

Research on Sustainable Consumption and Production Patterns in China

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Abstract

In 2015, the United Nations established the 17 Sustainable Development Goals (SDGs) as a comprehensive global political framework to address humanity's most pressing socio-environmental challenges. The growing energy crisis, the destruction of natural resources and the planet, and the intricate relationship between these crises can cause significant risks. In response to the 2030 Agenda for Sustainable Development, the Chinese government has responded positively by implementing sustainable development initiatives on some policy and economic fronts. Although China began working on environmental protection in 1970, it has mainly focused on pollution control, and the figures show a steady increase in China's investment in pollution control. In the face of the current severe form of the environment and a relatively weak policy system, it is crucial to adopt and adapt sensible measures and actions to address the enormous challenges. This study is based on the China published China's Agenda 21 and 2030 Agenda for Sustainable Development set out by the United Nations in 2015. This research will address China's problems in achieving SDG 12: Ensure SDG consumption and production patterns by applying a framework of innovative policy instruments. It also makes specific governance recommendations for Goal SDG 12.6.

Keywords

Innovation for Sustainability, Sustainable development in China, innovation policy instruments, Sustainable Development Goals (SDGs), sustainable consumption and production

1. Research background

The 2030 Agenda for Sustainable Development reflects the current need to change consumption and production patterns. SDG 12 ensures that societies have sustainable consumption and production (SCP) patterns [1, 2]. This goal primarily addresses issues that address systemic aspects of consumption and production patterns. This research will present the current situation of sustainable development in China based on data and context and provide a specific discussion on the development of SDG 12 and SDG 12.6 (Encourage action by various corporate actors such as private companies, the public sector, and individual citizens); In China. It then proposes three solutions specifically for SCP using innovative policy instruments and finally discusses the associated risks and feasibility, concluding with the most suitable solution.

This report focuses on the fact that, as the largest developing country, China's policy on environmental protection and sustainable development is of vital importance to both China and the world. At present, China is faced with the dual task of developing its national economy and its ecological environment and has undergone five changes in its policy on environmental protection and sustainable development since 1980 [1]. They are:

- (1) Moving from environmental protection as a basic state policy to a sustainable development strategy.
- (2) A shift in emphasis from pollution control to ecological protection.
- (3) From end-of-pipe treatment to source treatment;

(4) moving from point source to regional environmental governance.

(5) moving from an approach based on administrative governance to an approach based on legal and economic instruments.

After 1992, China adopted sustainable development as a basic state policy. Since the 21st century, China's rapid economic development has resulted in severe problems such as irreversible environmental pollution and ecological degradation [1]. There is an urgent need to address these issues of unsustainable consumption and production pollution in the context of the sustainable development agenda.

2. Research methods

This study designs a series of innovative policy instruments in three main areas. And to propose incentive economic policies and governance instruments for large Chinese and multinational companies to promote sustainable consumption and production practices and to include sustainability information in their reporting cycle.

(1) regulatory development (laws, rules, directives)

(2) Economic transfer instruments (economic and financial instruments to provide incentives or disincentives)

(3) Soft instruments (resources and non-coercive codes of conduct or communication instruments)

In summary, this research will apply to China's current policy planning that focuses on sustainable development as the center of economic construction, harmonizing the socio-economic environment, improving financial restructuring, building an environmentally friendly ecological environment, and adhering to a sustainable development path plan. As well as a specific analysis and discussion of SDG 12.6 proposes a series of solutions based on innovative policy instruments and concludes with a summary of the most suitable solutions for current sustainable development planning.

3. Data collection and analysis

3.1 Challenges for SCP in China

In the 21st century, the United Nations has been able to convey a global awareness of sustainable development by developing a framework of responsibility and launching environmental initiatives, with good results, such as an increase in global material consumption from 1.2 kg to 1.3 kg per unit of GDP between 2001 and 2010, and an increase in global material consumption from 48.7 billion tonnes to 710 tonnes during this period. The 2030 Agenda for Sustainable Development is shaping a new development landscape for the world with a millennium target and has a very positive impact on developing countries, especially China [3].

