



The Digital Divide Between Urban and Rural Areas in China

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Abstract

The purpose of this study was to analyse the digital divide between urban and rural areas in China, and the impact of this divide on regional socio-economic development. This study utilised a mixed-methods approach. The results indicate substantial differences in internet accessibility, with urban regions exhibiting a penetration rate of 85.1%, in contrast to rural regions at 60.5%. Digital literacy is significantly deficient in rural areas, with 56.1% of rural residents lacking fundamental digital competencies, hence impeding their capacity to fully participate in online education, healthcare, and e-commerce platforms. Moreover, rural areas get little advantage from digital technology, intensifying socio-economic disparities. Notwithstanding efforts by the Chinese government and private enterprises to enhance internet accessibility via infrastructure enhancement and literacy initiatives, obstacles like cultural opposition, economic impediments, and age-related limitations remain. The research indicates that closing the digital divide requires multifaceted interventions that tackle infrastructural deficiencies, improve digital literacy, and execute customised activities that account for cultural and economic obstacles in rural regions.

Keywords: internet penetration, socio-economic development, messengers, users, mobile internet, SDG 10: Reduced Inequalities.

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Introduction

The digital divide between rural and urban areas in China has grown markedly pronounced due to rapid economic development and the proliferation of digital technology. As of December 2023, the internet penetration rate in rural regions reached 66.5%, an increase from 63.8% in June 2023, but remains inferior to metropolitan areas where the rate is 85.3%. The gap is further shown by the number of internet users; metropolitan regions had 795 million users, but rural areas had 304 million users, constituting 72.3% and 27.7% of the total number of internet users, respectively (Chinese Internet Penetration, 2024).

The disparity is also evident in the accessibility and quality of digital infrastructure. Urban areas enjoy the advantages of sophisticated technology, like 5G networks and comprehensive broadband coverage, but rural regions grapple with issues stemming from inadequate infrastructure and reduced internet speeds (Li, 2024). The infrastructure differences result in uneven access to digital services, impeding rural communities' capacity to engage fully in the digital economy and get important services such as education and healthcare. Furthermore, the digital gap intensifies socio-economic disparities. Rural inhabitants often face obstacles like diminished digital literacy, restricted access to digital devices, and budgetary limitations, which hinder their capacity to use digital technology for personal and professional development (Li, 2024). This complex distinction points out the need for specific policies and activities to close the urban-rural digital divide and foster inclusive digital growth across China.

The digital divide between urban and rural regions in China is influenced by several variables, including demographic traits, cultural obstacles, and institutional frameworks (Fang et al., 2024). Older adults, specifically, have difficulties in embracing new technology owing to limited exposure and training possibilities (Zhao & Kuang, 2025). In rural regions, traditional beliefs and customs may foster opposition to new digital technology, while the preference for local dialects over Mandarin exacerbates obstacles to accessing digital material, which is often standardised in the national language. Moreover, China's hukou system, which constrains access to public services according to rural or urban registration, further inhibits rural inhabitants' participation in the digital economy and their access to digital resources (Zhou et al., 2025). These demographic, cultural, and institutional variables all

intensify the digital divide, posing substantial problems in reconciling the disparity between urban and rural regions.

Experts debate whether the digital divide exacerbates current inequality or creates new forms of exclusion. Heeks (2021) contended that rural areas possess fewer resources than urban areas, resulting in city populations reaping the most benefits from digital technologies, thereby contributing to the expanding digital economy in China. Deng et al. (2023) stated that the expanding digital economy, along with resource scarcity in rural areas, exacerbates wealth disparity, since financial opportunities are concentrated in urban centres. The divide not only leads to socio-stratification but also engenders new kinds of social exclusion, particularly affecting rural communities that lack adequate information and communication technology, and have minimal to no internet connection (Raihan et al., 2024). Raihan et al. (2024) found out that the knowledge gap in these areas perpetuates a cycle of poverty, since their limited financial resources exacerbate societal inequity. To address these problems, Zheng et al. (2024) advocate for strategic investments in rural digital infrastructure and literacy initiatives to foster equal socio-economic growth between urban and rural areas.

The political dynamics influencing news and media in China include governmental control, economic considerations, and technical advancements (Shveda et al., 2024). The government enforces stringent regulations on the media to preserve social cohesion, and advance its ideology, as seen by the limitations imposed on interactions between traditional and contemporary media forms (Si et al., 2024). The unrestricted operation of the market leads to financial difficulties, necessitating media businesses to establish revenue generating methods in compliance with rules. The increasing use of technology, especially in digital media, exacerbates this challenge by bringing novel means of spreading information that disrupt political authority. The study by Li (2023) examined these processes, emphasising the state's influence in media commodification and the rise of "economic censorship," which favours commercial interests at the expense of press freedom. The interaction between digital technology and capital shapes the reorganisation of the Chinese media system to facilitate economic growth while maintaining governmental control.

