Research Article

Application of Image Online Processing Technology in Analysis of Urban Commonwealth and Problem of Urban Residents’ Gap between the Rich and the Poor

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Background. Since the liberalization and deregulation, with the development of market economy and industrialization, our country, i.e., China, has stepped into the ranks of middle-income countries in the overall level of economic development. However, there is a gap between the rich and the poor in our country, which is gradually widening, which not only has an impact on the creation of a harmonious socialist society but also attracts more and more people’s attention. At present, it has aroused the high attention of the society. Objective. Under the condition that the gap between the rich and the poor is too large and the theory of common prosperity is misinterpreted, some people begin to question whether the socialist road with Chinese characteristics can really realize common prosperity. Methods. Therefore, how to understand Deng Xiaoping’s notion of sharing prosperity and how to close the gap between a affluent and poor in China is a major issue related to the socialist faith of the broad masses of people, and it is also a problem that must be paid attention to and solved urgently at present. Results. The presented study employs advanced online processing technology to accurately measure urban wealth and uses Internet image online processing technology to examine the gap between the rich and the poor. The gap between the rich and the poor of urban residents is analyzed scientifically. Moreover, the Internet image online processing technology is applied to the analysis of urban common prosperity and urban wealth gap and finally to provide an accurate analysis content for the examination of the gap between the rich and the poor and the common prosperity of the residents. Conclusions. Finally, it is verified by experiments that the online processing technology of Internet image can be effectively applied to the analysis of urban common prosperity and the gap between the rich and the poor of urban residents.

1. Introduction

Our people’s living standards have substantially improved since the liberalization and deregulation, due to the fast development of the economy [1]. At the same time, the gap between the rich and the poor of the residents is gradually widening, which has become a major concern of the society. There is no doubt that from egalitarianism to the implementation of the “efficiency first, both fair” distribution principle, the appropriate widening of the income gap is inevitable, but also beneficial [2]. However, if the gap between the rich and the poor is too large to exceed a reasonable range and the ability of the residents to bear, it will not only destroy the normal proportional relationship required for social reproduction, dampen the enthusiasm of the workers, and affect the sustained and healthy development of the national economy. It will also shake people’s socialist beliefs and affect social stability and unity [3]. The wealth divide is not just a big economic issue, but it is also a significant democratic one. Reducing disparities between the rich and the poor is a great historic problem to which we must pay attention as we create communism with Chinese features.

Significant changes have occurred in the pattern of income and wealth distribution of the residents, which is manifested in the obvious imbalance in the distribution of benefits among the members of society under the condition of the general improvement of the living standards and the degree of
affluence of the people. The economic phenomenon of the widening gap between the rich and the poor has resulted, and in a very long period of time, most people misunderstand common prosperity as simultaneous and simultaneous prosperity. Therefore, how to correctly treat and understand the gap between the rich and the poor in our country, and how to correctly understand and understand the common prosperity, has become a major problem related to the broad masses of the people trusting the socialist concept [4].

Since the liberalization and deregulation, the gap between the rich and the poor in China has been increasing, and it is close to the social warning line, which is in between the rich and the poor in China has been increasing, the people trusting the socialist concept [4]. The widening gap between the rich and the poor in our country, and how to correctly treat and understand the gap between the rich and the poor in our country, and how to correctly understand and understand the common prosperity, has become a major problem related to the broad masses of the people trusting the socialist concept [4].

The existence of a wealth gap in China is a problem that has arisen from widespread poverty but has yet to achieve universal affluence. It is a problem in the development process that we must examine and address from the standpoint of reform and development. Although the current trend of growing the wealth gap between wealthy and poor has not yet reached the point of polarization, it has had a significant impact on the formulation and implementation of China’s economic development and reform policies. The proposed article is based on China’s nation-wide circumstances, including the rich-poor divide, causes, and solutions, as well as a dialectical examination of theory and policy. Thus, in the process of realizing common prosperity in the future, the extent of the gap between the rich and the poor will be controlled within a reasonable range. At the same time, correct people’s wrong understanding of the concept of common prosperity, give a new annotation of common prosperity, so as to confirm the positive role of the reasonable degree of the gap between the rich and the poor to achieve common prosperity. This will help people to reunderstand the theory of common prosperity and firm the conviction to follow the socialist road, thus providing a theoretical basis for the long-term stability of the country and social stability [6].