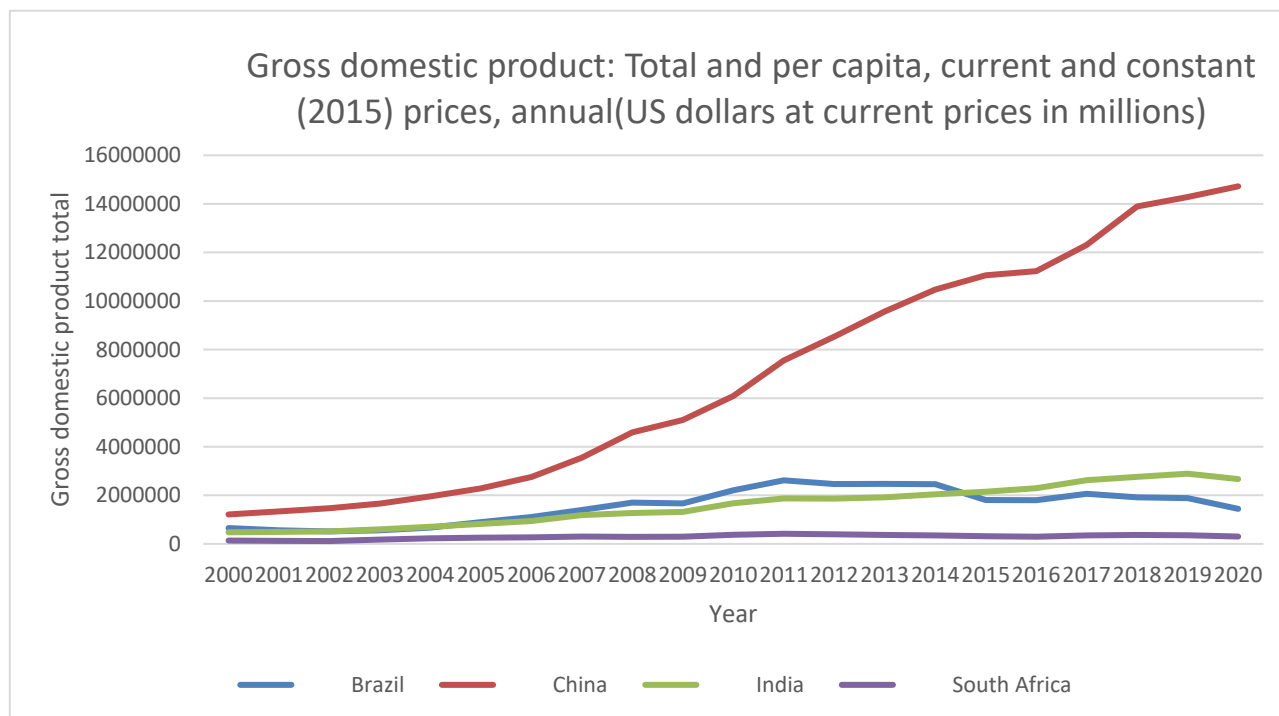


Figure 1. GDP (Total and per capita, current and constant 2015) (Data source: UNCTAD database).

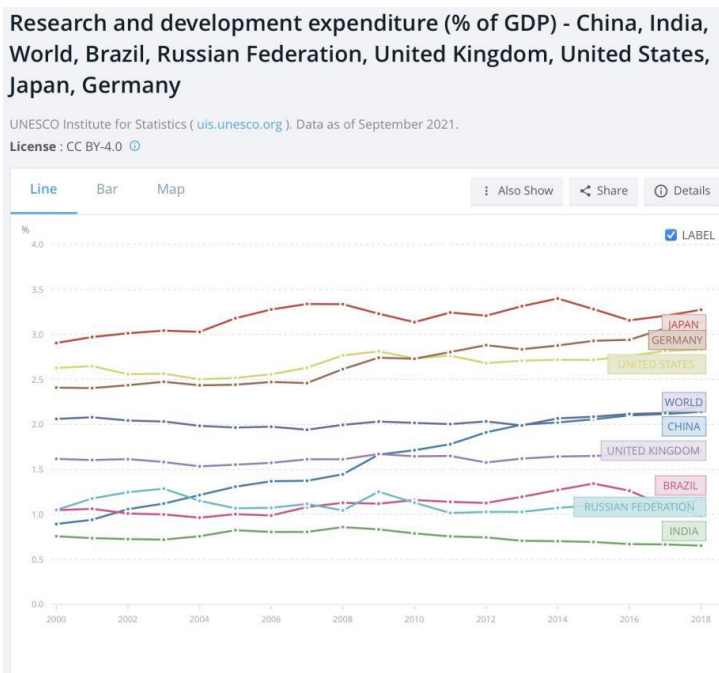


Figure 2. Research and development expenditure (% of GDP) (Data source: THE WORLD BANK Data).

