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# *The Idea of Common Prosperity and the Path of Poverty Alleviation and Development in the Era of Information Intelligence and Digital Economy*

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***Abstract:*** As the society begins to develop towards information intelligence and the economic age begins to move towards the digital economy, China's social productivity is also developing rapidly, and it is urgent for China's domestic ideas of common prosperity and the promotion of poverty alleviation and development. This article aims to study the promotion of the idea of common prosperity in China and the implementation of poverty alleviation and development in the context of information intelligence and the digital economy. For this reason, this article proposes a method of data collection. Through the research and analysis of data collection methods, we can accurately collect the poverty situation and income gap in China, once to ensure that the implementation of poverty alleviation and the realization of common prosperity can move forward steadily. At the same time, an experiment was designed to investigate the poverty alleviation situation in China in recent years. The results of this article show that the speed of China's poverty alleviation and common prosperity has increased by 37% compared with the past in recent years, and the poverty alleviation work has also been accurately implemented.

## 1. Introduction

China's poverty alleviation and development work has been continuously improved and promoted in the course of reform and opening up in the past 40 years. Since the beginning of the new century, poverty alleviation work has shown obvious characteristics and changes in three aspects: poverty alleviation goals, the formulation of poverty alleviation systems, and the main tasks of poverty alleviation. First, the goal of alleviating poverty has changed from completely adjusting the poor and low-income people to fully supporting all low-income people. In addition, the poverty alleviation system started from the stage of a single and isolated developmental poverty

alleviation policy and moved to the continuous improvement of the social support system based on support for the elderly and the disabled as the focal point for orphans confirmed by the minimum living security system. The poor. In addition, the issues of poverty alleviation and development have also been clarified, the scope is gradually clarified, and the intensity continues to increase, establishing the main direction for improving the overall quality and development capabilities of the poor.

While the market economy mechanism effectively allocates resources, it will also cause cruel consequences that are unacceptable to society and the government, such as poverty, unemployment, and malnutrition among the poor. Like other countries mentioned by the World Bank, protecting vulnerable groups must be the top priority of their public policies. In China, the most disadvantaged group is undoubtedly the thousands of rural poor, whose food and clothing problems have not been resolved. The "three rural" issues that the party and the state attach great importance to are, to a certain extent, the issue of relative poverty and market failure. Solving the problems of the survival and development of the rural poor and enabling them to enjoy equal public resources in society is an inevitable responsibility of the government and an inevitable requirement of social justice.

In the era of information intelligence, the realization of intelligence and the integration of information processing have gradually been put on the table, and the development of the digital economy has also brought opportunities for all walks of life. The Vernon PA study investigated the relationship between cognitive information processing speed and intelligence test scores. He conducted five processing speed tests on 100 college students, measuring their encoding speed, short-term memory scanning, long-term memory retrieval, short-term memory storage and processing efficiency, and simple and selective reaction time or decision-making speed. Multiple regression analysis shows that cognitive processing measures are significantly correlated with IQ scores [1]. The purpose of this article by Tang V is to bring attention to a gap in the literature on corporate flexibility: the role of management control systems (MCS) in the discussion of corporate flexibility and stability. MCS can help ensure that the organization's strategic performance goals go far beyond the pure management control and accounting perspective of traditional MCS [2]. Qamar S believes that effective analysis of shared cyber threat intelligence (CTI) information is essential for cyber risk assessment and security reinforcement. In order to overcome the limitations of the existing CTI framework, they designed a threat analysis framework based on Web Ontology Language (OWL) for formal specification, semantic reasoning and context analysis, allowing network-related information to be derived from a large number of shared threat sources Threat [3]. Hendon M proposed that in today's digital and technological environment, employers are looking for people who can not only contribute to the organization by using technical skills, but also express their expertise by using positive emotional intelligence and communication efficiency. Due to the lack of research on the soft skills used by information technology professionals, the relationship between emotional intelligence and communication adaptability is the focus of this research. This quantitative non-experimental correlation analyzes the emotional intelligence and communication adaptability levels of 111 information technology professionals working in the United States [4]. In his article, Aravantinos S considered the issue of the effectiveness of the remedial measures imposed by the EC. His fundamental analysis stems from the interaction between competition law and the digital economy. The digital age has introduced a global economic activity and business transaction network supported by information and communication technology. Through innovative products/creatives, not only does the company benefit from increasing productivity and thus constantly creating new jobs, but consumers also have the opportunity to choose a large number of products at the most favorable price [5]. Ansong E's research aims to explore the business models

and strategies of digital companies in developing economies to understand their operational nature and survival strategies. The survey results show that among human, physical and intangible assets, financial assets are the least used assets in digital enterprise operations. The survey results further show that all digital companies use accessible and low-cost social networking services as part of their operations and use them as a way to interact with target customers [6]. Akaev A A believes that in the era of widespread digitization and robotization of the national economy with technological information as the main production factor, mathematical models for the actual calculation of technological progress (total productivity of production factors) and economic growth have been developed and verified. To this end, he proposed for the first time a model using different information production models. Studies have shown that the economic effects of an economy's digitization will not be immediately apparent, but will lag by about eight years [7]. Ballell T believes that the e-commerce directive laid the foundation of the EU's legal framework for digital services. Since its adoption in 2000, the legal framework has remained basically unchanged, while the digital economy has undergone profound changes. Today's digital economy is becoming a platform economy. The rules and legal solutions supporting the directive have effectively adapted to the structure, operation and behavioral characteristics of the initial stage of the platform economy. Despite its advantages, there are still obvious limitations when facing new challenges [8]. The above documents mainly describe the related practical applications of information intelligence and the background of the digital economy era, expounding the development process of information intelligence and the process of economic digitization. However, the explanation of information intelligence and related theoretical knowledge in the digital economy era is relatively lacking, and it is not conceptually explained.

The innovation of this article is mainly reflected in the combination of theory and reality, through the analysis of the connotation of common prosperity and the characteristics of the digital economy, and a deep understanding of data collection technology, using data collection technology to address the current poverty faced by China The current situation and the large gap between the rich and the poor are accurately collected to ensure that the poverty alleviation work can be accurate to the towns, villages, and individuals, so as to truly achieve the goal of helping the poor people get rid of poverty while achieving the goal of common prosperity.

## 2. Development Methods for Poverty Alleviation

### 2.1. The Scientific Connotation of Common Prosperity

Common prosperity is the proper meaning of scientific socialism. Although the Marxist classic writers did not put forward the concept of "common prosperity" in their discourse, they contained the idea of "common prosperity"[9].

(1) Common prosperity is the essential requirement and fundamental goal of socialism

Marxism believes that the most fundamental difference between socialist and non-socialist movements is the purpose of the movement. Marx and Engels said in the Communist Manifesto: "All past movements were independent movements for the interests of the minority or the minority. The proletarian movements were independent movements for the interests of the overwhelming majority and the overwhelming majority. "The fundamental difference between socialism and capitalism is that it advocates common prosperity and does not participate in polarization. Marx pointed out that based on the capitalist system of private production means, the essence of capitalist production is to extract surplus value, which will inevitably lead to the polarization of wealth accumulation and poverty accumulation, and will inevitably deepen social contrast and

strengthening, and social opposition. The modern capitalist welfare state is committed to improving the living conditions of all members of society, but instead of proposing a common wealth goal, it uses a welfare system to ensure that the living standards of the low-income people in society are relatively high. The goal of common prosperity can only be achieved under the socialist system. The political system of the dictatorship of the proletariat fundamentally guarantees the realization of the theory of getting rich first. It is based on all structures with the means of production as the main body and the circulation system with work distribution as the main body, which provides the prerequisites for all members of society to achieve common prosperity [10]. The path to achieving common prosperity is shown in Figure 1.