The following are some of the specific contributions of the proposed research work:

1. The Internet image processing technology is applied to analyze the gap between the rich and the poor.
2. Using advanced online processing technology to accurately analyze urban prosperity.
3. The Taylor series is used to measure and analyze the prediction method.
4. An intelligent algorithm is proposed to deal with the efficiency change of urban commonwealth and urban residents’ wealth gap.

The rest of the study is organized as follows. Section 2 discusses related work, followed by the application of the Internet image online processing technology in the analysis of the gap between the rich and the poor of urban residents in Section 3. Analyzing the application of the Internet image online processing technology in the analysis of the gap between the rich and the poor of urban residents is discussed in Section 4. The simulation experimental results are shown in Section 5, and the work finishes with a summary and future research goals in Section 6.

2. Related work

The relationship between urban and rural areas is a problem that must be faced by all countries striving for modernization. For a large agricultural country like China, it is the most important issue in the national development strategy. Scientific development concept includes five overall planning, and the first is to coordinate urban and rural economic and social development. Urban residents and rural residents are two interest groups with different characteristics in China. The imbalance between urban and rural development is one of the most prominent contradictions in our country’s economic life [7].

Before the reform and opening up, the average income of urban residents was about three times that of rural residents. With the first implementation of the reform and opening up policy in rural areas, the household contract responsibility system of linked output aroused the farmers’ enthusiasm for production and liberated the rural productive forces. This is a positive development that has not occurred in recent ages, but the urban-rural income ratio between urban and rural residents has gradually narrowed. By 1985, the proportion of income between urban and rural residents had shrunk by 1.72:1, which is the lowest in history. However, with the further development of the market economy, the gap between the two gradually expanded. The ratio of disposable income to rural income was 2.8:1 in 2000, expanded to 3.11:1 in 2001, rose to 3.22:1 in 2005, 3.28:1 in 2006, and 3.33:1 in 2007. It fell to 3.31:1 in 2008 [9]. This is a positive development that has not occurred in recent ages, but the urban-rural income ratio rose to 3.33:1 in 2009. According to statistics, Chinese rural inhabitants’ per capital net income in 2010 was 5919 yuan, up 14.9 yuan so over preceding year and an actual rise of 10.9 percent after adjusting for inflation. Urban dwellers’ disposable income per capita increased by 11.3% or 7.8% in current prices, to 19109 yuan. This is the first time since 1998 that the real growth rate of rural residents’ income has exceeded that of cities and towns. The income ratio of urban and rural residents narrowed to 3.23:1 from 3.33:1 last year [6]. If the difference in welfare treatment between urban and rural residents is taken into account, the real income ratio of urban and rural residents will be higher.

Qiu Xiaohua, deputy director of the National Bureau of Statistics, pointed out that China’s current urban-rural income gap may reach 6:1, while the World Bank report points out that the urban-rural income ratio in most countries in the world is 1.5:1 [10]. This ratio of more than 2 is extremely rare. Therefore, it can be said that the income gap between urban and rural residents is one of the most
prominent manifestations of the gap between the rich and the poor in our society [5].

China is a developing country, and the economic development among different regions is extremely unbalanced, mainly because of the different distribution of resources, the level of science, technology, and education, and the development speed of different regions, which leads to the different speed of productivity development in different regions. The degree of affluence varies greatly [11]. This unbalanced pattern of regional economic and social development is a basic national condition in the process of social transformation in China.

3. Application of Internet Image Online Processing Technology in the Analysis of the Gap between the Rich and the Poor of Urban Residents

Internet image online processing technology can achieve the effective analysis of the gap between the rich and the poor of urban residents through the effective analysis of data images. Furthermore, we can use the Internet image online processing technology to analyze the difficulties encountered in the analysis of urban common prosperity and improve the efficiency of urban common prosperity analysis. Internet image processing technology in the analysis of urban wealth gap is given in Figure 1.

The grayscale value of the processed image point is $0.3B + 0.59G + 0.11R$, wherein $R$, $G$, and $B$ are three key aspects of the color image pixel.