With regard to the digital divide, this political and economic context has a significant impact on the adoption and use of technology by different socioeconomic classes (Wang et al., 2024). Government

efforts to improve internet infrastructure have contributed to increased access. However, inequalities persist, especially between urban and rural areas. Market-based media content is often targeted at affluent urban audiences, which can mean that the information needs of rural areas are overlooked (Liu et al., 2024). In addition, government pressure to regulate digital content can limit the diversity of information, which affects digital literacy and participation (Ouyang et al, 2024).

Wang et al. (2023) focused on the impact of government digital initiatives on digital innovation of companies in China, but do not consider the difference between urban and rural areas of the country; this leads to a gap in knowledge on the cultural biases and fears of innovation held by rural residents. Meanwhile, the impact of internet penetration and diffusion on China's economy has been most influential, leading Zhang et al. (2021) to investigate the impact of the digital economy on high-quality economic development in China. The aforementioned study focused on digital infrastructure, digital industry, and digital integration, but considered mainly large cities, whose performance in these aspects is substantially different from that of rural regions. Jin et al. (2023) also found that the spread of the internet and gadgets with access to the world wide web substantially affects various sectors of the Chinese economy, but provided no comparative analysis of the state of these sectors in urban and rural areas. Furthermore, there is yet to be holistic comparative analysis of not only financial considerations, but also other spheres of life (e.g., education, culture, social inclusion) that may be associated with digital access. Thus, it becomes evident that further research on this topic is needed. The current study expands upon the foundational model of the digital divide by employing a three-tiered analytical framework (van Dijk, 2020):

1. Access divide – disparities in access to information and communication technologies infrastructure and internet services;
2. Usage divide – variations in digital skills and engagement;
3. Outcome divide – inequalities in the social and economic benefits obtained from digital participation.

This framework facilitates a systematic investigation of rural-urban disparities in China, advancing from descriptive research to a conceptual comprehension of how uneven digital development

results in wider socio-economic exclusion. The purpose of the study was to investigate the digital divide between urban and rural areas in China and its impact on the socio-economic development of these regions. The study examined key aspects such as the level of internet penetration, use of digital technologies, and infrastructural differences. The hypothesis was that the digital divide that exists in China also has a massive impact on the economic, social, cultural, educational, and other aspects of society's existence. To fulfil the purpose of the study, the following objectives were to be completed:

1. Evaluate the degree of discrepancies in digital infrastructure and internet penetration between urban and rural areas, using statistical data from national sources (Level 1: Access divide).
2. Examine socio-demographic and cultural determinants, such as digital literacy, age, education, and language barriers, that affect internet use and engagement patterns among rural communities (Level 2: Usage divide).
3. Examine the socio-economic ramifications of disparate digital advancement, specifically regarding educational accessibility, healthcare provision, small company engagement, and civic involvement (Level 3: Outcome divide).
4. Assess the impact of public and commercial digital inclusion efforts, including government programs and business platforms like Alibaba's Rural Taobao and Tencent's WeDoctor, on reducing digital inequality.
5. Analyse the influence of social media and mobile apps on the distribution of information, civic engagement, and access to vital services in rural regions, including both facilitating and constraining elements.

Materials and Methods

This research used a mixed-methods approach, using both quantitative and qualitative techniques and relying on secondary data sources to examine the digital gap between urban and rural regions in China. The research used descriptive statistical analysis to measure the disparities in internet access and digital literacy while also examining the effects of digital efforts via case studies of relevant programmes.

The study included analysis of statistical data collected by the China Network Information Centre (2023), Statista (2024), Digital World Atlas (2024), and Kemp (2024). A quantitative methodology was used to fulfill the purpose of the study, which involved collecting and analysing statistical data on the level of internet penetration in urban and rural areas in China.

The research examined a sample of 1.078 million internet users, with a stratified representation of urban and rural areas. This sample comprises 777 million urban users and 301 million rural users, allowing a representative analysis of digital divide characteristics between the two areas. Demographic analyses based on age, gender, and socio-economic position (e.g., income levels, education) were used to reflect the variety of internet usage. The data was derived from governmental sources and statistics institutions, covering the period from June 2021 to June 2023. While the sample may not entirely reflect micro-level variances in smaller rural populations, it provides a robust representation of urban-rural disparities within China's digital environment.

A quantitative methodology was used to analyse the data, concentrating on three main areas following the model of the digital divide: internet penetration rates in urban and rural regions, digital literacy and usage patterns among various demographic groups, and the socio-economic effects of digital access, especially on education, healthcare, and business development (van Dijk, 2020). Descriptive statistical techniques, including measures of central tendency (mean, median, and standard deviation), were used to encapsulate the data and underscore inequalities in digital access and utilisation.