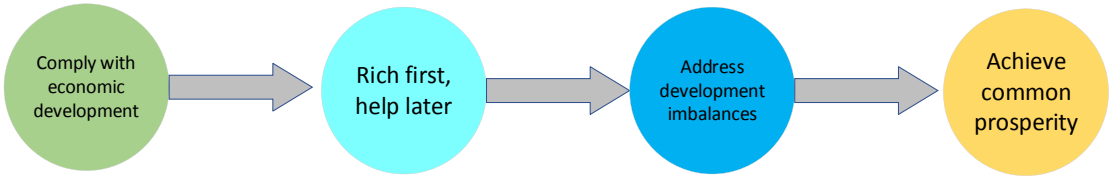


*Figure 1. Path to achieve common prosperity*

(2) Common prosperity is the foundation for the all-round development of socialism

Marxism [11] believes that the development of human society is from a one-sided society to a comprehensive society. However, in all previous societies, "Neither individual nor society can imagine free and full development." The four aspects in the all-round development of socialism are shown in Figure 2.

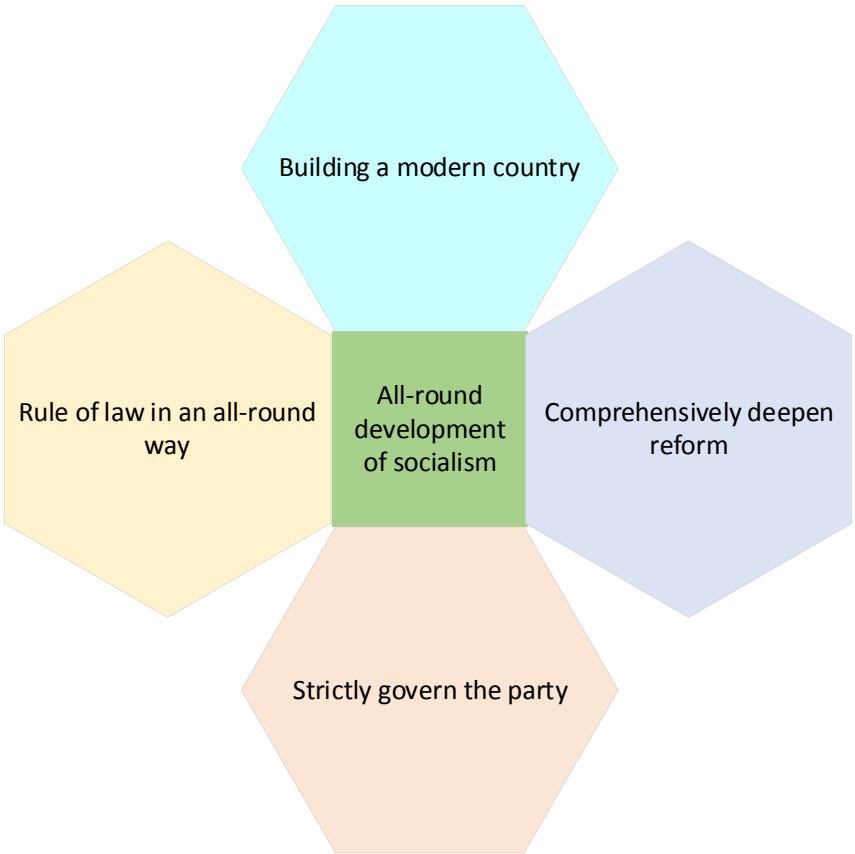


*Figure 2. Four comprehensive*

In a socialist society, economic development is subordinate to the needs of human comprehensive development. Human comprehensive development promotes economic development and finally realizes comprehensive social development [12]. Engels once believed that "through social production, not only to ensure that all members of society live a prosperous and abundant material life every day, but also to fully develop their bodies and intelligence so that they can use them freely." The five developments are shown in Figure 3.

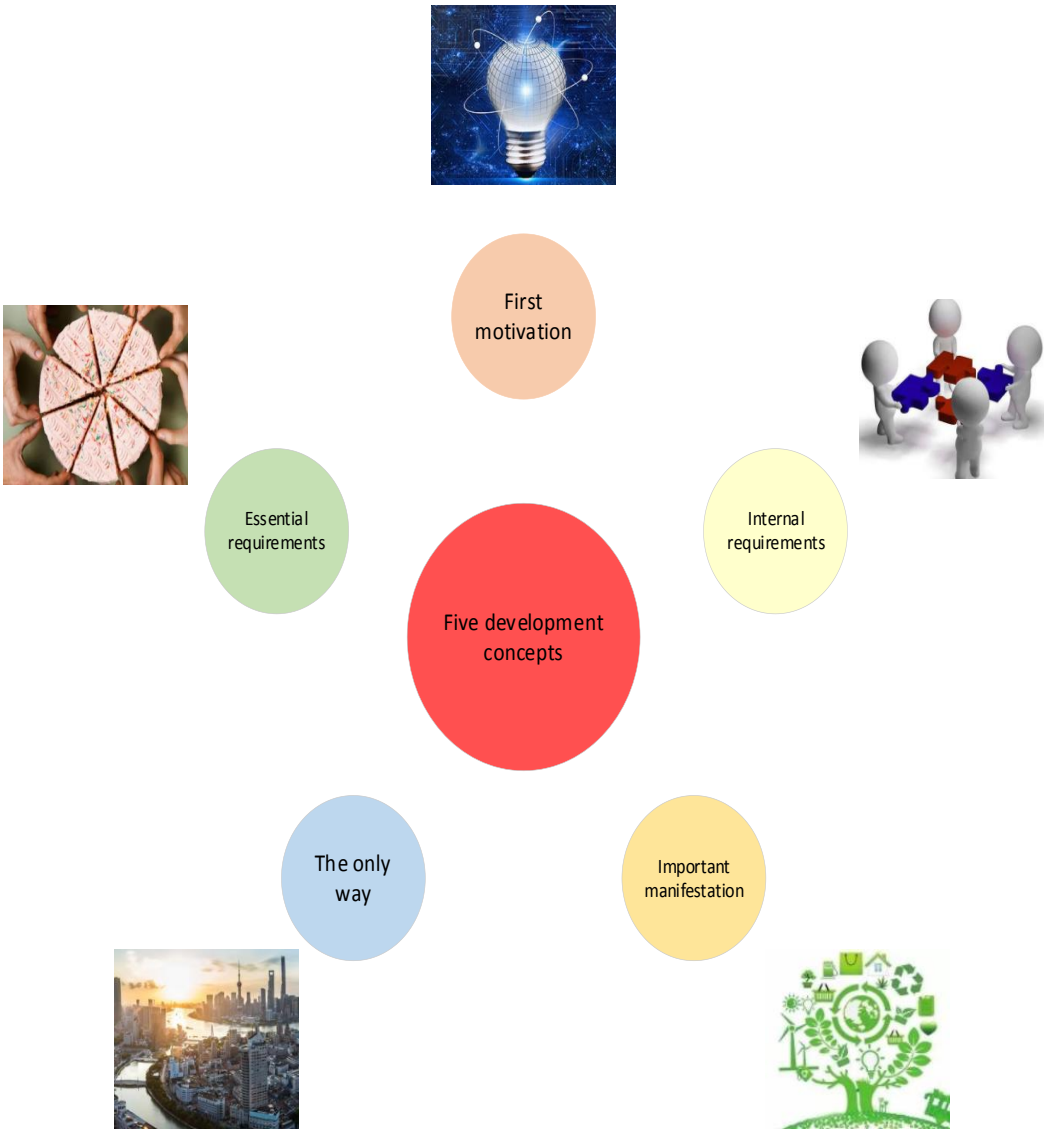


*Figure 3. Five developments*

(3) Reduce the gap between urban and rural areas and between workers and peasants, and achieve common prosperity for all members of society