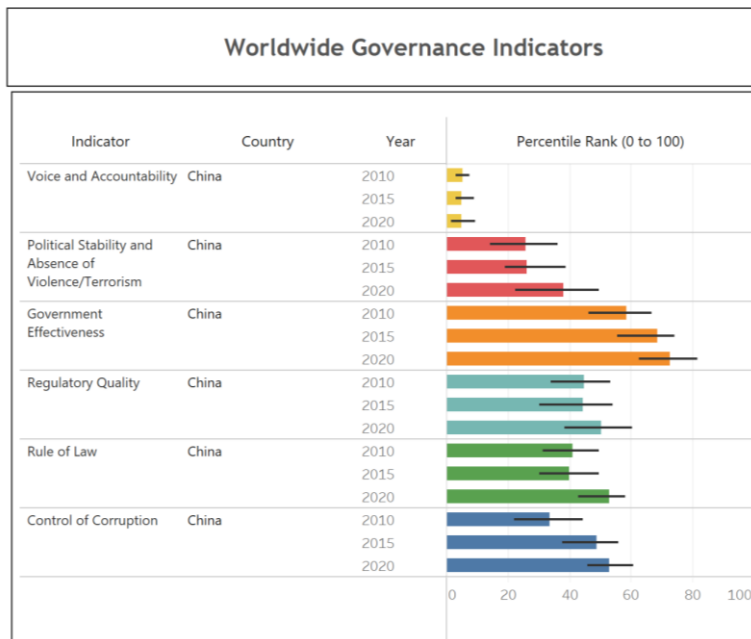


Figure 3. Worldwide Governance Indicators (Data source: Worldwide Governance Indicators database).

As shown in Figure 1, China's GDP has grown 12-fold in 20 years to reach US\$14,722.8 billion in 2018, a growth rate that far exceeds that of other developing countries. Meanwhile, as shown in Figure 2, China's R&D expenditure during this period went from less than 1% of its GDP in 2000 to reaching parity with 2% of world R&D expenditure in 2018, as the national strategy began to focus on product development and innovation. In addition, as seen in Figure 4, World Governance Indicators, government effectiveness reflects a high level of trust in the quality of public services and government commitment. The quality of regulation indicator shows a high level of favorable perception of the government's ability to make rules and sound policymaking, leading to better private sector development and better protect individuals' interests in terms of the Chinese economy's outstanding achievements.

3.2 Obstacles and challenges

However, China's economic structure is not yet stable enough. Economic growth continues to be achieved at the expense of large amounts of energy and ecological degradation, which has led to a bottleneck in the current relationship between economic, social, and sustainable development. The most pressing challenge facing China today is to reconcile the development of financial technology with the achievement of sustainable consumption and production. China can use its advantages as a developing country to create new markets, green and decent jobs, and more efficient, welfare-creating natural resource management to shift to a sustainable production model [4].

4. Analysis and discussions

4.1 The theory of innovation policy instruments and its application in China

In China's SCP governance system, on the one hand, there are two types of governance instruments: 'Top-down' and 'Bottom-up,' with 'Top-down' being considered the more effective initiative [5].

On the other hand, governments can develop a portfolio of policy instruments to select the most appropriate instruments, tailoring them to the context and designing complementary instruments. Policy instruments can be based on three main aspects: Regulations, Economic transfers, and Soft instruments. Regulatory authorities use devices such as laws and regulations to constrain the behavior of actors, such as intellectual property rights, rules of higher education organizations, and anti-trust policies [6].

4.2 Regulations

In terms of regulations, Chinese regulatory instruments primarily act indirectly on innovation. The State Intellectual Property Office of China (SIPO) provides two patents for IPRs: invention patents and utility model patents [7]. In the anti-monopoly regulation, specific codes of conduct are provided to indirectly promote innovation by prohibiting dominant firms from engaging in them [8]. The regulation of university research organizations is coordinated by the government and with specific codes of conduct set by the university, with academic councils established by the university at the government's request. And yet, global recruitment policies influence academic work in China, and future rule-making needs further study [9].

4.3 Economic transfers

The use of policy instruments in Economic transfers is considered a 'Top-down' approach to governance that directly or indirectly influences innovation. In terms of competitive research funding, A successful example of the use of Innofund is represented by the industrial cluster "Zhongguancun" [10].

In addition, the establishment of Free Trade Zones (FTZs) is an important policy for China's opening up to the outside world. Guangdong Free Trade Zones (GFTZs) use industrial clustering to improve financial efficiency and innovative management systems and facilitate investment. However, the pollution caused by low-end industries makes it a challenge for the government to develop more specific policies [11].

