide emissions showed a good trend of decreasing year by year.

The value of the decoupling coefficient of China's GDP and sulfur dioxide emissions was between 0 and 1 from 2003 to 2006, and the two were relatively decoupled, indicating that China's economic development has relatively little negative effect on air quality. From 2007 to 2010, the decoupling coefficient between China's GDP and sulfur dioxide emissions was less than zero, and the two

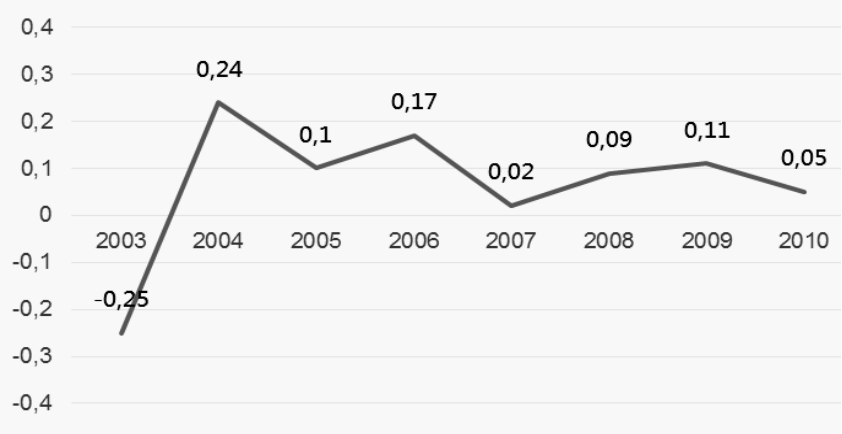
showed an absolute decoupling relationship, indicating that Chinese economic development had little impact on air quality. Judging from the decoupling coefficient between China's GDP and chemical oxygen content emissions, from 2003 to 2005, its value gradually increased, but it was still between 0 and 1. The two showed a relative decoupling relationship. The negative effect on water quality is relatively small. From 2007 to 2010, the decoupling coefficient between China's GDP and sulfur dioxide emissions was less than zero, and the two showed an absolute decoupling relationship, indicating that China's water resources were hardly affected by economic development. It is worth noting that in 2010, the above two coefficients all increased compared with 2009, indicating that the impact of Chinese economic development on environmental pollution in 2010 increased slightly compared with 2009.

Decoupling analysis of China's economic development and resources

In the decoupling analysis of China's economic development and the environment, the GDP is still used as the indicator of economic development, and the total annual water consumption is used as the indicator of resource consumption. According to the *China Statistical Yearbook (2002-2010)*, from 2002 to 2010, although China's total water consumption increased year by year, the proportion of the increase was very small, almost a horizontal line on the graph (fig. 2).

Figure 2

Decoupling coefficient plot of China's GDP and total water consumption



As can be seen from Figure 2, the decoupling coefficient between China's GDP and total water consumption in 2003 was less than zero, showing an absolute decoupling relationship. From 2004 to 2010, the value range of the hook coefficient was between 0 and 1, and the two had a relative decoupling relationship, indicating that in the process of China's economic development, the efficiency of water resources utilization was relatively high.

China's One Belt, One Road – *strategy for dealing with decoupling*

The world is changing, and the way and form of China's integration into the world is also changing with science. For example, in the current conflict between Russia and Ukraine, the United States has used financial levers to sanction Russia. This invasion has started a new turbulent era with both risks and variables. Current situation suggests that economic decoupling is about to accompany in the international de-globalization trend. In this context, a trade game is afoot between developed capitalist countries in Europe and the United States and emerging economies, the former hope to achieve high-end development through high-end manufacturing. Backflow solves its own industrial hollowing problem, while the latter seeks to get rid of its technological dependence in the technological upgrading of the industrial chain. Compared with the economic decoupling in the Sino-US trade war, the trade sanctions and financial sanctions in the Russia-Ukraine conflict are a symptom of the world economy entering a deeper level of economic decoupling.