Eliminating the antagonism between urban and rural areas, promoting the integration of urban and rural areas, and realizing the common prosperity of all members of society are the basic views of Marxism. Marx and Engels believed that capitalist large-scale mechanical industrial production, on the one hand, made the economic ties between urban and rural areas and between regions more and more close. The countryside under the capitalist productivity layout. Therefore, they suggested

that "a combination of agriculture and industry promotes the gradual disappearance of the confrontation between urban and rural areas." According to Marx and Engels, the development of human society can be summarized into four stages. When talking about the future of society, Engels said, “It is composed of all members of society and uses productive forces together and systematically to develop a social organization that can meet the needs of everyone on a scale of production. It is over at the expense of some people’s interests.” He said that it is necessary. The state is to completely exclude class and class opposition. By eliminating the old division of labor, industrial education, and changes in the types of jobs, everyone can enjoy the benefits generated. Through the integration of cities and cities, the talents of all members of society can be fully developed in rural areas-this is the abolition of private ownership The main result [13]. Engels said that in the future development of socialist society and the national economy, all members of urban and rural society must use various production factors in a planned way to meet their needs as much as possible. The society enjoys the fruits of labor created by everyone. Promote the integration of social welfare, industrial production and agricultural production, and promote the integration of urban and rural areas, so that all members of society can get all-round development. Marx and Engels pointed out that the creation of a new society in the future is "for the purpose of prospering all people", emphasizing that all people Lenin pointed out that only socialism can enable laborers to live the happiest lives. Stalin believes that after the antagonism between the city and the countryside is eliminated, not only will big cities not be destroyed, but new big cities will also appear. They are the developed center is not only the center of large industries, but also the center of agricultural products processing and all food industries. This situation can also promote the prosperity of national culture and make it possible to "have the same living conditions in urban and rural areas" [14].

(4) Common prosperity is the category of economics

Common prosperity is an important category of space science. From the perspective of regional economy, the core of regional economic research is development. In the process of regional common prosperity and economic development, no matter which country is facing the problem of regional uneven economic development. Unbalanced regional development is a common problem for all countries in the world. However, if the economic growth of developed regions is faster than that of undeveloped regions, and the imbalance of regional economic development continues to become apparent, the gap between the rich and the poor in developed and undeveloped regions will inevitably widen. The deterioration of economic development in poor areas has had a bad impact on the country’s overall economic growth. The spatial equality of economic development is to verify the fairness of economic development from the perspective of spatial distribution. Regarding the meaning of space equality in economic development, in general views at home and abroad, space equality refers to narrowing the gap in economic growth rates between regions and narrowing the income gap. In order to gradually realize inter-regional equality, the inter-regional economy must continue to achieve long-term unbalanced growth. This is confirmed in accordance with the practice of developed and developing countries. Developed countries have basically achieved spatial equality in economic development [15]. In most developing countries or regions, due to the unequal economic growth between regions and the different opportunities for regional competition, the country’s economic growth is divided into two polar spaces, forming a dual regional structure. The more important and direct symptom of spatial polarization is the excessive concentration of population and socio-economic activities and the widening of the difference in income levels between regions. Under such circumstances, in order to promote balanced regional growth, countries are trying to solve the problem of regional economic development imbalance, adopting

various measures to improve the development status of underdeveloped regions, and implement corresponding regional economic development strategies. Pursue the goal of economy and fairness, and finally realize the common prosperity of the region. Common prosperity includes not only the further development of developed areas, but also the further prosperity of cities, and the common prosperity of poor areas including the overall progress of rural areas. The common prosperity of the social collective. Common prosperity means not only the prosperity of a few individuals and classes, but also the common prosperity of all social groups. Under certain historical conditions, "common prosperity" within a certain range must be a phenomenon that the living standards of all social groups can be continuously improved, and some members of the society have not been improved or are relatively poor. From the perspective of the law of human development, common prosperity is another requirement of the law of comprehensive and balanced development of mankind in terms of economic and social development [16]. The four goals of common prosperity are shown in Figure 4.

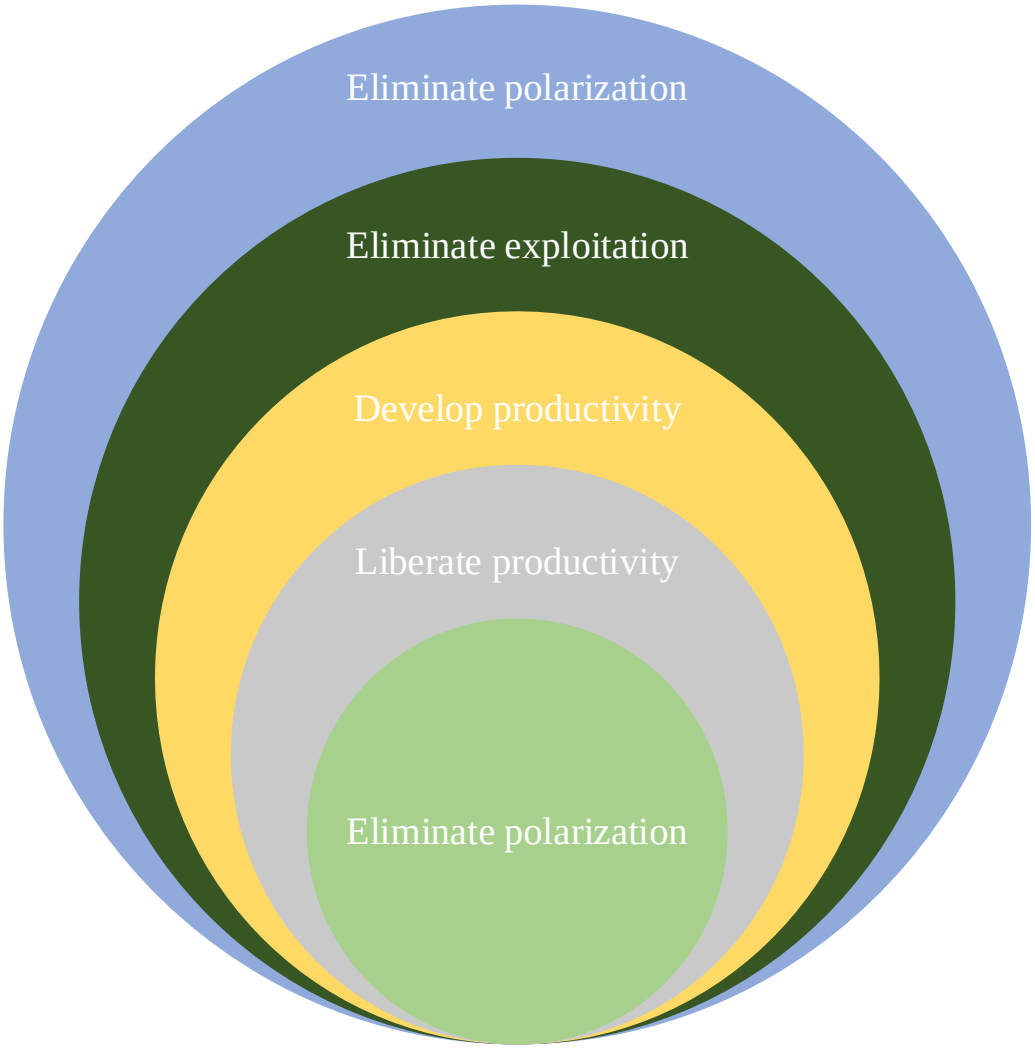


*Figure 4. Four goals of common prosperity*

The core of common prosperity is "common", but in the process of social historical development, due to different starting points, differences in own capabilities, uneven opportunities, and