4.4 Soft instruments

In terms of soft instruments, the Sustainability Report presented by the Global Reporting Initiative (GRI) communicates to stakeholders the company's attitude towards sustainability [12]. In recent years, the Chinese government has taken several steps to support the scheme in public-private partnership projects. Local governments have promoted innovation through agreements developed in partnership with companies. However, the various regulatory procedures and macroeconomic volatility at the national level expose investors to significant legal risks [13].

5. Recommendation and Conclusions

5.1 Three options for future planning pre-selection

5.1.1 Option I: Focus on grassroots innovation (“Bottom-up” governance instruments)

Some civil society organizations at Rio+20 suggested that the government has not given them more space and support for sustainable development [14]. For this purpose, the choice of strategic instruments is as follows:

- (1) develop a more comprehensive incentive system for grassroots innovation in line with the latest policies of the Made in China 2025 industrial revolution;
- (2) an intellectual property bill to regulate grassroots innovation;
- (3) The development of the Internet and the Internet of Things (IoT) industry has a reasonable prospect of growth and should

be accompanied by more standardized rules for grassroots innovation to ensure fairness and avoid infringements;

- (4) Include details of grassroots innovation in bioethics regulations;
- (5) Economic investment in research funding for grassroots innovation should be increased to stimulate research organizations and university researchers to investigate grassroots forms of innovation;
- (6) the government teaches companies to create incentives for innovation to encourage their employees to value innovation;
- (7) Provide tax breaks and help with bidding for innovative start-ups;
- (8) More own loans and financial support to manufacturing technology companies and IT institutions;
- (9) Local governments to promote the benefits of grassroots innovation to companies and spread knowledge of innovation;
- (10) Companies to issue preferential agreements to employees who have contributed to innovation;
- (11) Government incentives for companies to publish continuous sustainability reports to encourage greater corporate transparency.

5.1.2 Option II: Focus on sustainable production ("Top-down" governance instruments)

The current focus of SCP governance in China is to address the most pressing issues of unsustainable production. However, the existing environmental governance mechanisms are still not effective in addressing these issues. In addition, the Chinese government was one of the first adopters of the circular economy, but sustainable consumption behavior and patterns are still unclear [5]. Therefore, there are options in terms of policy instruments to promote a circular economy operating model for enterprises.

The choice of strategic instruments is the following.

- (1) The government enacts a bill that regulates explicitly supply and demand networks and channel control;
- (2) Local governments develop rules for the evaluation of companies in the circular economy to reduce production pollution;
- (3) Local governments increase the supervision of local companies that implement the circular economy;
- (4) Require periodic sustainability reports and provide more precise specifications for the content of company development reports;
- (5) and to add detailed standards of production behavior for intellectual property rights in terms of technology and technological know-how;
- (6) Develop a competition policy for research and development alliances and provide funding for small and medium-sized enterprises to support green economy projects, taking into account the case of the FTZ;
- (7) Local government-led projects to finance equity participation in companies engaged in the circular economy;
- (8) Soft instruments to regulate the corporate culture and CSR of unstable companies;
- (9) Re-establishing a code of conduct for the circular economy;
- (10) voluntary agreements to encourage companies to learn about circular economy technologies and knowledge.

5.1.3 Option III: Focus on green consumption ("Top-down" governance instruments)

Although the Chinese government already discussed sustainable consumption in Chapter 7 of Agenda 21 in 1994, research on sustainable consumption has lagged behind the need for policy development in China compared to Western countries. There is a need to understand consumption patterns and mechanisms to better act on promoting SCP [4]. Therefore, in terms of policy instruments, we can consider the influence of consumers to push companies to use more environmentally friendly production methods.

A selection of strategic instruments is as follows

- (1) Develop new rules to allow consumer feedback on companies to be posted on information platforms that affect corporate reputation. Stimulate companies to take consumers seriously. Develop regulations for rating companies that favor consumer-led scoring;
- (2) Develop a competition policy that promotes research and development alliances to study consumer behavior patterns;
- (3) Improve a more comprehensive consumer protection law;
- (4) By implementing the government's policy of prioritizing the procurement of green products, the government can guide enterprises to produce environmentally friendly green products and show the public green consumption through the government's exemplary behavior;
- (5) Regarding economic and financial instruments, reference could be made to the Innofund to increase support for research in universities and organizations to promote investigation into consumer behavior patterns and influence and to develop tax breaks for green consumption to increase consumer interest and awareness;
- (6) Increase publicity on green consumption on online platforms to convey green consumption awareness to consumers and indirectly influence companies to produce environmentally friendly products that consumers demand;
- (7) Open up channels for consumers to speak out to the press;
- (8) Local governments provide feedback to companies on the provision of sustainable development reports.