Qualitative methodologies were used to assess the efficacy of digital efforts designed to bridge the urban-rural digital divide, complementing the quantitative research. These efforts include governmental programmes, like the Rural Taobao initiative and WeDoctor's telemedicine programme, with private sector endeavours, including Alibaba's e-commerce platform for rural enterprises and Tencent's educational initiatives. The assessment of these efforts relied on existing case studies and reports from pertinent literature, including research by He et al. (2024) and Zhang et al. (2023). The efficacy of these programmes was evaluated through qualitative content analysis, concentrating on indicators such as:

- utilisation and interaction with digital services;

- the socio-economic effects of digital inclusion;
- user experiences and barriers identified in program reports.

The study included a comparative analysis of the socio-economic effects of digital divide reduction projects in urban and rural settings. This methodology was used to assess the efficacy of digital efforts like WeChat and Weibo in enhancing rural access to educational and health resources. Microsoft Excel was used for statistical processing in data analysis and result presentation, generating numerous graphs and charts to illustrate internet penetration rates, demographic distributions, and usage trends.

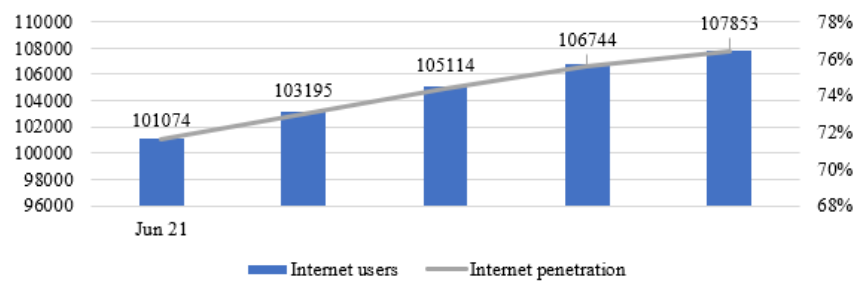
The mixed-methods technique offers a definitive foundation for comprehending the socio-economic ramifications of the digital divide in China. Nevertheless, further study might enhance its conclusions by integrating primary data.

Results

According to Statista (2024), the country’s internet penetration rate was at 76.4% in June 2023 (Figure 1).

Figure 1

Population and internet penetration in June 2021-June 2023

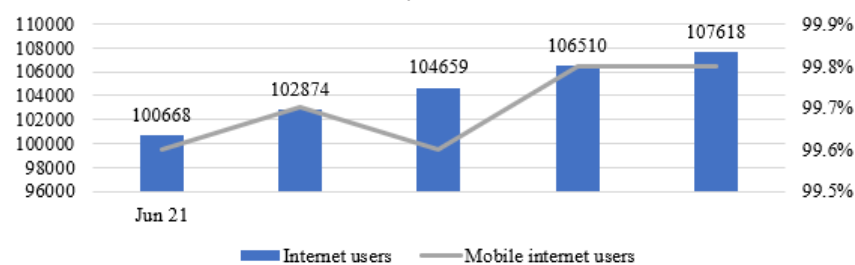


Note. From “The 52nd statistical report on China’s internet development” (China Internet Network Information Center, 2023).

Figure 2 shows the correlation between the number of internet users and the internet penetration rate, which allows the researchers to assess if the needs of direct users of the network are being met.

Figure 2

Number of network users and internet penetration in June 2021-June 2023

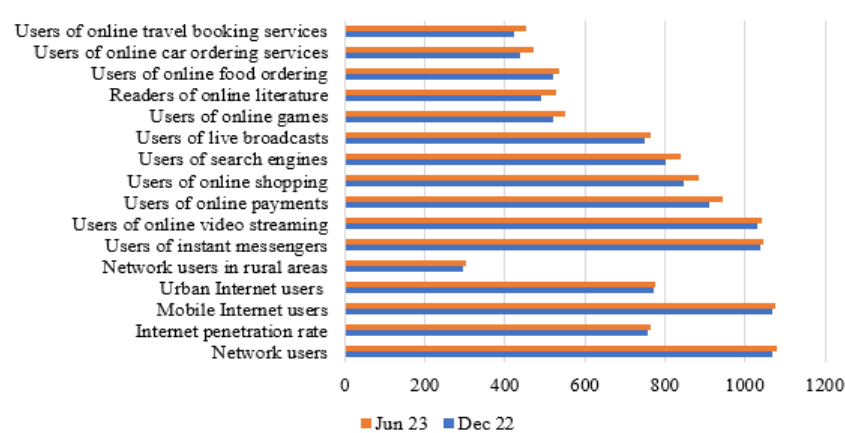


Note. From “The 52nd statistical report on China’s internet development” (China Internet Network Information Center, 2023).

The high dynamics of change affecting all spheres of interaction among users of the internet is quite revealing. Thus, in just six months, from December 2022 to June 2023, the number of online users increased by 11.09 million to 1.079 million. Other related parameters (Figure 3) have also changed substantially.