institutional factors, it will cause a gap between the rich and the poor in a country or region. In the process of moving toward common prosperity, if the gap between the rich and the poor is moderate, this is not a polarization, but a decentralization of social wealth. The social group as the main body of material wealth enjoys the economic results of mankind equally. Social stability. This gap exceeds the "critical point", and social wealth is increasingly concentrated in a small number of social groups and a small number of social members, and a small number of people own most of the social material wealth. Most people are in a socially unfair situation. Under such circumstances, there is excessive tension to maintain the stability of the entire society, and society will face the danger of chaos. Therefore, in order to maintain the stable development of society, the common prosperity of all social groups must be realized. Therefore, there are several final criteria to determine common prosperity [17]. One is that the income of some people increases, and it is not conditional on the decrease of other people's income. This benchmark means that the economy as a whole is operating efficiently. Second, in the process of social and economic activities, the owners of production factors, especially the owners of labor factors, are treated fairly, not only get income from work, but also whether they can get income from labor. Third, in order to decide whether to advance toward the goal of getting rich first, society will increase or decrease the portion allocated to all people. The increase in labor compensation is a manifestation of social progress and prosperity, as well as a manifestation of fair distribution. The most important thing for evaluating and measuring common prosperity is whether the living conditions of the broad working class, especially the bottom of the society, have improved, whether the standard of living and the quality of life have improved. Does the economic development process increase opportunities for everyone? Equal opportunity is still difficult to achieve in the short term, so equal opportunity can only depend on whether opportunities increase to determine whether to advance towards the goal of common prosperity. People choose to increase opportunities means increase in income opportunities. In this case, if economic development increases the opportunities for all people, even if inequality expands and the income gap widens, it will move towards the goal of getting rich first [18].

### 2.2. The Connotation and Characteristics of the Digital Economy

(1) From information economy to digital economy

The concept of "digital economy" evolved from the "information economy", and its development stage is shown in Figure 5. In 1962, the American economist Macklupp[19] first proposed the concept of "information economy" in his book "The Production and Distribution of Knowledge in the United States". In that book, he proposed the emergence of "knowledge industries", which proved the importance of modern production. The knowledge industry is composed of "enterprises that provide information products and information services to the market", so its economic form is called the information economy. The emergence of the information economy benefited from major technological advances in the field of microelectronics in the 1940s. With the invention of electronic computers and integrated circuits, human information processing capabilities have greatly improved. In the 1980s, the development of information technology accelerated due to the invention of large-scale integrated circuits and microprocessors and the revolution in the software field. Due to the appearance of personal computers and communication networks, other industrial sectors of information technology will continue to interact and merge. American economist Mark Porat [20] first paid attention to this phenomenon. He pointed out that in 1977, in addition to the "first information department" mentioned by McLup, the "second information department" should also be included [21]. Since then, the merger and penetration of information technology innovation

with other economic sectors has further deepened the impact on the economy and society.

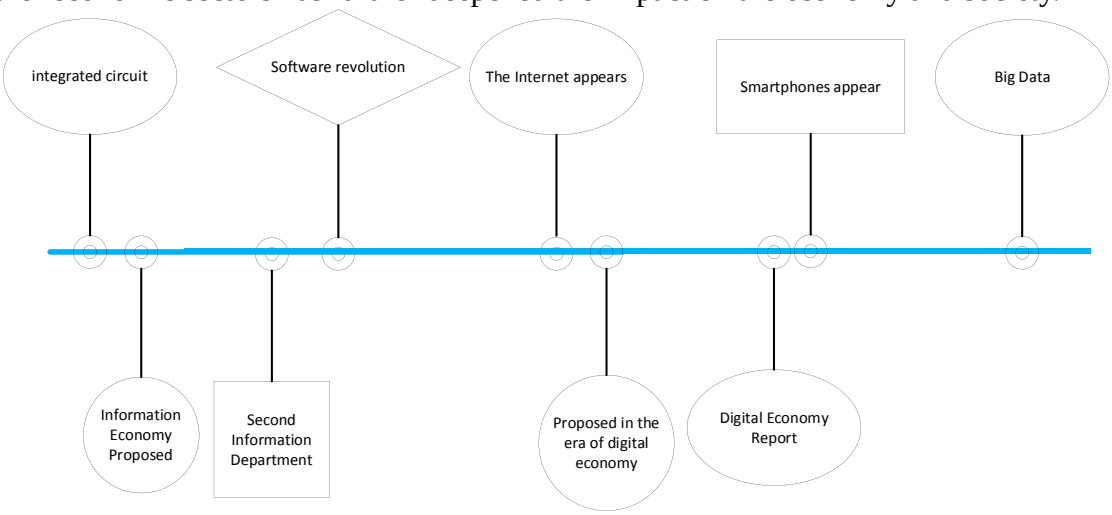


*Figure 5. The timeline of the development of the digital economy*

Network technology matured in the early 1990s. With the popularization and utilization of the Internet, and the integration of information technology and network technology, new changes have taken place in the information economy model. While accelerating the innovation of information technology, it also gave birth to new production factors and business models. Information is not only used in other production sectors in a single technological form, but also as a basic underlying element that changes the entire economic system. A large number of traditional production and exchange problems can be digitized and networked. From this, a new batch of new business formats such as data analysis, network information management, and website development have been born. The most typical one is the emergence of e-commerce, and human transactions have broken through. The business model of physical and on-site exchange for thousands of years. Because these new business forms exceed the scope of the "secondary information sector," a new concept is needed to explain this economic form. In 1996, American scholar Tapscott [22] formally proposed the concept of digital economy in the book "Digital Economy Era", which has since been widely popularized and recognized. In 1998, 1999, and 2000, the U.S. Department of Commerce successively published survey reports with the title "Emerging Digital Economy" (I, II) and "Digital Economy", showing the beginning of the digital economy era. It also means entering a deeper and broader new stage of development.

(2) Features of the digital economy

The characteristics of the digital economy are mainly reflected in a wide range of industries that are affected. From the stage of agricultural economy to the stage of industrial economy, the production methods and the main factors that mankind depend on have changed, so that industry replaces agriculture as the main production department of society. Similar to this process, from the stage of industrial economy to the stage of digital economy, digital and related industries will also become the main production sector of society. The ICT (Information and Communication Technology) industry is a basic part of the digital economy, that is, related production including information manufacturing, information and communication services, IT services and applications constitute the underlying applications of the digital economy society. Other related departments adopt digital technology and services to improve production efficiency to form the network system of the digital economy, and because of the use of digital technology, the communication and

correlation between these departments are getting closer and closer. The former can be called "digital industrialization", and the latter can be called "digital industrialization". According to the current development status, digital technology can not only combine agriculture, industry, and service industries in the traditional industry classification, but also derive a number of emerging business formats, such as new media, big data, cloud computing, and mobile payment. It can be said that the digital economy uses data as a new production factor to reconstruct the human production method, breaking the traditional factor restriction or geographical restriction, and forming a network and leapfrog development. The application areas of the digital economy are mainly shown in Figure 6.