For this reason, we can see the consequences of sanctions imposed on Russia by NATO countries led by the United States: they expose the dangers and opportunities for China's social stability and economic development under the disturbance of the Russian-Ukrainian conflict. This requires the Chinese government and Chinese leaders to grasp the general trend of globalization, take the initiative to participate in the design and construction of a new globalization system with the political wisdom and courage of a major country, continue to maintain strategic focus, and actively leverage the *Belt and Road* Initiative. The country should play a pivotal role in the construction of the global industrial chain network system, accelerate the construction of the *Belt and Road* regional industrial chain, actively respond to the reshaping of the global industrial chain in this turbulent era, and form the best strategy for China to deal with the decoupling of the globalized economy.

China's *One Belt, One Road* is a chance to seek the strategic interests of regional economic development by adhering to the concept of mutual benefit and win-win. Strategic interests are the basic starting point of the *Belt and Road* countries' co-construction of a regional economic development strategy. In the context of the decoupling of the globalized economy, China will use the *Belt and Road* initiative to actively further strategic interests of regional economic development, promote the construction of regional economic development with the concept of mutual benefit and win-win value, and guide the reshaping of global economic development.

To deal with the decoupling of the global economy, it is necessary to **promote the construction of a mutually beneficial and win-win strategic cooperation system**. The 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Outline of the Vision for 2035 clearly state that to promote the high-quality development of the *Belt and Road* initiative, it is necessary to build a mutually beneficial and win-win regional economic development strategic cooperation system. In fact, as early as September 2013, when General Secretary Xi Jinping visited Kazakhstan and proposed the initiative to jointly build the Silk Road Economic Belt, he pointed out that the countries should start from strengthening the «five links» to build a large cross-regional cooperation pattern. One month later, in October 2013, General Secretary Xi Jinping proposed the joint construction of the 21st Century Maritime Silk Road initiative during his visit to Indonesia to jointly meet challenges and achieve common development and common prosperity. On March 27, 2015, the Vision and Actions for Promoting the Joint Construction of the Silk Road Economic Belt and the 21st Century Maritime Silk Road jointly issued by the three ministries and commissions of China at the Boao Forum for Asia in Hainan clarified the construction of the *One Belt, One Road*. The core of the model is «co-construction and cooperation» and the creation of «a community of interests, a community of destiny, and a community of responsibility», indicating that the *Belt and Road* initiative aims to build an open, inclusive and symbiotic international and regional economic development strategic cooperation system from the very beginning (Li & Li, 2015).

To deal with the decoupling of the globalized economy, it is necessary to **find the convergence of interests of industrial chain cooperation.** In fact, countries along the i generally have important strategic interests in the construction of regional industrial chains. On the one hand, countries along the *Belt and Road* have strong complementarity in resources and industries. Some countries are rich in natural resources and some countries are rich in human resources; some countries have advantages in technology-intensive and capital-intensive industries, others have advantages in labor-intensive and resource-intensive industries. These countries with different endowments can better exert their comparative advantages in the process of participating in the construction of the *Belt and Road* regional industrial chain. On the other hand, China is a major country with the fastest development speed, the greatest market potential and the strongest economic vitality in the world today. Countries along the *Belt and Road* can take part in the cooperation of the regional industrial chain and take the role of a «hitchhiker» to China's development (Liao et al., 2021).

Practical implementation

To deal with the decoupling of the globalized economy, it is necessary to **rely on the reverse gravity of conflict and cooperation in today's world.** Since March 2022, the strong economic sanctions imposed by the West on Russia have made more countries feel vulnerable to US financial weapons, which in

turn has allowed China to take the opportunity to enhance the attractiveness of the renminbi and its financial structure and promote cross-regional international cooperation in the industrial chain. For example, after the yet another round of sanctions against Russia came into effect, Russia immediately accepted the settlement of some coal and oil trades in RMB, which opened a new window for promoting the internationalization of the RMB. Although there is no currency that can replace the U.S. dollar in the short term, China can play the role for the *Belt and Road* national partnership, strengthen the RMB Cross-border Payment System (CIPS), actively explore the use of digital RMB for cross-border payment and settlement, and promote more. Many international institutions have adopted CIPS to promote the RMB international trade from the edge to the center, paving the way for the guidance of cross-regional cooperation in the industrial chain and the reorganization of the global industrial chain.