Figure 3

Dynamics of changes in internet users in December 2022-June 2023



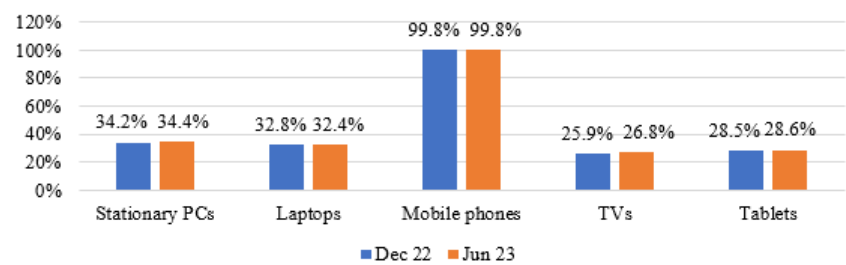
Note. From “Internet user distribution in China from 2014 to June 2025, by urban and rural region” (Statista, 2025).

Of the total number of internet users, the vast majority are mobile device users (99.8%), which is a significant factor in assessing internet accessibility in different regions, as phones themselves are statistically

more common in both urban and rural areas, compared to computers and other gadgets for accessing the World Wide Web. This relationship is clearly illustrated in Figure 4.

Figure 4

Ratio of internet users through different devices in December 2022-June 2023

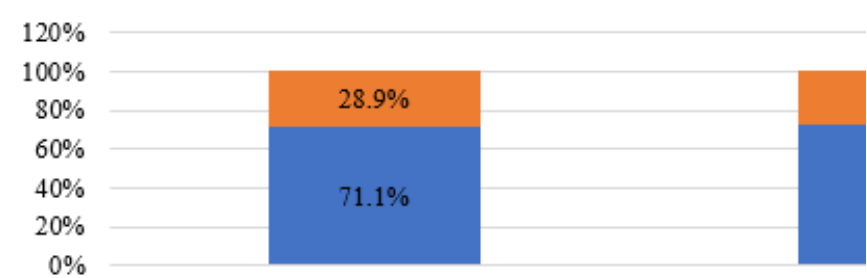


Note. From “Internet user distribution in China from 2014 to June 2025, by urban and rural region” (Statista, 2025).

Meanwhile, 72.1% of the total number of web users nationwide are urban dwellers (777 million), while only 27.9% are rural web users (301 million) (Figure 5).

Figure 5

Structure of internet users in December 2022-June 2023



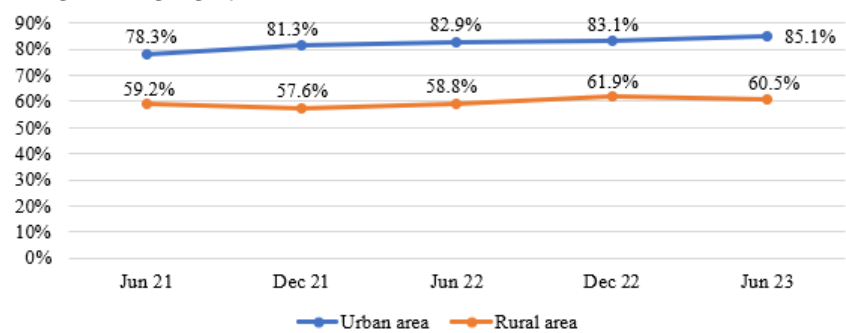
Note. From “Internet user distribution in China from 2014 to June 2025, by urban and rural region” (Statista, 2025).

The discrepancy in user distribution (72.1% urban vs 27.9% rural) underscores the digital isolation in rural areas. Despite the nationwide increase in internet penetration, rural regions continue to represent a disproportionately small percentage of overall internet users. This further illustrates systemic disparities in access to digital technology. The minimal number of rural internet users may indicate socio-economic

influences since low-income families in these locations may not prioritise internet access or may not afford to do so, owing to fundamental survival necessities like food, housing, and education. Limited internet access also impairs their capacity to maximise digital possibilities, prolonging cycles of poverty and exclusion from the digital economy. The urban-centric paradigm of digital development exacerbates this inequality by prioritising urban markets for technological advances and policy efforts, such as e-commerce and finance, which do not equally benefit rural inhabitants. Figure 6 shows the changes in the geographic distribution of internet users from June 2021-June 2023.

Figure 6

Change in the geographic distribution of internet users from June 2021-June 2023



Note. From “Internet user distribution in China from 2014 to June 2025, by urban and rural region” (Statista, 2025).

While the difference between urban and rural internet users is significant, it is also worth noting that overall internet penetration in China is remarkably high and continues to grow dynamically. Based on the data and the fact that broadband penetration reached 91.6% in June 2023, there is a prominent level of internet penetration and a rapid spread of better ways to connect to the internet, as improved broadband access facilitates faster and more reliable internet connections (Zhang et al., 2021). China has built and launched 2.937 million 5G base stations, providing access to 5G networks in all prefecture-level cities and counties. This has greatly improved the quality of internet connectivity and increased the possibilities of using advanced technologies in various fields (Chaoub et al., 2021). Accessibility is a key enabler of digital inclusion, and the link between mobile internet use and equity is clear. In 2023, 99.8% of consumers were expected to use a mobile

device to connect to the internet, indicating continuing growth in the number of gadgets. However, access is not uniform. In rural areas, the internet penetration rate is at 60.5%. Key barriers include lack of digital infrastructure, cost of hardware, and lack of user interface for a small number of experts.