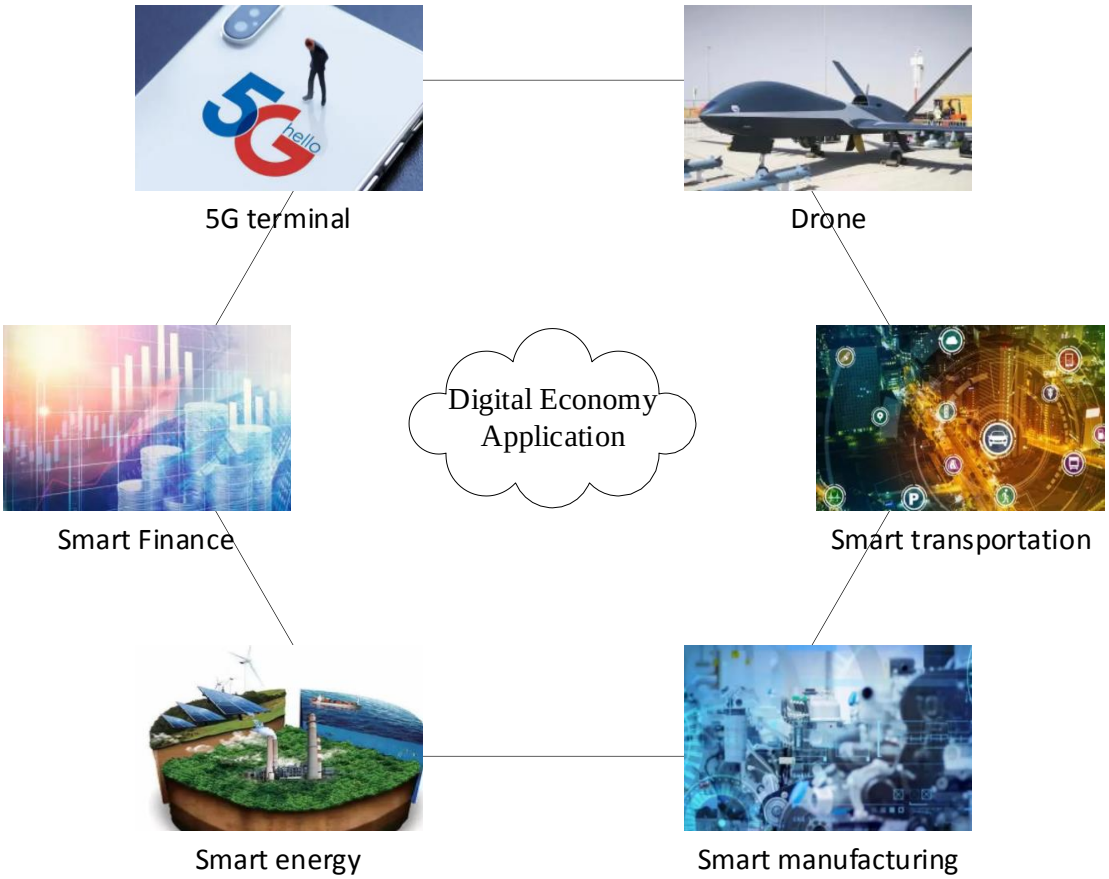


*Figure 6. Applications in the digital economy era*

An important feature of the digital economy is that the efficiency of information dissemination has reached unprecedented heights. This not only refers to the speed of information dissemination-the same kind of information is transmitted to the recipient in a shorter time; it also refers to the way information is disseminated and received- Three-dimensional, multi-dimensional means of communication, the structure of information-the association and classification of related information, the production and organization of information-the expansion and division of labor of information producers. As mentioned in the first chapter of this article, knowledge or creativity has become an important driving force for economic growth, and the dissemination of knowledge plays a key role in this process. Because information dissemination has changed from traditional linear growth to fission growth, the role of information has also undergone a qualitative change, which has completely changed the production and lifestyle of mankind. This feature of the digital economy

proves that the diffusion process of cultural creativity is particularly important in the following article. It should be noted here that mobile phones should not only be regarded as a consumer product, but as an infrastructure of the digital economy. The stock of digital infrastructure ensures the rapid dissemination of news, knowledge, data, and creativity [23].

Digital and related technological innovations have been activated and explosive growth has occurred. This phenomenon of rapid upgrading of technologies and products is one of the typical characteristics of the digital economy era, and it is also a powerful driving force for social and economic development [24].

### 2.3. Real-Time Collection of Poverty Alleviation Data

(1) Deepen reforms in an all-round way and improve the institutional guarantees for achieving common prosperity

Common prosperity is the value goal of socialism. In order to narrow the income gap and achieve this ambitious goal, we must adhere to and improve the basic economic system, deepen the reform of the distribution system, and improve the basic social security system [25].

The public ownership of the means of production is the foundation of all other systems in China and the precondition for achieving common prosperity. Its improvement and development are closely linked to the future and destiny of socialism as a whole. Improving the basic economic system must not shake the dominant position of the public-owned economy. The public-owned economy plays an important role in increasing people's income, narrowing the income gap, and maintaining social equity. Practice has proved that adhering to the dominant status of public ownership is a matter of principle. Once the dominant status of public ownership is denied, society will enter anarchy, the income gap will continue to expand, and ultimately endanger the survival of the socialist cause.

In the process of exploring the actual poverty alleviation development path, data collection is also very important. Real-time and accurate data can make the reform of the gap between the rich and the poor more effective. The circuit analysis of the collection signal of poverty alleviation data is as follows:

In the circuit principle, a strictly defined mathematical formula is used to describe the circuit element, and its impedance is:

$$Z(w) = R + i\left(wL - \frac{1}{wC}\right) \tag{1}$$

The mathematical expression of its self-resonant frequency is as follows:

$$f_{SRF} = \frac{1}{2\pi}\frac{1}{\sqrt{L \times C}} \tag{2}$$

Here we use formula 3 and formula 4 to give the approximate calculation formulas for the characteristic impedance of the microstrip line and the strip line respectively:

$$Z = \frac{67\Omega}{\sqrt{1.48 + \varepsilon_s}} \ln\left(\frac{5.97h}{0.9w + t}\right) \tag{3}$$

$$Z = \frac{63\Omega}{\sqrt{\varepsilon_s}} \ln\left(\frac{3b + t}{0.9w + t}\right) \tag{4}$$

The time delay of a transmission line refers to the total amount of time it takes for a signal to propagate through the entire transmission line, and its value is related to the relative permittivity, propagation speed and transmission distance. The time delay calculation formula of the transmission line is as follows:

$$T_S = \frac{y}{v} = \frac{y\sqrt{\varepsilon_r}}{c} \tag{5}$$

From this, the time delay of the differential pair transmission line can be calculated as:

$$T_S = \frac{y}{v} = \frac{y\sqrt{\varepsilon_r}}{c} \approx 523 \tag{6}$$

At the same time, vias not only cause signal reflection problems, but also the influence of parasitic inductance and parasitic capacitance generated by vias on signal integrity cannot be ignored. The approximate mathematical relationship between the parasitic capacitance and parasitic inductance of the via is as follows:

$$C = \frac{1.48\varepsilon_s T D_1}{D_2 - D_1} \tag{7}$$

$$L = 5.16H\left[\ln\frac{3T}{D} + 1\right] \tag{8}$$

The change in rise time caused by this part is approximately:

$$\Delta t = \frac{Z_0 \times 2.4C}{2} \approx 9 \tag{9}$$

Differential impedance refers to the impedance after coupling, which is also divided into microstrip differential pair transmission line and strip differential pair transmission line. The approximate calculation formula for the impedance value is as follows:

$$Z = 2 \times Z_0\left[1 - 0.51 \times \exp\left(-0.94 \times S/H\right)\right] \tag{10}$$

$$Z = 2 \times Z_0\left[1 - 0.369 \times \exp\left(-0.24 \times S/H\right)\right] \tag{11}$$

The theoretical analysis of the transmission line proposes that the transmission line is composed of segmented capacitance, resistance and inductance, that is, there will be mutual inductance and mutual capacitance on adjacent transmission lines. Mutual capacitance will cause induced current, and mutual inductance will cause induced voltage, as shown in Equation 12 and Equation 13.

$$V = L\frac{dI}{dt} \tag{12}$$

$$I = C\frac{dV}{dt} \tag{13}$$

The crosstalk coefficients of near-end crosstalk and far-end crosstalk are shown in Equation 14 and Equation 15.

$$NEXT = \frac{V_b}{V_a} = 1K_b = \frac{1}{4}\left(\frac{C_{mL}}{C_L} + \frac{L_{mL}}{L_L}\right) \tag{14}$$

$$FEXT = \frac{V_f}{V_a} = \frac{Len}{RT} \times \frac{1}{2v} \times \left(\frac{C_{mL}}{C_L} - \frac{L_{mL}}{L_L}\right) = \frac{TD}{RT} \times v \times k_f \tag{15}$$