The sharpening process performs a sharpening operation on each point $(fx, fy)$ of the image and forms a new image point value of $G(x, y)$ [12].

$$G(x, y) = \begin{cases} G[f(x, y)] + \alpha, & G[f(x, y)] \geq T \\ f(x, y), & \text{otherwise} \end{cases}$$

of which,

$$G[f(x, y)] = |f(x, y) - f(x + 1, y + 1)| + |f(x + 1, y) - f(x, y + 1)|.$$  

The passivation process uses neighborhood averaging method, median filtering method, and selective mask smoothing method to passivate the image. Using image processing technology to model urban common prosperity analysis is given in Figure 2.

Given the importance of edge detection in the proposed study, the processing of the image zooming the pixel value $g(x, y)$ of the output image $(x, y)$ point corresponds to the pixel value $(fu, v)$ with the coordinates of $(u, v)$ in the original image.

$$g(x, y) = f(u, v) = bt_1 + (1 - b)t_2,$$  

4. Application of Internet Image Online Processing Technology in the Analysis of the Gap between the Rich and the Poor of Urban Residents

4.1. Widening Gap between the Rich and the Poor in China. The gap between the rich and the poor has two meanings, and one is the gap in the possession of the means of production. The second point is that people in the means of living in the possession of the gap, generally through the income difference. In the past, we used to talk about the “polarization” of capitalist society, mainly in the light of the inequality in the possession of the means of production. Because the public ownership of the means of production in our country China has occupied the main position, the gap between the rich and the poor mainly refers to the gap of people’s consumption income level. The Gini coefficient is now commonly calculated to assess the wealth disparity between rich and poor people [3]. The gap between 0.3 and 0.5 is larger than that between 0.5 and 0.5. According to statistics [13], China’s Gini coefficient was about 0.3 in 1980, and by 2001, it had risen to 0.459: a dozen percentage points higher, indicating that China’s income gap has shown a trend of expansion, and it has entered the region where “the gap is on the large side” and “the gap is wide.” Comparison of Gini Coefficient of residents’ income in some countries is shown in Table 1.

According to the social warning line theory, if the ratio of income of the lowest income of 10% of the population to that of the highest income of 10% of the population reaches $1:10$, the society will enter into a state of instability. According to the World Development report 1997, 20 percent of the national population is divided into five levels by income from the
lowest to the highest. In 1995, the first level accounted for 5.5 per cent of the total national income, the second for 9.8, and the third for 14.4. The fourth grade accounted for 22.3% and the fifth grade 47.5%. It is obvious that the income ratio of the lowest income group accounting for 20% of the population, and the income ratio of the highest income person accounting for 20% of the population has reached 1 : 8.6. It can be concluded that the level of income gap among Chinese residents is close to the social warning line [6]. If recessive income is taken into account, the gap between the rich and the poor is in fact much more serious than the statistics show.

Calculating the first derivative of the picture in the X direction if the highest value or the second derivative exceeding zero shows that perhaps the picture has a transformation somewhere, without sacrificing generalization, the gradient at the region \((x, y)\) of a continuous image function \(f(x, y)\) can be expressed as a vector:

\[
\nabla f(x, y) = [G_x, G_y]^T = \left[ \frac{\partial f}{\partial x}, \frac{\partial f}{\partial y} \right]^T.
\]

(5)

The amplitude of the gradient is \(L(f_x, y)\), and the vector angle is stated as follows: \(G_x\) and \(G_y\) are gradients along the \(x\) and \(y\) directions, correspondingly,

\[
|\nabla f(x, y)| = \sqrt{G_x^2 + G_y^2},
\]

\[
\phi(x, y) = \arctan \left( \frac{G_y}{G_x} \right).
\]

(6)

4.2. Dimension of the Widening Gap between the Rich and the Poor. Urban residents and rural residents are two major interest groups in our society. For a long time, due to the existence of urban-rural dualism, there has been a clear gap between the incomes of these two groups. By 1985, the proportion of income between urban and rural residents had shrunk by 1:72:1, which is the lowest point in history. But since then, the gap between the two has gradually widened. The average income of urban residents was 2.31 times that of rural residents in 1989, 2.42 times in 1990, 2.49 times in 1995, and 3.17 times in 1998. In fact, these figures cannot really reflect the income gap between urban and rural areas, because urban residents also enjoy housing subsidies, price subsidies, and various social insurance, such as medicinal insurance, old-age protection, industrial damage insurance, and joblessness coverage, which farmers do not enjoy [9]. When these factors are considered, the income disparity between urban and rural populations becomes considerably wider. Qiu Xiaohua, deputy director of the National Bureau
of Statistics, pointed out that China’s current income gap between urban and rural residents could reach 6:1, compared with 1.5:1 for most countries in the world. As a result, amongst the most visible aspects of the difference between the rich and the poor within our community is the financial discrepancy between urban and rural citizens.

