

Comparison and Analysis of Sustainable Development between China and America

Rui Huang^{1,*}

¹College of Arts and Science, Miami University, Oxford, United States of American.

Abstract. In recent years, sustainable development has been widely discussed. This article primarily explores the reasons behind the necessity for sustainable development. The inevitable environmental degradation resulting from rapid economic development is a crucial factor. Economic development is closely tied to the demand for energy, and sustainable development reduces environmental pollution and alleviates energy shortages. The environmental benefits brought about by sustainable development, in turn, positively impact economic growth. Therefore, sustainable development is indispensable. The strategic approaches to sustainable development in China and the United States differ due to their respective national conditions. This article also delves into the disparities in the sustainable development strategies between China and the U.S. China's sustainable development leans towards technological advancement, energy conservation, and environmental protection, while the U.S. prioritizes addressing social inequality. Post-COVID-19 pandemic, the sustainable development strategies of China and the U.S. have become increasingly apparent. The article explores what sustainable development strategies China and the U.S. have chosen post-pandemic to swiftly recover their economies. It also analyzes the characteristics of social inequality in China and the U.S., noting that China's economic inequality is regional, whereas the economic inequality in the U.S. stems from differences in educational attainment. The article further proposes solutions for these economic inequalities. In sustainable development strategies, despite differing national conditions, addressing economic inequality is a crucial component. China requires balancing the allocation of resources across its regions, while the U.S. needs to alleviate wealth disparities resulting from educational differences and address the issue of higher education accessibility.

1. Introduction

Sustainable development, as a widely discussed topic in recent years, is familiar to many. This article further delves into what sustainable development is and why nations need to implement sustainable development strategies. The environment and economic development are interconnected, as economic progress relies on environmental resources. Many factories emit wastewater and generate waste, while the environment also drives the development of tourism and other economic industries. Sustainable development aims to ensure a balanced development that integrates economic growth with the preservation of natural resources.

Post-COVID-19, there have been changes in the sustainable development strategies of China and the United States, two typical nations worth studying. China, with a weaker economic foundation, experiences rapid economic growth. The United States, possessing a stronger economic base, undergoes slower economic development.

The environmental challenges brought about by swift economic development are severe, and China's issues with environmental pollution cannot be overlooked. In contrast, the U.S. needs to give more consideration to problems related to economic inequality. China, with its status as the world's most populous country, also faces significant economic inequality. Addressing economic inequality is thus

the most urgent need for both nations. China can alleviate economic inequality through technological development, while the U.S. needs to address the relationship between education levels and income. Both governments require substantial efforts to formulate policies suitable for their respective countries.

Simultaneously, effective communication of sustainable development strategies is essential. Everyone needs to stay informed and collaborate on sustainable development to ensure its successful implementation.

2. Comparison and analysis of sustainable development between China and America

2.1 The problem of sustainable development caused by rapid economic development

Sustainable development has become a frequently discussed topic among people. Moreover, given the current international economic environment, sustainable development will continue to be a subject of discussion [1]. So, what is sustainable development, and why is it necessary? Sustainable development ensures the sustained and stable growth of the economy by increasing energy efficiency and protecting the environment. Without the presence of

* Corresponding author: huangr22@miamioh.edu

sustainable development, although the economy may experience rapid growth in the short term, there is a risk of slowed or reduced economic growth in the future due to issues such as energy shortages and environmental pollution.

From the perspective of the growth rates of energy consumption and economic expansion, there is a positive correlation between the pace of economic growth and the rate of energy usage [2].

Since the beginning of the 21st century, China's economic growth has been remarkably rapid. China's economic development benefits from its large population, and as the population increases, the consumption of resources also rises. The economic growth of the United States, on the other hand, is attributed to technological advantages and a strong economic foundation. Due to technological reasons, the energy efficiency in the United States is slightly higher compared to China. Although the energy issue is smaller compared to China, the United States still faces energy challenges. Unlike China, the energy shortage problem in the United States is reflected in the issue of income proportion and energy expenditure, with some households unable to afford the costs associated with energy [3].