China's *One Belt, One Road* is a positive plan to strengthen multilateral cooperation and activate the regional economic development strategies of participating countries. The Russian-Ukrainian conflict and the rivalry between Russia and the United States have triggered the butterfly effect of the global supply chain crisis. Russia and Ukraine are important node countries in the construction of the *Belt and Road*. Obviously, the conflict between Russia and Ukraine is not conducive to China's *Belt and Road* construction and the global layout of China's industrial chain, and is not conducive to China's rapid growth as an emerging global value chain trade network center. In order to solve the possible dilemma, China's *One Belt, One Road* is the only positive plan to strengthen multilateral cooperation and activate the *One Belt and One Road* participating countries to jointly build regional economic development strategies.

To deal with the decoupling of the globalized economy, it is necessary to **establish a sound multilateral cooperation mechanism.** At a time when the security issues of economic development in various countries are receiving more attention, the establishment and improvement of multilateral cooperation mechanisms can dispel the strategic doubts and geopolitical risks of countries along the *Belt and Road* participating in the construction of regional industrial chains, and create a sound system for the construction of the *One Belt, One Road* regional industrial chain (Ouyang, 2018). At the same time, under the framework of the *Belt and Road* initiative, the establishment of a multilateral cooperation mechanism based on the actual conditions of each country will be able to more effectively integrate the resources of all parties, maximize the enthusiasm of all parties to participate in the construction of the regional industrial chain. It can also strengthen the international public goods attributes of the *Belt and Road* construction. In a word, establishing and improving a multilateral cooperation mechanism is conducive to conducting more extensive exchanges and consultations, strengthening rule-making and docking, enhancing China's appeal, influence and shaping power in neighboring countries and regions, and increasing political mutual trust and peace with countries along the route. The system is compatible, reducing the cost and risk of countries participating in the construc-

tion of regional industrial chains. In China's practice of dealing with the decoupling of the globalized economy, special attention should be paid to building the Shanghai Cooperation Organization, the China-ASEAN «10+1», the Asia-Pacific Economic Cooperation, the Asia-Europe Meeting, the Asia-Pacific Conference and other existing multilateral cooperation mechanisms. The *Belt and Road* organizational structure and multilateral mechanism for decision-making management can activate and mobilize the enthusiasm of countries, and establish a new *Belt and Road* global governance and regional governance order.

To deal with the decoupling of the globalized economy, it is necessary to **expand the *Belt and Road* multilateral cooperation objects.** The US-led Western countries are pressing against Russia with strong sanctions, forcing Russia to withdraw actively or passively from the cooperation group dominated by Western countries, which will greatly enhance Russia's participation in APEC, Shanghai Cooperation Organization and BRICS. The enthusiasm of the BRICS countries has made Russia's industrial chain layout more shifted to the Asian region. This suggests to us that in the context of the wider economic decoupling triggered by the conflict between Russia and Ukraine, China should take advantage of the situation to promote the strengthening of the SCO security cooperation and the China-Russia-India-Iran cooperation under the framework, deepen the BRICS meeting mechanism and South-South cooperation, promote the economic integration of East Asia under the framework of the *Belt and Road* and expand the cooperation objects of the *Belt and Road* industrial chain. At the same time, China should actively seek cooperation with EU countries in response to the decoupling plan of the globalized economy, because the United States is not monolithic in its attempts to win over European countries to check and balance China. The path of win-win cooperation between enterprises and the development of flexible space for industrial chain cooperation is the future.

To deal with the decoupling of the globalized economy, it is necessary to **strengthen the connection with the *Belt and Road* initiative.** After General Secretary Xi Jinping proposed the *Belt and Road* initiative, he proposed the concept of «strategic docking», the term that contains the important meaning of mutual benefit and common development at the national level. So far, the strategic alignment of China-Russia regional economic cooperation, the strategic alignment of China's *Belt and Road* and South Korea's *Eurasian Initiative*, the strategic alignment of the *Belt and Road* and the European *Junker Plan*, the *Belt and Road* and India's strategic docking of the *Monsoon Plan*, the strategic docking between the *One Belt, One Road* and Indonesia's *Global Maritime Fulcrum*, and the strategic docking between *One Belt, One Road* and Mongolia's *Prairie Road*, etc. (Xu et al., 2019). It can be seen that in China's response to the decoupling plan of the globalized economy, strategic docking has now become an important way for China and the *Belt and Road* countries to strengthen bilateral interaction and realize the layout of mutually beneficial and win-win cooperation in the industry. To strengthen the connection with the *Belt and Road* initiative, we must also pay attention to the following strategies. First, vigorously implement the strategy