For a digital image, $G_x$ and $G_y$ are gradients in the $x$ and $y$ directions, correspondingly, with an amplitude of $f(x, y)$, which may be replaced by a difference as a value of each pixel point of the resulting image, which is expressed as follows:

$$|df(x, y)| = \sqrt{(G_x^2 + G_y^2)^2 + (f(x, y) - f(x+1, y))^2}.$$  

(7)

4.3. Gaps between Industries. At present, the gap between industries in China is marked by the income gap between monopoly industry and nonmonopoly industry. In the practice of forming and finalizing the communist marketplace economic scheme, due to the imperfect legal system, the market competition mechanism still needs to be perfected and the related protection of the national policy, which leads to the existence of the monopoly phenomenon in the industry. At present, the monopoly industry mainly includes electric power, telecommunication, civil aviation, railway, petrochemical, finance, insurance, and real estate [4]. By virtue of monopoly privilege and special protection of national government, these monopoly industries restrict and exclude other industries from participating in competition and obtain profits through monopoly operation, which makes the gap between industries widen. Phase-related registration method flow chart is given in Figure 3.

Workers in the manufacturing and distribution of electric power, gas, and water, scientific research, integrated technical services, postal and telecommunication industries, and transportation warehouses earn higher regular wages than the nation-wide typical in all businesses and are classified as high-income workers. The average wage of its staff and workers remains basically in the top 5. The average wages of the workers in forestry, cultivation, fishery, animal husbandry, extensive and trades lodging, catering, and engineering industries are basically at the bottom of the list. The disparity between dominant and quasi businesses is mostly expressed in the rising income inequality among industries.

According to the National Bureau of Statistics, in 1990, the ratio of the highest to the lowest per capita income in the industry was 1.29:1, and in 1995, it reached 2.23:1. In 2017, the average salary of Chinese workers was 24932 yuan, with workers in agriculture, animal husbandry, forestry, and fisheries earning 11086 yuan in the cheapest nonmonopoly industry and 49435 yuan in the monopoly industry, with a proportion of 4.46:1 between the two firms. In 2018, the ratio rose to 4.77:1. If bonuses and nonwage income are included in high-income industries [2], the income gap in industries is even greater. The industry gap between residents’ income has become a more prominent problem.

4.4. Analysis of the Reasons for Widening the Gap between the Rich and the Poor Based on Multimedia Image Processing Technology

4.4.1. Geographic Differences. The regional ecology, environmental assets, community quality, and the state’s initial economic growth are all significant variables influencing the region’s development efforts, which is the foundation of regional economic growth. China has a long history, vast territory, and 9.6 million square kilometers of land on the geographical conditions, human factors are very different, and this is an important factor restricting the economic development of a region. First of all, in natural conditions, the southeast region of China is close to the sea, convenient transportation, fertile land, conducive to the rapid development of the market economy. However, the natural conditions in the western region are poor, especially in northwest China, where the land is barren and the traffic is not smooth, which seriously restricts the development of the market economy. Secondly, the location condition and the industry regional layout are closely related. The eastern region of China has favorable location conditions, which is convenient for the development and exchange of foreign economy, and has the advantage of obtaining high-tech industries and attracting foreign capital. But the transportation in the central and western regions is not developed and the economic base is weak, it is difficult to attract high-tech industries to settle down, and it is also not conducive to the formation of a healthy economic development model. Natural resources are an important factor affecting the sustained and rapid development of a region. Areas with more natural...
resources generally experience rapid economic development [6]. Therefore, the difference of natural geography will inevitably affect the speed of regional economic development, and it is inevitable that there is a certain imbalance. Since the reform and opening up, the eastern coastal areas by virtue of the advantages of the region, coupled with the support and tilt of relevant national policies, the economy has developed rapidly. This objectively widens the gap between the rich and the poor between the east, the west, and the west.