If people only care about economic growth and ignore environmental issues, the rate of economic growth would be much higher than it is now. However, we cannot do that. In the past few decades in China, the country sacrificed the environment for rapid economic development. Air pollution and water pollution are the most relevant environmental issues in China.

The cost of economic development is the increase in energy consumption. China's demand for coal has resulted in a significant amount of carbon dioxide emissions. Industrial emissions contribute to water pollution as factories, in pursuit of higher profits, choose to directly discharge wastewater. These environmental pollutants not only have a direct impact on people's lives but also have indirect effects on future economic development [4].

Similar to China, the United States also faces environmental pollution issues, but because the United States identified these problems earlier and is already in a period of stable economic development, the U.S. government, businesses, and social groups have been working hard to take measures to mitigate these environmental problems. Environmental protection regulations, the promotion of renewable energy sources, and the application of innovative technologies are some of the efforts to address these issues [5]. In general, the difference between the economic development of the United States and China lies in the fact that the United States has already passed through a period of rapid development and entered a phase of stable growth, while China is currently in a period of rapid development. Economic development inevitably brings about environmental pollution. In the case of the United States, which is in a phase of stable development, attention has been drawn to environmental issues, and efforts are being made to address them. China is also gradually becoming aware of these problems.

The impact between economic activities and natural resources is bidirectional, and thus environmental pollution can have a significant effect on the economy. This is precisely why sustainable development is essential.

Resource scarcity can lead to disruptions in the production chain, forcing factories to purchase more expensive raw materials from other countries at higher prices. Environmental pollution can trigger climate change, and droughts may affect agricultural output, thereby influencing the stability of the economy. Environmental pollution has a direct impact on people's health. Simultaneously, it can result in significant losses for the tourism industry. The relationship between these natural resources and economic development is interconnected. The goal of sustainable development is to ensure that the economy can develop with a long-term and stable trajectory.

Sustainable development is not only closely related to environmental issues but also has a certain connection with social equity. The stability of society is a crucial part of sustainable development. The economic development of a country often relies on the stability of society, and in turn, societal stability can propel economic development. In the rapid pace of economic development, various economic inequality issues may arise, such as unequal distribution of medical resources and regional economic disparities.

The stability of society can be influenced by economic inequality. If society is not stable enough, economic development will inevitably suffer. One of the goals of sustainable development is to eliminate poverty and reduce inequality. The equitable distribution of resources can help promote more stable economic development. The purpose of sustainable development is to enable a country to achieve economic growth in a more stable manner, and societal harmony is inevitably one of the key components.

Education resources are also crucial. The education system continuously provides talent for the country. If there are significant disparities in education, the wealth gap will widen, subsequently affecting the stability of the country and hindering sustainable development.

In the pursuit of sustainable development, it is essential to address economic inequalities, ensure the equitable distribution of resources, and promote social harmony. A stable and harmonious society contributes significantly to achieving sustainable development goals.

2.2 Differences in sustainable development strategies between China and the United States

Covid-19 has had a significant impact on the global economy, and the differences in sustainable development strategies between China and the United States have been reflected in the aftermath of Covid-19.

After COVID-19, the primary task for countries is the same – the pandemic has caused a setback in the world economy, and economic recovery has become a common goal for global development [6]. However, the speed of economic growth is closely tied to resource consumption [2]. Therefore, rapid economic recovery has become a crucial issue for sustainable development in both China and the United States. Due to pollution issues, China places a high emphasis on carbon emissions and environmental protection in the process of economic development. The more energy-rich a province is the higher China's requirements for energy conservation and environmental protection become [6]. China has enacted numerous laws to promote green

development, aiming to protect the environment and ecosystems during the process of economic development [6]. Having experienced rapid economic growth and economic challenges posed by COVID-19, China has realized that economic development alone cannot address the issues of development. China is comprehensively implementing strategic goals for sustainable development, aiming for high resource utilization rates and protecting ecosystems to facilitate ecological forces driving economic development.