The prevalence of mobile device use (99.8%) is a pivotal factor for comprehending digital inclusion in China. Mobile phones serve as the principal conduit to the internet in rural regions, underscoring mobile internet as the foremost instrument facilitating digital engagement. Nevertheless, while mobile devices are widespread, the quality of access might differ significantly. Rural areas, despite the ubiquity of mobile devices, encounter obstacles such as inadequate internet speeds, absence of 5G connectivity, and substandard infrastructure, which restrict the optimal utilisation of mobile technology. Conversely, metropolitan regions advantageously use sophisticated mobile technology, facilitating expedited internet access and uninterrupted interaction with online platforms. The disparity in network capacity significantly exacerbates the digital divide, further entrenching urban advantages in education, business, and healthcare.

The Chinese government and business sector initiatives aim to close this gap by emphasising infrastructure development, digital literacy programs, and customised apps for rural regions. Public expenditures in broadband development and the installation of 2.937 million 5G base stations have markedly enhanced connectivity, including in distant areas (He et al., 2024). Private initiatives include Alibaba's Rural Taobao program, which aims to improve e-commerce opportunities for rural businesses, and Tencent's WeDoctor platform facilitates access to telemedicine. In addition, educational programs such as the Digital Lessons for All initiative target rural students and provide them with digital skills and resources (He et al., 2024). This joint initiative between the China Digital Inclusion Foundation and the Ministry of Education has improved education, and has contributed to the achievement of gender equality by providing online courses and digital tools to rural schools. Through this initiative, students in remote communities in Sichuan Province gain access to high-quality math and science lessons. Teachers reported a 20% improvement in student performance in standardised tests (Gottschalk & Weise, 2023). Notwithstanding these endeavours, obstacles persist. The program's success is hindered in regions with poor connectivity or insufficient teacher training to integrate digital

tools effectively. The cultural resistance to technology adoption in rural regions, influenced by traditional values and scepticism towards digital instruments, also constrains the efficacy of these initiatives. Language hurdles, especially among elderly individuals unacquainted with Mandarin or internet platforms, intensify the difference. Resolving these difficulties necessitates the use of culturally attuned strategies, such as streamlined application interfaces and voice-activated digital assistants, to promote inclusion.

As noted, there is a considerable difference between internet penetration rates in urban and rural areas. There are 777 million internet users in urban areas, accounting for 72.1% of the total users in the country, while the urban internet penetration rate is 85.1%, suggesting a prominent level of internet access and widespread use of digital technology. Meanwhile, in rural areas, the number of internet users is 301 million, or 27.9% of the total, and has an internet penetration rate of only 60.5%. This means that almost half of the people in rural areas do not have access to the internet, which limits their opportunities in various spheres of life (Digital World Atlas, 2024).

These technological limitations illustrate the initial phase of the digital divide, when access to digital resources is fundamental but disproportionately distributed. One of the main drivers of the digital divide is the lack of skills and resources among rural populations. Data from Statista (2024) sheds light on the main reasons why people in rural areas do not use the internet:

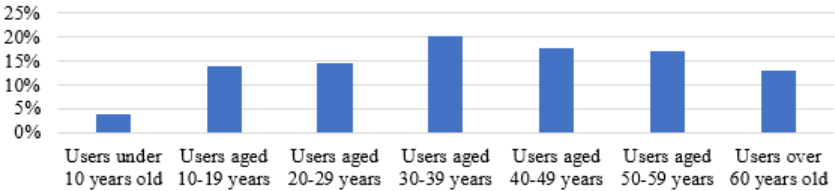
- Lack of skills (56.1%). There is a low level of digital literacy in rural areas. Many residents lack computer and internet skills, making them less digitally ready. According to the report, 56.1% of people in rural areas do not know how to use a computer or the internet;
- Limited literacy (28.4%). Many people in rural areas do not know Pinyin or have limited reading and writing skills;
- Infrastructural differences. The development of internet infrastructure in rural areas lags far behind urban areas. While cities have built modern communication networks, including high-speed internet and 5G networks, rural areas often lack the basic infrastructure required for stable and fast internet connections (Ferraro, 2020);

- Lack of devices (19%). People living in rural areas often have lower incomes than those living in urban areas. This limits their ability to purchase computers, smartphones, and other devices needed to access the internet. Furthermore, the cost of internet services can be higher for rural residents, which also deters usage;
- Age restrictions (15.1%). Some residents are too young or too old to use the internet.