The change of the instantaneous impedance determines the size of the reflected signal. Suppose the instantaneous impedance of the transmission line impedance in a certain area is Z, and the impedance changes to $Z_1$ after a point, then the ratio of the reflected signal to the incident signal is:

$$\frac{V_{ref}}{V_{in}} = \frac{Z_2 - Z_1}{Z_2 + Z_1} = \rho \tag{16}$$

When the power chip produces a current change at the frequency f, the expression of the voltage drop generated on the power distribution network is as follows:

$$V(f) = I(f) \times Z(f) \tag{17}$$

It can be seen from the formula that the die pad receives the constant voltage output by the stabilized voltage source is changed, and the chip can accept that the die pad voltage is less than a certain value under a given current fluctuation, that is, the power supply line. Therefore, the impedance of the power distribution network must be controlled to be less than a certain value, that is, the target impedance:

$$V_{ripple} > V_{PDN} = I(f) \times Z_{PDN}(f) \tag{18}$$

$$Z_{PDN}(f) < Z(f) = \frac{V_{ripple}}{I(f)} \tag{19}$$

The maximum impedance of the power distribution network can be expressed as:

$$Z_{PDN}(f) \times I = V < V_{dd} \times ripple\% \tag{20}$$

$$Z(f) < \frac{V_{dd} \times ripple\%}{I} \tag{21}$$

From this, the target impedance can be calculated as:

$$Z_{target}(f) = \frac{2V_{dd} \times ripple\%}{I_{\max}} = 0.03 \tag{22}$$

The impedance generated by the parallel connection of capacitors is equivalent to the RLC circuit, as follows:

$$C_n = nC \tag{23}$$

$$ESR_n = \frac{1}{n} ESR \tag{24}$$

$$ESL = \frac{1}{n} ESL \tag{25}$$

A single capacitor has a self-resonant frequency, and multiple capacitors have a parallel resonant frequency in parallel. The rough calculation formula is as follows:

$$PRF \approx \frac{1}{2\pi}\frac{1}{\sqrt{C_2 \times ESL_1}} \tag{26}$$

In the formula, $C_2$ represents the capacitance of the smaller capacitor, $ESL_1$ represents the equivalent series inductance of the larger capacitor.

## 3. National Poverty Alleviation Data Collection Experiment

### 3.1. The Relationship between the Overall Core Elements of the National Poverty Alleviation Policy Implementation and the Local Policy Implementation Plan

The targeted poverty alleviation strategy not only embodies the national poverty alleviation policy's overall guidelines and ultimate goals, but also requires scientific planning based on local conditions in different regions and regions with different development conditions. It is the ultimate strategic arrangement for solving the poverty problem.

The core elements of the overall positioning of the implementation of the national precision poverty alleviation policy are government assistance, social assistance, industrial development, and social self-help. The implementation of industrial development in poverty-stricken areas is regarded as a fundamental solution to poverty, so that the government alone depends on government assistance. Temporary poverty alleviation through assistance. However, there are many differences in how local governments develop industries and government assistance efforts. The core functions of poverty alleviation policy implementation plan in some poverty alleviation development areas are not clear.

Targeted poverty alleviation policies are policies at the macro level. Local governments can influence the implementation of local policies through the tendentious interpretation of policy provisions and the selective use of policy tools. This form of active execution is deeply embedded in the established institutional environment of the place. The latter includes policy styles and policy heritage based on a number of local institutional arrangements, as well as comfortable interpretations of these institutional behaviors. Therefore, like some typical impoverished mountainous areas, the implementation plan of poverty alleviation policies bears the important function of solving local poverty and backwardness, economic development, social construction and other problems.

### 3.2. Results of the Implementation of Phased Poverty Alleviation Policies

During the "13th Five-Year Plan" period, focusing on the requirements of the Party Central Committee's "Opinions on Poverty Alleviation and Development Work" and the spirit of the provincial and municipal poverty alleviation and development work, the poverty alleviation work in some areas has achieved corresponding results. As of the end of 2016, the poverty alleviation policies in some regions had achieved corresponding phased results, which were mainly reflected in the reduction of counties, poverty-stricken towns and villages, and the construction of the five major poverty alleviation projects. The specific situation is shown in Table 1:

*Table 1. Poverty reduction situation of the poor*

| 2015-2017 poverty reduction population | | | | | |
|---|---|---|---|---|---|
| Townships | Poverty reduction in 2015 | Net poverty alleviation in 2016 | 2016 poverty count | 2017 net poverty alleviation | 2017 poverty numbers |
| total | 365439 | 84237 | 346281 | 71300 | 271694 |

The specific conditions of the poor towns and villages listed in 2015-2017 are shown in Table 2:

*Table 2. 2015-2017 Poor towns and villages*

| Number of poverty-stricken towns and villages in 2015-2017 (unit: number) | | | |
|---|---|---|---|
| Number of poor townships in 2015 | Number of poor villages in 2015 | Number of poor townships in 2017 | Number of poor villages in 2017 |
| 24 | 241 | 4 | 62 |

### 3.3. Comprehensively Deepen Reforms to Achieve Common Prosperity

Since the reform and opening up, China's economy has developed rapidly for decades, and the achievements it has made have attracted worldwide attention. However, the problems and contradictions encountered in it are also relatively acute. For example, the income distribution gap between industries and between urban and rural areas still exists. Specific statistics are shown in Table 3:

*Table 3. Per capita income of urban and rural residents*

| Years | Per capita income of urban residents | Per capita income of rural residents | Income ratio of urban and rural residents |
|---|---|---|---|
| 2011 | 22134 | 6213 | 3.56 |
| 2012 | 24138 | 6347 | 3.8 |
| 2013 | 26491 | 7682 | 3.45 |
| 2014 | 29437 | 9435 | 3.12 |
| 2015 | 32411 | 11062 | 2.93 |
| 2016 | 35113 | 12700 | 2.76 |

From the above table, we can see that China has a long way to go to promote the common prosperity of urban and rural residents' income. Although it can be seen that the ratio of urban and rural residents' income in the country has been significantly reduced in recent years, the income of rural residents is also fast. Improve, but there is still a big gap in the goal of common prosperity. The large gap between the rich and the poor is not only reflected in the income gap between urban and rural residents, but also in the income of different industries. The statistics of the specific situation are shown in Table 4.

It can be seen that the income gap of various industries is still relatively large. The average income of the highest financial industry reached 11,562 yuan, while the lowest catering industry was only 3864 yuan, a difference of nearly three times. It can be seen whether it is in urban and rural incomes. There is still a huge gap between the rich and the poor in various industries, and China's journey to common prosperity is still relatively long.

*Table 4. Income by industry*

| Industry | Income | Industry | Income |
|---|---|---|---|
| Entertainment Industry | 6237 | Real Estate Industry | 5826 |
| Education | 5862 | Financial Industry | 11562 |
| Service Industry | 4101 | Catering | 3864 |
| Public Facilities Management Industry | 3989 | Construction Industry | 4836 |
| Research Industry | 8122 | Manufacturing | 5367 |

## 4. Analysis of the Current Situation Facing the Realization of Common Prosperity

### 4.1. Analysis of the Relationship between the Income Gap between Urban and Rural Residents and Economic Growth

In order to more scientifically and systematically reflect the correlation between national economic growth and the income gap between urban and rural residents, this chapter uses a fitting method combined with a quadratic linear regression equation to analyze and observe the relationship between urban and rural income gap and economic growth in a certain region.

(1) Analysis of the status quo of the income gap between urban and rural residents and economic growth

As shown in Table 5, the income gap between residents in a certain region and the whole country in 2010-2013 and rural residents' income and the comparison of economic growth between the two.