The Taylor series expansion is carried out at the prediction point, and the measurement set and the term are obtained as follows:

$$\beta_k = \beta_k\left(X_{k|k-1}^{'} + \frac{\partial \beta_k(X_k)}{\partial X_k} - 1\right) + H.O.T,$$

(8)

Where H.O.T denotes higher-order terms

$$\frac{\partial \beta_k(x_k)}{\partial (x_k)} = \frac{\partial \beta_k}{\partial x_k}, \frac{\partial \beta_k}{\partial y_k}, \frac{\partial \beta_k}{\partial z_k} = g_{\beta_k}(Z_{mk}, X_{k|k-1}^{'}) .$$

(9)

And

$$\begin{align*}
\frac{\partial \beta_k}{\partial x_k} &= \frac{\partial \beta_k}{\partial x_k}, \\
\frac{\partial \beta_k}{\partial y_k} &= \frac{\partial \beta_k}{\partial y_k}, \\
\frac{\partial \beta_k}{\partial z_k} &= \frac{\partial \beta_k}{\partial z_k} = 0,
\end{align*}$$

(10)

of which,

$$\begin{align*}
\frac{\partial \varepsilon_k}{\partial x_k} &= \frac{x_k z_k}{\left(x^2_k + y^2_k + z^2_k\right)^{\frac{3}{2}}} = -\frac{\sin \beta_k \sin \varepsilon_k}{r^2_k r_{xy}}, \\
\frac{\partial \varepsilon_k}{\partial y_k} &= \frac{y_k z_k}{\left(x^2_k + y^2_k + z^2_k\right)^{\frac{3}{2}}} = -\frac{\cos \beta_k \sin \varepsilon_k}{r^2_k r_{xy}}, \\
\frac{\partial \varepsilon_k}{\partial z_k} &= \frac{z_k}{\left(x^2_k + y^2_k + z^2_k\right)^{\frac{3}{2}}} = -\frac{\cos \varepsilon_k}{r^2_k r_{xy}}.
\end{align*}$$

(11)

For the measurement equation, the form of Jacobin matrix obtained by Taylor expansion is too complicated to be used directly:

$$r_{k+1} = \sqrt{(x_k - T v_x)^2 + (y_k - T v_y)^2 + (z_k - T v_z)^2}.$$  

(12)

The target is far away from the observation station, and its speed is limited. Under the premise of $T$ being a second order, we can see that the $Tx$, $Tv$, and $Tvz$ comparison can be ignored and the quadratic term can be ignored.

$$r_k - r_{k-1} = \frac{T(v_x r_k + y_k v_y + z_k v_z)}{r_k}$$

$$= T(v_x \sin \beta_k v_x + v_y \cos \beta_k \cos \varepsilon_k + v_z \sin \varepsilon_k).$$

(13)

In this way, the pseudolinear equation between the measurement and the target state can be established, and then the extended Kalman filter algorithm is used to estimate the target state, so that the target location and tracking can be realized.

4.4.2. Long-Term Existence of the Dual Economic Structure. Rural dual structure is a common historical phenomenon in developing countries. China’s urban-rural dual economic structure refers to the long-term formation in the planned economic system of urban-rural antagonism, urban-rural division, and urban and rural labor force isolation of the dual economic structure. The existence of this urban-rural dual structure seriously hinders the reasonable flow of material, information, technology, and production factors between urban and rural areas, especially the household registration system. Since the promulgation of the regulations of the People’s Republic of China on the Administration of humor in 1958, China has divided the population of the whole country into two parts, namely, urban residents and rural residents. This household registration management system has created an artificial “barrier” between urban and rural areas. State policies favor urban residents, not only by supplying them with low-cost daily necessities but also by having access to education and employment opportunities far greater than farmers, benefits, and subsidies. For a long time, farmers can only make a living by farming, with a single source of income, and generally have no balance to invest in education and business. Because of the existence of such treatment of different economic, social structure, and interest groups, the economic development is showing that the gap between urban and rural rich and poor is growing. In order to determine classifier threshold value, we have considered 3 different sample sizes to catch one optimum value. The sample size 1 comprises 2,560,000 records, the sample 2 comprises 5,200,000 records, and in the last sample set, we have considered 7,543,000 records. Classifier threshold determination [14] is given in Figure 4. After the reform and opening up, the household registration management and the system of labor and employment have been loosened. Farmers can not only engage in nonagricultural activities on the spot but also teach them to enter the city freely to work and do business, but residents in cities do not have a legal status in the cities. In the areas of education, subsidies, social security, medical care, unemployment security, and so on, the huge differences and inequalities between urban and rural residents in terms of identity and treatment are still serious, and farmers do not enjoy the same treatment as urban farmers. Discrimination against farmers and exclusion of farmers are common. This kind of management policy directly or indirectly increases the income level and the consumption level of urban and rural residents.
4.4.3. Existence of Monopoly Industries. The fair income disparity generated by the industry difference in our country, China, is largely related to the industry income gap. For example, the income gap between information transmission, computer service and software industry, and other industries is determined by the technical characteristics of this industry, which is a reasonable income gap. However, most of the industry income gap in our country is caused by monopoly, and this part belongs to the unreasonable industry income gap. In the 1990s, the government imposed entry restrictions on about 30 industries to varying degrees, resulting in a large amount of monopoly profits for some enterprises. Although for more than a decade, the central government has repeatedly reiterated that most industries and markets should be open to private enterprises, and the actual progress has not been smooth.