The social and economic impact of the digital divide in China is profound. Urban residents are taking advantage of the latest information and communication technologies to improve education, healthcare, and business opportunities. Urban internet users are actively participating in online platforms for education, healthcare, and e-commerce, which contribute to social and economic development (Nikiforova, 2022). On the other hand, rural regions suffer from a lack of digital literacy, with 56.1% citing a lack of skills as a barrier, and infrastructure deficiencies that impede their access to these benefits. The outcome is an intensification of regional disparities, wherein rural inhabitants encounter restricted educational resources, limited healthcare access, and diminished economic prospects. Urban regions have extensive use of online financial tools and e-commerce platforms, but rural enterprises frequently encounter challenges in competition owing to limited access and inadequate digital proficiency. Meanwhile, the age structure of internet users in China shows that the young and middle generation are the main internet users. As of June 2023, users aged 30-39 represent the largest number of users (20.3%) (Figure 7).

Figure 7

Age structure of internet users



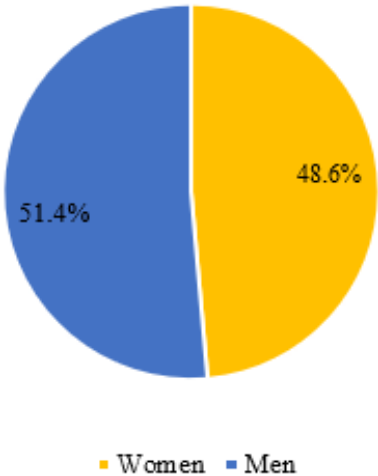
Note. Adapted from “Digital 2024: China” (Kemp, 2024).

These data show that the internet is most heavily used by middle-aged people, while the proportion of older users stays relatively low.

The gender distribution of internet users in China is close to the overall gender distribution of the population. As of June 2023, men account for 51.4% of total internet users and women – for 48.6% (Figure 8). This indicates an almost even distribution of internet access between men and women.

Figure 8

Gender distribution of internet users



Note. From “China” (Digital World Atlas, 2024).

The digital divide in China is driven not only by economic and infrastructural factors, but also by cultural barriers and the attitudes of different groups of people towards new technologies (Ma et al., 2020). These factors, as identified by Shenglin et al. (2017), form the basis for understanding the causes of the digital divide and for developing effective strategies to address it:

1. In the context of the socio-cultural dynamics of rural areas in China, there is a strong correlation between traditional axiological guidelines and resistance to technological innovations. The determinants of such resistance can be differentiated into two main categories: conservative adherence to established life paradigms, and the institutional influence of socio-family structures. The dominance of traditional values

in the social space of rural areas creates a permanent barrier to the implementation of innovative technological solutions. Representatives of older age cohorts demonstrate a particularly pronounced tendency to sceptically perceive innovations, preferring proven temporally verified methodological approaches. The institutional dimension of social interaction is of particular importance, where the density of family and community ties becomes a powerful factor in resistance to technological transformations. The collectivist nature of social communication in rural communities complicates the implementation of innovations that require individualized attention and personalised learning.

2. The linguistic diversification of the Chinese communication space creates significant obstacles to unified digital integration since the dominance of Mandarin (standard Chinese) as the official communication standard does not fully reflect the linguistic reality of various regional communities. This problem is particularly relevant in the context of the socio-demographic group of elderly people, who, due to limited linguistic competencies, experience significant difficulties in interacting with digital devices and information platforms.
3. In the modern socio-technological context, there is a persistent scepticism towards digitalisation on the part of representatives of rural communities. This position is characterised by a complex of cognitive barriers associated with constant fears of potential risks to information security and personal privacy. The determinants of such alertness are deep psychological mechanisms of distrust towards innovative communication platforms and digital tools. Residents of rural areas demonstrate increased sensitivity to possible threats of cyberspace, in particular the risks of fraudulent manipulations and unauthorised access to personal data. An additional factor is the traditional orientation towards classic information channels. Preference is given to established media formats, such as printed media and television broadcasting, which are perceived as more reliable and verified sources of communication.

In the context of the current study, it is necessary to focus on key economic determinants, particularly on the price environment

of technical equipment and supporting services, as well as on the prioritisation of financial costs in conditions of limited resources. The prohibitive cost of digital devices and internet services is often a significant barrier for rural residents. Even if they acknowledge the benefits of innovative technologies, financial constraints prevent them from using such tools. Furthermore, for many rural families, spending on basic needs such as food, shelter, and education is a priority. Investments in digital devices and services can be considered as less important compared to these necessary expenditures.