China is also changing its energy usage structure, reducing the consumption of carbon and petroleum, and promoting the utilization of renewable resources. The use of renewable resources is primarily costlier than traditional resources, and the efficiency of their utilization is not as high as that of traditional resources. China needs to explore technological advancements in this field to enhance the efficiency of using renewable resources. China has also participated in numerous international agreements, collaborating with other countries for sustainable development [6]. Therefore, China has actively responded to sustainable development after the pandemic. China recognizes the relationship between economic growth and social stability. The Chinese government is attempting to increase the use of new energy sources to reduce carbon emissions. China is also promoting the importance of environmental protection among its people. The government is prioritizing policies to elevate the significance of addressing poverty in various regions. As a densely populated and vast country, China places significant emphasis on addressing economic inequality. The country is strengthening the education system in impoverished areas to ensure that educational disparities are not excessively large across different regions.

The pandemic has indeed caused considerable economic losses for China. However, the Chinese government continues to find the right direction for precise development of sustainable development strategies. Despite being a major global player, these efforts may have limited impact, and economic inequality in China remains substantial.

Covid-19 has posed significant challenges to sustainable development in the United States. The pandemic has not only reversed the progress made in sustainable development but also exposed underlying economic issues. Low-income areas in the U.S. have been particularly affected by the impacts of Covid-19 [7]. The long-standing stability of the U.S. development has sometimes overshadowed existing problems. In the wake of the COVID-19 crisis, the U.S. must address the issue of economic inequality about sustainable development. People in impoverished areas have struggled to access necessary treatments due to insufficient medical resources, amplifying the impact of COVID-19 on their lives [8].

Post-COVID-19, the U.S. sustainable development strategy needs to focus more on addressing developmental inequalities. Moreover, given the advanced technological capabilities of the U.S. compared to China, the country has the opportunity to delve deeper into environmental sustainability research in the aftermath of Covid-19. The U.S. post-Covid-19 sustainable development strategy emphasizes social equity and technological advancements. Technological growth can enhance energy efficiency, reduce energy consumption, and mitigate environmental pollution.

Social equity ensures fair access to resources and contributes to the stability of society, an essential goal in sustainable development.

Addressing economic inequality is crucial for ensuring sustainable development, often accompanied by disparities in educational opportunities. The wealthy are more likely to access better education, while the poor may face limitations in educational opportunities, exacerbating difficulties in social mobility. Excessive economic inequality can impede overall economic growth. Larger wealth gaps may result in a smaller middle class, diminishing the purchasing power of the majority and restricting market demand. China, currently the most populous country globally, grapples with severe economic inequality issues. Assisting impoverished groups is a top priority in China. Despite some regions in China surpassing many others globally in economic terms, the per capita income in these areas remains relatively low [9]. Therefore, China's current objective should continue to prioritize balancing economic levels across different regions.

If one of China and the United States gives up its sustainable development strategy, will it affect the other countries?

If either China or the United States were to abandon the strategy of sustainable development, it would undoubtedly impact both countries and even the entire world. A country relinquishing the strategy of sustainable development may, in the short term, produce goods with extremely low costs and high environmental impacts for export, leading to social dumping. This could devastate the markets of trading partners. However, over time, a country abandoning the strategy of sustainable development would excessively exploit resources, potentially leading to resource depletion. The ecological environment would also suffer damage, amplifying issues of economic instability and inequity. The nation's reputation would be tarnished. Therefore, to ensure sustained prosperity, sustainable development is a meaningful and imperative strategy that must be implemented.

Sustainable development relies heavily on technological innovation, and both China and the United States have not abandoned innovation due to the high costs associated with it. In sustainable development, technological innovation brings numerous benefits. New energy sources are products of technological innovation, and many clean energy sources, such as solar and wind energy, depend on technological innovations. Technological advancements significantly increase the utilization of clean energy, reducing reliance on traditional resources. Additionally, technological innovation enhances the efficiency of traditional resources, allowing fewer non-renewable resources to generate more energy. Technological innovation also contributes to improvements in recycling. Many recyclable materials help reduce waste production.

Furthermore, technology introduces new educational models. Online libraries are often more convenient and easier to manage than physical ones. In terms of educational resources, many regions with a scarcity of resources can gain more knowledge through online learning. Moreover, during the Covid-19 period, online courses have been widely utilized. Technology provides a more convenient means of education for an increasing number of people.