of internationalization of standards, seize the commanding heights of standards, and promote the whole chain of «Chinese technology + Chinese standards + Chinese equipment + Chinese construction» to improve the international reach. Second, promote third-party cooperation between China and developed countries, that is, «China's high-quality production capacity + advanced technology of developed countries + real needs of developing countries» to form a new win-win mechanism for *Belt and Road* cooperation; Third, promote the upgrading of cooperation models, support domestic scientific research institutions and national scientific research institutions along the *Belt and Road* to jointly build high-level joint research and development institutions and promote the expansion of the *Belt and Road* from focusing on production capacity cooperation to focusing on R&D cooperation (Liu & Liu, 2019).

China's *One Belt, One Road* is based on «dual circulation» and guides the reconstruction of regional industrial chains through the construction of Chinese industrial chains.

On November 19, 2021, General Secretary Xi Jinping emphasized when attending the third *Belt and Road* construction symposium that it is necessary to comprehensively consider and plan to build a new development pattern and jointly build the *Belt and Road*, focus on new power points, and shape new integration. It is necessary to strengthen the smooth connection of the industrial chain and the supply chain. General Secretary Xi Jinping's speech provides guidance for us to promote the reconstruction of the regional industrial chain based on the dual circulation.

To deal with the decoupling of the global economy, it is necessary to **give full play to the dual circulation hub role of the *Belt and Road.*** According to reports, in the first four months of 2022, the total import and export volume between China and the countries along the *Belt and Road* reached 3.97 trillion yuan, a year-on-year increase of 15.4%. During the same period, the total import and export volume between China and other 14 RCEP member countries was 3.84 trillion yuan, a year-on-year increase of 3.9%[1], which shows the important role of the *Belt and Road* initiative for China in building a global industrial chain. However, European and American countries are trying their best to block the play of this role. As early as 2022, the United States and the European Union have proposed to pass stronger infrastructure development projects to deepen engagement with African countries to balance the economic and political influence created by China in African countries under the *Belt and Road* Initiative. During the recent 12-13 May special U.S.-ASEAN summit in Washington the White House hoped to forge a deeper relationship with ASEAN and «prevent the region from tilting toward China». As an international platform for industrial collaboration, China should give full play to its dual roles of promoting the adjustment and upgrading of domestic industrial structures and linking and integrating interna-

[1] The data comes from the report of CCTV News Channel on May 9, 2022.

tional industrial resources in response to the decoupling plan of the globalized economy, so as to build the *Belt and Road* into an internal and external connection. The strategic corridor promotes the formation of a new pattern of opening up in China's east-west two-way, land and sea, multi-level and multi-channel, and provides strong support for promoting the mutual promotion of domestic and international dual circulation.

To deal with the decoupling of the global economy, it is necessary to **unblock the internal circulation and expand the industrial chain of China's economic development.** «Slow globalization» has become a new buzzword in today's world economy. The general consensus is that in the next 5 to 10 years, economic globalization will enter a critical transition period of slow globalization and deep adjustment, and the impact of China's domestic industrial chain construction on the reshaping of the global industrial chain will increase significantly. Against this background, we believe that in dealing with the decoupling plan of the globalized economy, China should take advantage of the favorable conditions of China's complete domestic industrial system, large room for strategic maneuver, and super large market size, smooth the internal circulation, take the initiative to act, and expand and strengthen China's domestic market industrial chain, tighten the dependence of the international industrial chain on China, and prevent economic decoupling.