The transformation in the composition of internet users suggests that rural regions are gradually improving their digital connectivity, but substantial disparities persist. Despite the increasing countrywide internet penetration, rural areas continue to encounter obstacles pertaining to digital literacy, infrastructure, and availability of devices. These problems, coupled with budgetary limitations, restrict rural inhabitants' capacity to fully participate in online services such as education, healthcare, and e-commerce. The absence of 5G networks, broadband infrastructure, and affordable devices intensifies these inequities. Moreover, cultural resistance among rural demographics, particularly among the elderly, arises from distrust of digital technologies, exacerbated by concerns over privacy and information security. Overcoming these obstacles requires sustained investment in rural broadband, digital literacy initiatives, and cost-effective technological solutions, especially aimed at underserved regions and the older population. Culturally attuned initiatives that correspond with local customs, enhance device accessibility, and address safety issues will be essential in bridging the digital gap.

Impact of the digital divide on socio-economic development

Differences in internet penetration between urban and rural areas considerably affect the socio-economic development of these regions. In cities, prominent levels of internet penetration contribute to the development of various sectors of the economy, improve the quality of education and healthcare, and raise the living standards of the population (Table 1).

Table 1

Differences in the level of internet penetration between urban and rural areas, and its impact on different spheres of life

Parameter	Urban areas	Rural areas
Education		
Access to educational resources	Students have wide access to a variety of educational resources such as online courses, digital libraries, and educational platforms. This enables them to receive quality education, take part in distance learning, and improve their skills and knowledge.	Limited access to the internet and digital devices reduces opportunities for quality education. Students do not have access to the same resources as their urban peers, creating an educational gap and limiting their future career prospects.
Quality of training	Teachers and students can use modern educational technologies, interactive learning materials, and digital tools to enhance learning. This contributes to a more effective and interesting educational process.	Teachers and students often have limited access to modern educational technologies and resources. This leads to less quality learning and lower motivation of students.
Healthcare		
Access to health services	Access to online medical services allows residents to receive medical consultations, make appointments and receive medical care remotely.	Limited access to the internet makes it difficult to use online health services, which is crucial for remote and hard-to-reach regions.
Health awareness	Residents have more opportunities to obtain health and disease prevention information online.	Limited access to information reduces awareness of health and preventive measures. This leads to late seeking medical attention and increases the risk of developing chronic diseases.

Parameter	Urban areas	Rural areas
Proximity	Possibility to get online counselling or make an appointment remotely.	Residents often have to travel long distances to receive medical care, which is especially difficult for the elderly and people with disabilities
E-commerce (small business)		
Prevalence of e-commerce	Actively increasing	Continues to increase, albeit at a much lower rate. National online rural retail sales reached 1.12 trillion yuan in the first half of 2023, up 12.5% year-on-year. Online sales of agricultural products reached 270 billion yuan, up 13.1% year-on-year.
Development opportunities	Prominent levels of internet penetration are fuelling e-commerce and small business development	Opportunities for entrepreneurship are limited.
Entrepreneurship	Entrepreneurs can use the internet for marketing, sales, and customer interaction.	Entrepreneurs are constrained by lack of access to the internet and digital technologies, which reduces their competitiveness.
Customer liaison	Direct and fast, which encourages active business growth	Many rural residents still do not have access to online shopping and other online services.

Parameter	Urban areas	Rural areas
Financial services		
Access to financial services	Residents have access to various digital financial services such as online banking, mobile payments, and investment platforms. This makes it easier to manage finances, and provides more opportunities to invest and save.	Limited access to digital financial services makes it difficult to manage finances and obtain credit. Residents are often forced to use traditional methods, which can be less effective and more expensive.
Social and cultural integration		
Public participation	In cities, residents actively use social media and online platforms to take part in public discussions, organise events, and share cultural values.	In rural areas, limited access to the internet reduces opportunities for social and cultural integration. Residents are less engaged in community discussions and activities, which can lead to social isolation.
Cultural development	Internet access facilitates cultural exchange and development. City dwellers can experience diverse cultural trends, take part in online events and exchange ideas.	Limited access to the internet hinders cultural exchange and development. Residents have fewer opportunities to take part in cultural life and exchange ideas with others.

Note. Adapted from “Internet use and consumption diversity: Evidence from rural China” (Vatsa et al., 2023); “Rural and non-rural digital divide persists in older adults: Internet access, usage, and attitudes toward technology” (H. Y. Lee et al., 2021); “Impact of Internet use on economic well-being of rural households: Evidence from China” (Liu et al., 2025); “Research on the influence mechanism of internet use on rural residents’ consumption level in China—The mediating effect of consumption literacy” (Tian et al., 2023).

The inequalities in internet penetration between urban and rural regions of China profoundly affect socio-economic growth, impacting critical sectors such as education, healthcare, e-commerce, and social engagement. In metropolitan regions, the extensive availability of high-speed internet enhances access to digital resources, allowing inhabitants to elevate their quality of life via education, improved healthcare, and more economic prospects. Online education offers urban residents access to various interactive learning resources, improving the educational experience and facilitating superior academic results. Likewise, telemedicine services enable urban inhabitants to get healthcare remotely, enhancing their capacity to pursue medical assistance and increasing health awareness. The presence of e-commerce platforms enhances the local economy, allowing entrepreneurs to efficiently access clients and grow their enterprises.