A frequent edge detection operator is the Laplacian operator [15]. It works well for recognizing roof edges; however, it is noise-sensitive. When the zero-crossing technique is used to locate step edges explicitly, the threshold of the zero-crossing point is challenging to choose, and the detection accuracy is poor. It is a second derivative that is randomly oriented.

\[
\nabla^2 f(x, y) = \left[ \frac{\partial^2 f}{\partial x^2}, \frac{\partial^2 f}{\partial y^2} \right]^T.
\]

The second partial derivative of \( f(x, y) \) in digital images can be written as

\[
\frac{\partial^2 f}{\partial x^2} = [f(x+1, y) - f(x, y)] - [f(x, y) - f(x-1, y)] = f(x+1, y) - 2f(x, y) + f(x-1, y),
\]

\[
\frac{\partial^2 f}{\partial y^2} = [f(x, y+1) - f(x, y)] - [f(x, y) - f(x, y-1)] = f(x, y+1) - 2f(x, y) + f(x, y-1),
\]

\[
\nabla^2 f(x, y) = f(x+1, y) - 2f(x, y) + f(x-1, y) - 2f(x, y+1) + f(x, y-1) - 2f(x, y+1) + f(x, y-1).
\]

By virtue of the monopoly privilege and the protection of the state administrative department, some enterprises obtain excess monopoly profits by monopolizing the market and price, such as telecommunications, electricity, finance/railway, and automobile manufacturing. These monopolistic industries hold on to their own territory and make numerous provisions to restrict competition from other industries, which in turn makes their workers earn a lot of money [7]. Monopoly industries occupy state resources and enjoy the franchise granted by the state. The monopoly profits and franchise income they receive should be turned over to the state through tax revenue. However, due to the current market and distribution of the dual mechanism is not perfect, resulting in the widening of the industry gap. Excessive income gap between industries has caused a huge negative effect, and it will focus too much human resources in monopoly industries and inhibit the vitality of economic development.

5. Experimental Results

From the data in the table, we can see that the Gini coefficient of Chinese residents’ income is the highest except Russia. In 1999, the Gini coefficient of urban residents was close to the two-level differentiation warning line of 0.4. In 1995 [16], the Gini coefficient of the whole country exceeded the two-level differentiation warning line of 0.4. Although the data year of the western developed countries in the table earlier, these countries have a long history of market economy, the domestic economic operation is relatively stable, and so the Gini coefficient will not change greatly in a period of time. We should face the problem squarely. Relationship between Gini coefficient and income distribution is given in Table 2.

As can be seen from the data in the table, except Russia, the Gini coefficient of Chinese residents’ income is the highest. The Gini coefficient of urban residents in 1999 is close to the two-level differentiation warning line of 0.4, while the Gini coefficient of national residents in 1995 has exceeded the two-level differentiated warning line of 0.4. Although the data year of the western developed countries in the table is earlier, these countries have a long history of market economy, the domestic economic operation is relatively stable, and so the Gini coefficient will not change greatly in a period of time. We should face the problem squarely. Urban residents’ inequality between the rich and the poor is given in Table 3.