*Table 5. The income gap and economic growth between the region and the country*

| Years | Urban-rural income ratio | | Nominal GDP per capita | | Real GDP per capita | |
|---|---|---|---|---|---|---|
| | that area | Nationwide | that area | Nationwide | that area | Nationwide |
| 2010 | 3.12 | 3.37 | 47261 | 31289 | 11558 | 5712 |
| 2011 | 2.93 | 3.24 | 51234 | 36127 | 12394 | 6399 |
| 2012 | 2.81 | 3.19 | 56291 | 38833 | 14162 | 7101 |
| 2013 | 2.77 | 3.14 | 62378 | 41035 | 17649 | 8624 |

In order to more fully reflect the relationship between the income gap between urban and rural residents and economic growth in the region and the country, this section uses the three economic indicators of 2010-2013, the nominal per capita GDP, the actual per capita GDP, and the urban-rural income ratio of the region and the country, as the standard to draw 2010 -The line chart of the relationship between urban-rural income ratio and economic growth in 2013 (as shown in Figure 7), which is more intuitive.

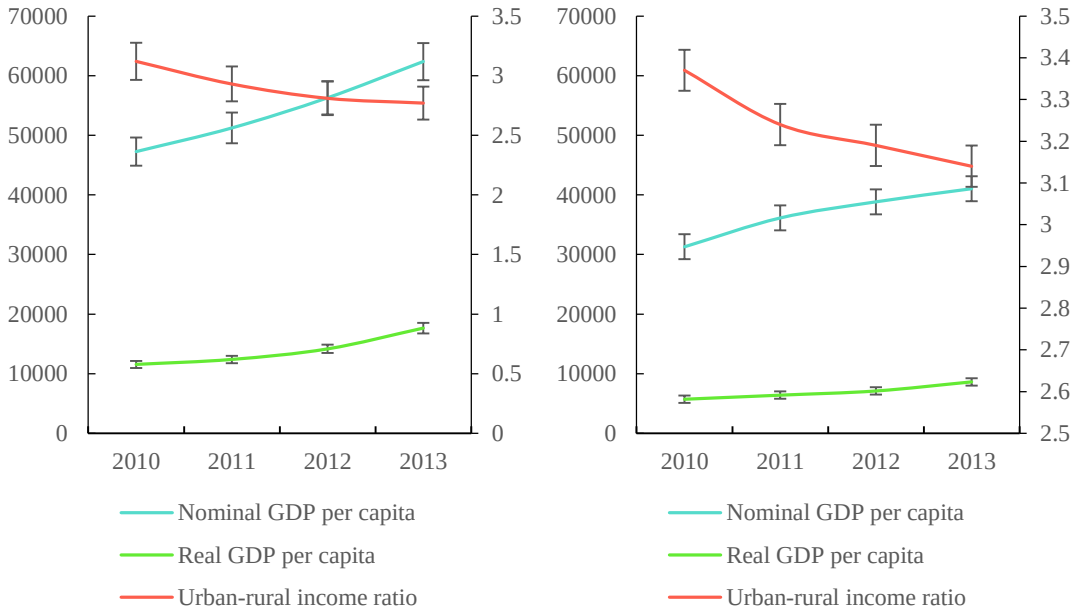


*Figure 7. The income gap between urban and rural residents in this region and the whole country*

It is not difficult to see from Figure 7 that from 2010 to 2013, the urban-rural income gap in this region and the national income gap have grown larger and larger, and the regional income imbalance in some regions has made it difficult to achieve the goal of common prosperity. But the overall relationship changes are still very consistent. From the above figure, we can see that the income gap between urban and rural areas in this region is lower than that of the whole country, which shows that the optimization of the gap between urban and rural rich and poor in this region is still done well, and it is quite effective. In addition, the change in the income gap between urban and rural residents in this area is similar to the change in the whole country, basically changing at the same time. However, the income gap between urban and rural areas in this region is relatively small, which can effectively promote the economic development of the region.

## 4.2. Analysis of the Development of Leading Related Industries in the Digital Economy Era

The basic industry of the digital economy is the cornerstone of the construction and development of the digital economy. This section mainly analyzes the development trend and structural characteristics of the industry, focusing on four aspects. Through the observation of these four fields, the following understanding of the basic industry of the digital economy is obtained First, the growth of the basic industries of the digital economy is driven by the software industry and IT services. The above two sub-sectors account for a relatively high proportion of industrial added value in the basic industries of the digital economy. In recent years, driven by demand, innovation and competition, digital infrastructure and services have grown rapidly. Second, the proportion of digital goods trade and digital service trade in the total trade of all countries has continued to increase. Global exports of digital goods and digital services are concentrated in a few countries, of which China, the United States, Germany and Japan account for 45% of global digital goods exports. Third, the added value of the basic industries of the US digital economy accounted for the highest proportion of total added value; the significant growth of China's digital product and service exports matched China's large-scale digital intermediate imports, and this part was mainly reflected

in the processing field. The value-added level of China's digital economy basic industries needs to be further improved. Fourth, the employment situation in the basic industries of the digital economy has recovered from the economic crisis and has achieved growth since 2013. Fifth, the basic industries of the digital economy are a key driving force for innovation. In the context of the digital economy, the basic industries of the digital economy assume the role of infrastructure that drives economic growth and innovation.

This article compares and analyzes the three key output indicators of the basic industries of the digital economy from 2011 to 2015 in major developed countries and developing countries in the world, including total output, industrial growth rates, and the proportion of basic industries in the digital economy to GDP. Based on the research objectives, the selected sample countries are the United States, the United Kingdom, France, and Germany among the major developed countries, and the major developing countries choose China, Russia, Brazil, and India among the five BRIC countries. Due to the availability of data, the sample countries for each indicator are slightly different. The output value of the basic industries of the digital economy is shown in Figure 8.

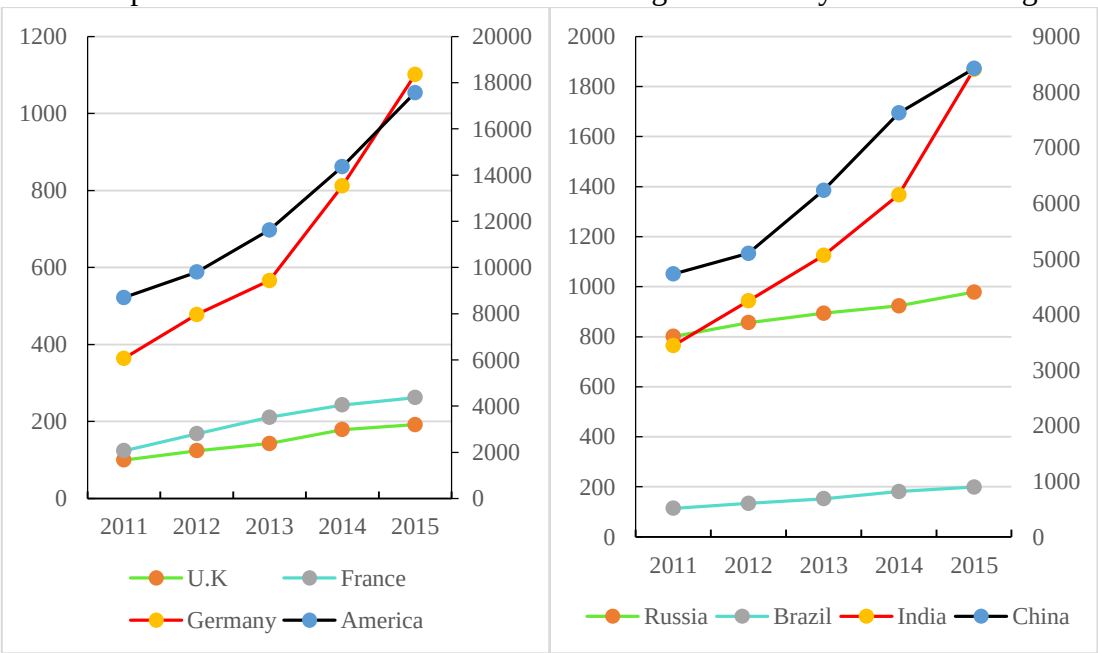


*Figure 8. Comparison of digital economy output value between developed and developing countries*

Due to the large differences between countries, in order to facilitate observation, the vertical axis unit used in this figure is trillion US dollars. As can be seen from the figure, whether in developed or developing countries, the output of the basic industries of the digital economy is basically divided into two levels. In developed countries, the first level countries are the United States and Germany, and the second level The countries are Britain and France. The same phenomenon of faults has appeared in developing countries. Among them, China, Russia, and India are at the first level, while Brazil is relatively a little behind and at the second level. The statistics on the changes in the growth rate of each country are shown in Figure 9.