5.2 Conclusion

Sustainable production and green consumption are both 'Top-down' policy instruments that convey messages from government departments to businesses and the public. Compared with the uncertainty of China's current sustainable consumption behavior pattern in Option II, and the factors such as the difference between China's consumption mechanism and pattern and that of developed countries in Option III, Option I is generally considered to be high efficiency and low cost, which is currently the most suitable for China's situation. However, as there is a high risk that the mechanism will not have the desired effect once it has been communicated from the central government to the local level, it requires the cooperation of the local government and the media to make it work. Moreover, Option I is a 'Bottom-up' approach to governance, although it requires relatively long-term planning to achieve significant results. However, tackling the root causes of the problem will help build the basis for the next stage of development goals. Therefore, this research recommends that Option 1 focus on innovative grassroots governance instruments while exploring sustainable consumption behavior models appropriate for China. A two-year reporting cycle from the local to the central government until 2030 allows the central government to make timely adjustments to local plans.

References

- [1] Zhang, K. & Wen, Z. (2008). 'Review and challenges of policies of environmental protection and sustainable development in China', *Journal of Environmental Management*, 88(4), pp. 1249-1261.
- [2] Bengtsson, M., Alfredsson, E., Cohen, M. & Lorek, S., & Schroeder, P. (2018). 'Transforming systems of consumption and production for achieving the sustainable development goals: moving beyond efficiency', *Sustainability Science*, 13(6), pp. 1533-1547.
- [3] Yu, S., Sial, M.S., Tran, D.K., Badulescu, A., Thu, P.A., & Sehleanu, M. (2020). 'Adoption and Implementation of Sustainable Development Goals (SDGs) in China—Agenda 2030', *Sustainability (Basel, Switzerland)*, 12(15), p. 6288.
- [4] Liu, J., Wang, R., Yang, J., Shi, Y. (2010). 'The relationship between consumption and production system and its implications for sustainable development of China', *Ecological Complexity*, 7(2), pp. 212-216.
- [5] Shao, J. (2019). 'Sustainable consumption in China: New trends and research interests'. *Business Strategy and the Environment*, 28(8), pp.1507-1517.
- [6] Borrás, S. & Edquist, C. (2013). 'The choice of innovation policy instruments'. *Technological Forecasting and Social Change*, 80(8), pp. 1513-1522.
- [7] Huang, K.G.-L., Geng, X., Wang, H. (2017). 'Institutional Regime Shift in Intellectual Property Rights and Innovation Strategies of Firms in China', *Organization Science (Providence, R.I.)*, 28(2), pp. 355-377.
- [8] Huang, Y. (2019). 'Monopoly and Anti-Monopoly in China Today', *The American Journal of Economics and Sociology*, 78(5), pp. 1101-1134.
- [9] Wang, S. & Jones, G.A. (2021) 'Competing institutional logics of academic personnel system reforms in leading Chinese Universities', *Journal of Higher Education Policy and Management*, 43(1), pp. 49-66.
- [10] Wang, Y., Li, J., & Furman, J.L. (2017). 'Firm performance and state innovation funding: Evidence from China's Innofund program', *Research Policy*, 46(6), pp. 1142-1161.
- [11] Zhuo, C., Mao, Y., & Rong, J. (2021). 'Policy dividend or "policy trap"? Environmental welfare of establishing free trade zone in China', *The Science of the Total Environment*, 756, p. 143856.
- [12] Galli, D. & Bassanini, F. (2020). 'Reporting Sustainability in China: Evidence from the Global Powers of Luxury Goods', *Sustainability (Basel, Switzerland)*, 12(9), p. 3940.
- [13] Ke, Y., Wang, S., Chan, A.P., & Cheung, E. (2011). 'Understanding the risks in China's PPP projects: ranking of their probability and consequence', *Engineering, Construction, and Architectural Management*, 18(5), pp. 481-496.
- [14] Ely, A., Smith, A, Stirling, A, Leach, M, Scoones, I. (2013). 'Innovation Politics Post-Rio+20: Hybrid Pathways to Sustainability?', *Environment and Planning, C, Government & Policy*, 31(6), pp. 1063-1081.