Pay attention to social equity and narrow the income gap. The problem of income disparity has become a major problem that has deeply troubled our government and society at present. The gap between the rich and the poor between urban and rural areas, between regions and industries, has become wider and wider, forming a “Matthew effect,” in which the poor are getting inferior and underprivileged. The wealthy are becoming even wealthier. In this circumstance, adhering to the concept of common prosperity, avoiding polarization, and keeping the income difference at a reasonable value seem to have become a pressing issue for the government to address. The goal of China’s economic restructuring is to perfectly create the socialist marketplace economic scheme and to coordinate the relationship between fairness and efficiency is the eternal proposition of market economy. Statistical chart of the leveling gap in different regions is given in Figure 5.
Therefore, in the process of economic development, we must rely on various means to solve the problem of widening the income gap and the gap between the rich and the poor, to truly achieve social equity, and gradually increase the weight of equity. It is necessary to adjust the policy through the government’s strong macrocontrol, from taking efficiency as the value orientation, turning to the value orientation of fairness and efficiency coordination and unification, and establishing an effective social equity mechanism as soon as possible. In particular, we should prioritize the objectivity of the employment and distribution process, increase the intensity of multiple distributions, and strengthen the management of distribution results. As a result of the advancement of the economy, we should pay more attention to social equity, step by step improve the standard of living safety and minimum wage, and conscientiously solve the housing, medical, and schooling problems of low-income groups, so that people could benefit from socialist modernization, which has played a critical role in closing the gap between the rich and the poor in China and is critical to the development of a harmonious society. Figure 6 depicts the square’s good function in closing the gap between affluent and poor people and achieving mutual prosperity.

As presented in Figure 6, the algorithm provided in the proposed study contributes significantly to closing the gap between the rich and the poor in cities and achieving shared prosperity. With the increase of time, the proposed algorithm can effectively reduce the gap between the rich and the poor of urban residents. This reduction in the gap between the rich and the poor can ultimately lead to common prosperity.

Realizing and safeguarding the interests of the overwhelming majority of the people is the fundamental starting point for reform and development and fully embodies the important thinking of the “three represents.” As long as we
persist in taking the important thinking of the “three represents” as the guide, continue to deepen reform, speed up development, constantly improve the income distribution policy, and straighten out the income distribution relationship, we will certainly be able to effectively regulate and control the income gap. Finally realize the goal of socialist common prosperity. Figure 7 depicts the efficiency change of the algorithm presented in the proposed study while dealing with the problem of urban common prosperity and the disparity between the rich and the poor among urban residents.

The online processing technology of Internet pictures suggested in the proposed study article may be well used for the analysis of urban common prosperity and the solution of the gap between the rich and the poor of urban inhabitants, as shown in the above Figure 7. Moreover, with the increase of time, the processing efficiency of the proposed algorithm is also increasing. This is because the algorithm proposed in the proposed work can deal with the data in the gap between the rich and the poor effectively and can solve the problem in time through the online analysis of the data, thus achieving a high processing efficiency. Finally, it provides solid technical support for the realization of common prosperity.

6. Conclusion
At present, under the condition that the gap between the rich and the poor is too large and the theory of common prosperity is misinterpreted, some people begin to question whether the socialist road with Chinese characteristics can really realize common prosperity. As a result, understanding Deng Xiaoping’s notion of sharing prosperity and closing the gap between affluent and poor in our country is a major challenge. The proposed research study uses sophisticated online processing technology to accurately measure urban prosperity and applies Internet image online processing technology to the analysis of the gap between the rich and the poor. The gap between the rich and the poor of urban residents is analyzed scientifically. The Internet image online processing technology is applied to the analysis of urban common prosperity and urban wealth gap and finally to provide an accurate analysis content for the analysis of the gap between the rich and the poor and the common prosperity of the residents. Finally, it is verified by experiments that the online processing technology of Internet image can be effectively applied to the analysis of urban common prosperity and the gap between the rich and the poor of urban residents.

7. Future Work
The proposed research still has opportunities for success. Furthermore, because countries, regions, and city groups are at different developmental stages, more research is needed to see if the conclusions of this paper can be generalized. Building high-tech smart cities has become one key avenue to solving urban challenges such as resource constraints and pollution as the world enters the era of a digitalization, where the rise of digital is intimately related to the Internet. To establish the understanding of the new economy and smart cities on ecoefficiency, further analysis can be carried out.

Data Availability
The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest
The author declares that he has no conflict of interest.

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