China needs to focus on the following aspects. First, give full play to China's position as an important global and regional production center and an expanding global and regional demand center, and use production capacity and market advantages to continuously attract capital-intensive industrial chain links and technology-intensive links. The links of the industrial chain will be concentrated in China, so that the domestic industrial chain will be extended to the high-end links. Second, in the face of the developed countries' strengthening of monopoly and blockade of high-tech links, China will strive to improve the basic capabilities of their industrial chain, implement key core technology research projects, and solve the bottleneck problem in the manufacture of basic software, core hardware and basic materials, and make up for it. The key short-boards and the forging of the key long-boards should be sorted out, and efforts should be made to create an independent, controllable, safe, reliable and elastic industrial chain (Liu & Zhou, 2021). Third, accelerate the coordinated regional development strategy, strengthen the economic ties between China's coastal areas and the northeast, central and western regions, promote the rational distribution and coordinated development of industrial chains in China's domestic regions, and build a high degree of upstream and downstream coordination, close technical links, and sufficient comparative advantages. A high-level domestic cross-regional industrial chain cluster in China.

To deal with the decoupling of the global economy, it is necessary to **make a scientific layout and make every effort to open up the external circulation and guide the reconstruction of the regional industrial chain.** In response to

the decoupling plan of the globalized economy, China must adhere to the *Belt and Road* construction as the starting point to open up internal and external circulation, and use the relative industrial gradient advantages and China's comprehensive comparative advantages to gather the strength of the countries along the *Belt and Road* and guide the reconstruction of the industrial chain. direction. On the one hand, China will launch a new round of «going out». Strengthen and improve the service system of foreign direct investment, support and guide enterprises to carry out joint foreign direct investment, and improve the scale and level of «going out»; increase the support for leading enterprises in the industry to go abroad, and foster multinational construction led by leading enterprises. The ability to chain, supplement, extend, and strengthen the chain will gradually build a multinational industrial chain dominated by China's domestic leading enterprises. On the other hand, it is necessary to strengthen regional cooperation in the industrial chain. Relying on the *Belt and Road* initiative, China will build and share together, and take the initiative to act, from passively embedded in the division of labor in the global value chain to actively participating in the formulation of global rules, and from participants in the division of labor in the global industrial chain to the governance of the global industrial chain, guiding the region industrial chain reconstruction.

Conclusions

In a certain period of time, China's economic growth and energy consumption, environment, and resources have been linked by frequent economic decoupling. The degree of decoupling fluctuates greatly with changes in the macroeconomic situation and policy regulation, and there is still a certain gap with the realization of strong decoupling. Energy efficiency, environmental improvement, and the improvement of comprehensive utilization of resources are the main reasons for the current weak decoupling, but they cannot offset the growth rate of economic development on energy, environment, and resources. The trend will continue for a certain period of time.

The spatial pattern of decoupling between China's economic development and energy, environment, and resources is relatively scattered. The significant decoupling areas are roughly distributed in the eastern region, and the degree of decoupling has large regional differences; the significant decoupling areas show a spatial agglomeration trend, mainly in North China and East China. Compared with Central China, the regional differences have narrowed significantly. The spatial pattern of decoupling between economy and energy, environment, and resource consumption is basically the same as that of decoupling economy and carbon emissions; the regional differences in decoupling between carbon emissions and energy consumption are not obvious, but there is a certain degree of spatial agglomeration in the later stage compared with the earlier stage.

In the context of the decoupling of the global economy, whether at the national level or at the regional level in China, the decoupling of economic growth from energy, environment, and resource carbon emissions is mainly caused by the decoupling of economy from energy, environment, and resource consumption. Mainly due to the progress of energy-saving technology and the upgrading of industrial structure, which promotes the adjustment of industrial energy consumption structure and the improvement of energy efficiency. Therefore, on the basis of further promoting energy-saving technology and promoting industrial upgrading, China has focused on strengthening the development of carbon emission reduction technology and gradually improving the energy structure. realized.

In today's powerplay between major powers, the conflict between Russia and Ukraine and the rivalry between Russia and the United States may trigger the butterfly effect of the global supply chain crisis, form multiple impacts on the reshaping of the global industrial chain, and accelerate the process of decentralization. The deepening influence of power bifurcation and the increasing scope of economic decoupling will change the layout, layout path and layout logic of global industrial chains. Therefore, the Chinese government and Chinese leaders have grasped the new trend of globalization, actively participated in the design and construction of a new globalization system with the political wisdom and courage of a major country, continued to maintain strategic focus, and enhanced the role of *One Belt, One Road* in China. The pivotal role in the global production network system and the active response to the reshaping of the global industrial chain in the turbulent era will be the best strategy for China to deal with the decoupling of the globalized economy.

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