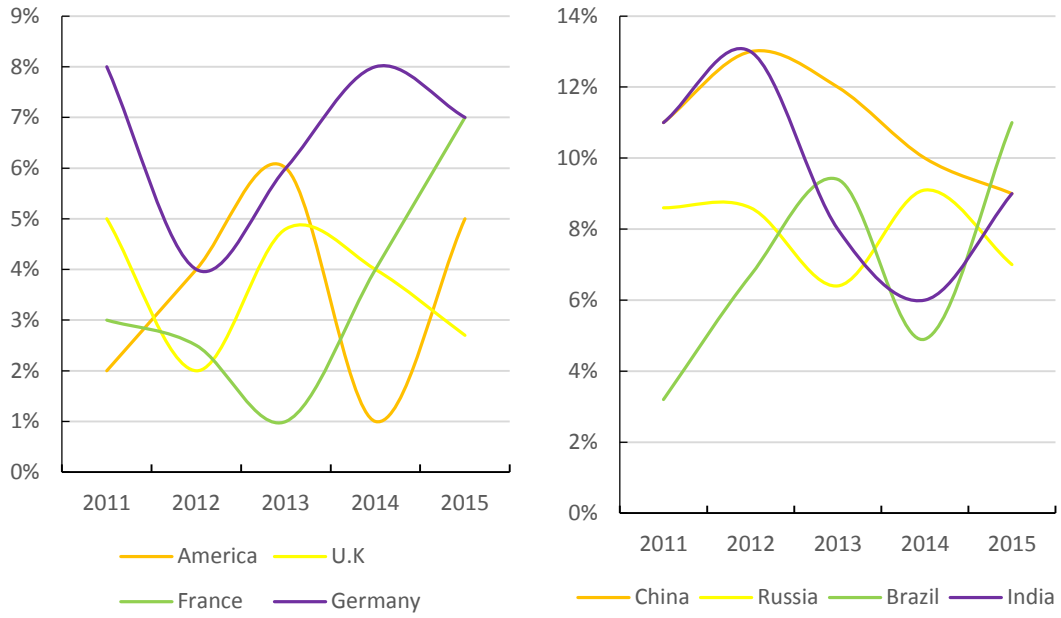


*Figure 9. Industrial growth rate of the digital economy in developed and developing countries*

From the above figure, it is not difficult to see that although the volume of digital economy industries in developed countries is generally higher than that in developing countries, the growth rate of digital economy industries in developed countries is generally maintained at a level of less than 10%. In developing countries, although the volume of the digital economy industry is relatively low, the growth rate is generally high.

### 4.3. The Status Quo Facing the Realization of Common Prosperity

The realization of common prosperity must be based on the narrowing of the gap between the rich and the poor, because the existence of an excessively large gap between the rich and the poor cannot achieve common prosperity. Over the past 30 years of reform and opening up, China has made remarkable achievements in economic construction and has made considerable progress on the road to common prosperity. However, today as the process of economic globalization is accelerating, China is still facing the grim reality of slow progress in common prosperity and the continuous widening of the gap between the rich and the poor.

Looking at the gap between the rich and the poor in China from the Gini coefficient

To assess the gap between the rich and the poor, it is inevitable to mention a concept-the Gini coefficient. In the determination of China's Gini coefficient, due to the lack of a unified calculation method, coupled with the irregularities, imperfections and data distortions existing in China's statistical system, the determination of the Gini coefficient has also become a major problem. Professors of Zhongnan University of Economics and Law made a relatively neutral calculation of China's Gini coefficient based on a large number of statistics. Using this method, we measured and compared the Gini coefficient between China and the United States from 2011 to 2015. The measurement results are shown in Figure 10.

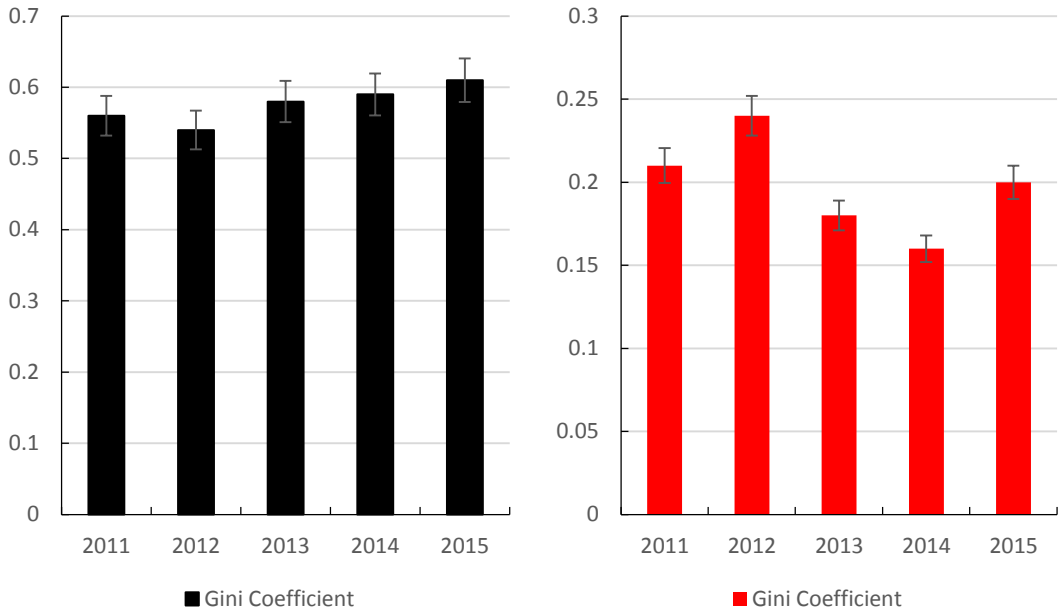


*Figure 10. Gini coefficient statistics between China and the United States from 2011 to 2015*

According to the data in the figure, we can see that China's Gini coefficient has generally shown an increase from 2011 to 2015. Only in 2012, the Gini coefficient decreased, and then it began to increase again in 2013, while the U.S. The starting point of the Gini coefficient is relatively high, and the overall situation is stable. The Gini coefficient first increases and then decreases, basically remaining unchanged. It can be seen that China has evolved from a country with a relatively even distribution to a country with severe polarization between the rich and the poor, and the increase in the Gini coefficient is one of the reasons for this. Regarding the emergence of uneven development between the rich and the poor, we must pay attention to continuously reduce the gap between the rich and the poor and achieve common prosperity.

## 5. Conclusion

This article mainly studies the research on common prosperity ideas and poverty alleviation development paths. Through the current information intelligence era and the digital economy era, China's domestic people's conditions are investigated and planned, and the income situation of domestic poverty-stricken towns, villages and other A comparative analysis of the gap between the rich and the poor in the industry, through the use of data collection technology to accurately collect the domestic poverty situation, to ensure that the work of poverty alleviation can be implemented in practice, and at the same time, it can be more poverty alleviated and complete the comprehensive development of China's socialism. The four comprehensive and five basic ideas of development, while using the Gini coefficient to compare the current situation between China and the United States, it can be seen that in the context of information intelligence and digital economy, China's poverty alleviation and common prosperity are more advanced. It has increased by 37% in the past, and is moving forward steadily on the road to achieve a full escape from poverty.

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## Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

## Conflict of Interest

The author states that this article has no conflict of interest.

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