Technology has also brought about more convenient modes of transportation, enhancing global cooperation. For sustainable development, the world is interconnected, and achieving sustainability is not confined to a single country. Globalization has deepened the connections among various economic entities worldwide. The economic collapse of one country often impacts the economies of other nations. Therefore, international cooperation is a crucial component of sustainable development.

Both China and the United States have made significant efforts in technological innovation. Technology provides essential tools and means for sustainable development. Through technological innovation, societies can develop in a more stable manner.

Economic inequality in the United States is evident in the significant imbalance between the labor costs and capital proportions of high-income individuals, a phenomenon closely tied to education [10]. Despite the economic prosperity of the United States, there is a substantial education gap between the poor and the wealthy. As the share of income allocated to education gradually increases, the impoverished still struggle to access quality education, perpetuating a cycle of deepening poverty for the less affluent and increased wealth for the affluent. This is a highly challenging issue that has plagued many countries for years.

The United States now requires bold innovation to mitigate the impact of economic inequality. This problem cannot be entirely eradicated at its root. Therefore, the U.S. needs to diminish the influence of this factor. Initiatives such as raising the minimum wage and increasing taxes on the wealthy, while offering temporary relief, do not address the fundamental issue of economic inequality. Strengthening educational infrastructure and promoting higher education accessibility are the fundamental approaches to resolving this problem. Therefore, the future sustainable development strategy of the United States needs to emphasize strengthening educational policies.

3. Conclusion

For China, the strategic focus on sustainable development leans towards technological advancement. However, being a unique country with a massive population, addressing economic inequality is also a crucial consideration. The government needs to balance resources among different regions, strive to equalize the pace of economic development, and encourage technological advancements and exploration of new energy sources. As for the United States, resolving economic inequality is the most critical issue.

With a stable and growing economy and a high baseline, the U.S. needs to address the severe problem of economic inequality stemming from educational disparities. Leveraging its technological advantages, the U.S. can alleviate issues arising from economic inequality, and revising legislation related to higher education can be attempted to tackle this problem.

Sustainable development is a global endeavor; it is not sufficient for a single country to maintain sustainable development on its own. The Earth's ecosystems are

interdependent, so the failure of one country to protect the environment can have repercussions on other nations. The fluidity of various resources is also high, and with the development of globalization, the economic activities of one country can rapidly impact another. Certain environmental issues, such as those related to the oceans and climate, transcend national borders.

The purpose of sustainable development is to ensure the enduring and stable growth of economies. Therefore, achieving sustainable development requires collective efforts from all countries worldwide.

The benefits of sustainable development may not be immediately apparent, so as the institution makes decisions on behalf of the people, the government needs to consider sustainable development for the well-being of its citizens. It is essential to actively promote the benefits of sustainable development. The path to sustainable development may be challenging, but commitment to it is imperative.

References

1. J. Mensah, *Cogent Social Sciences*, 5(1), (2019).
2. R. Waheed, S. Sarwar, W. Chen, *Energy Reports*, 5, 1103–1115, (2019).
3. Q. Wang, M. Kwan, J. Fan, J. Lin, *Renewable & Sustainable Energy Reviews*, 137, 110620, (2021).
4. W. Liang, M. Yang, *Sustainable Computing: Informatics and Systems*, 21, 1–9, (2019).
5. S. Umer, F. Zeeshan, S. Farrukh, S. Khurram, *Journal of Cleaner Production*, 279, 123806, (2021)
6. X. Zhang, J. Wen, X. Zou, Q. Wang, C. Chang, *Sustainable Development*, 31(1), 426–438, (2022).
7. R. Mejia, P. J. Hotez, M. E. Bottazzi, *Current Tropical Medicine Reports*, 7(4), 99–103, (2020).
8. Q. Wang, R. Huang, *Environmental Research*, 202, 111637, (2021).
9. C. Lee, R. Lou, F. Wang, *Economic Analysis and Policy*, 77, 418–434, (2023)
10. F. Hoffmann, D. S. Lee, T. Lemieux, *Journal of Economic Perspectives*, 34(4), 52–78, (2020).