Conversely, rural regions have substantial constraints stemming from inadequate internet connectivity, which diminishes educational prospects, obstructs healthcare access, and limits business endeavours. The restricted use of digital resources in rural schools results in an educational quality disparity, diminishing student motivation and constraining their capacity to compete with metropolitan counterparts. The absence of online consultation services in healthcare compels rural inhabitants to depend on conventional techniques and undertake extensive travel to get medical treatment, hence worsening health disparities. Furthermore, rural entrepreneurs face challenges due to limited internet access and deficiencies in digital skills, hindering their ability to use e-commerce technologies for company expansion. While several rural regions exhibit minor e-commerce development, this advancement is sluggish relative to metropolitan areas, and digital banking services remain unattainable for a significant segment of the rural populace, thereby exacerbating economic isolation.

The digital gap impedes social and cultural integration in rural locations since restricted internet connection hinders inhabitants from participating in public debate, interacting with cultural trends, and attending community activities. This isolation cultivates a feeling of detachment and social exclusion, especially evident among the elderly and those with diminished computer literacy. Cultural aversion to new technology, together with economic limitations, hinders digital inclusion in rural areas.

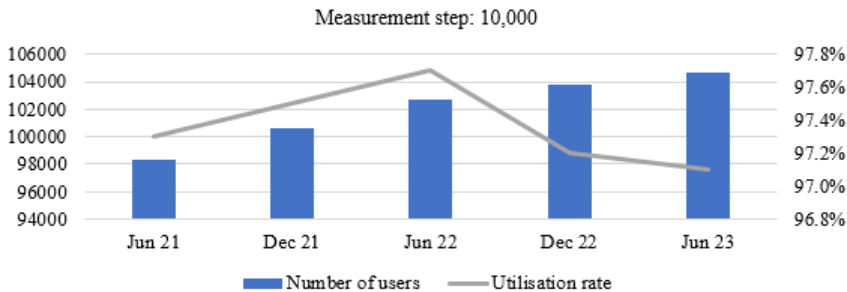
Internet applications and social media

The efforts of China’s government and business sector to bridge the digital gap between urban and rural regions show a commitment to promoting digital inclusion. Notwithstanding considerable infrastructure advancements, including the proliferation of 5G networks, the digital divide endures, especially in rural regions where access is obstructed by inadequate infrastructure, limited digital literacy, and socio-cultural influences. The government has significantly advanced the affordability of telecommunications, particularly for rural families, with subsidised services benefitting millions. These measures are essential for enhancing internet access in rural areas, alleviating the financial obstacles encountered by many rural households. Nonetheless, these economic services alone are unable to address the many problems that hinder rural inhabitants from effectively capitalising on the digital economy.

Figure 9 displays statistics on the user count and utilisation rate of instant messaging services from June 2021 to June 2023. The user count steadily rose, exceeding 102 million by June 2022, before stabilising slightly in the subsequent months. This indicates a general upward trend in the use of instant messaging services during the time. The utilisation rate exhibits more variability, reaching a zenith in June 2022 before seeing a minor decline by June 2023. This decline implies that while the user base is expanding, the frequency of active engagement may be stabilising or seeing a minor decrease, perhaps signalling a

Figure 9

Number of users and instant messaging usage rate from June 2021 to June 2023



Note. From “The 54th statistical report on China’s internet development” (China Internet Network Information Center, 2024)..

saturation point when the majority of potential adopters have already embraced these platforms. The rise in user numbers, along with a constant utilisation rate, indicates that instant messaging platforms are becoming essential to digital communication. Yet, they may have difficulties in sustaining regular involvement as the industry evolves.

As Table 2 shows, social media and messengers very clearly capture the essence of the digital divide between urban and rural China, and often exacerbate the divide. However, many such platforms are involved in programmes that encourage the reduction of the digital divide between urban and rural areas.

Despite considerable efforts by the government and corporate sector to solve the digital gap in China, significant problems persist. Strategic investments in infrastructure, digital literacy, and localised solutions are crucial for guaranteeing equal access to the advantages of the digital economy. Going ahead, cooperation between public and private sectors, together with culturally specific initiatives, will be essential for bridging the rural-urban digital divide and attaining equitable development.

Table 2
Impact of messengers and social networks on public awareness and engagement

Parameter	Urban areas	Rural areas
Access to information	In cities, residents are actively using social media for news and information. Social media platforms, in particular Sina Weibo and WeChat, are emerging as powerful tools for communication and information exchange. These digital resources provide users with comprehensive access to current news reports, official documents, and content produced by influential social media actors and opinion leaders.	In rural areas, access to information via social media is limited due to low internet penetration and lack of digital literacy. This results in rural residents receiving less information and may be less aware of current events and news.

Parameter	Urban areas	Rural areas
Dissemination of educational and health resources	Social media is actively used to disseminate educational and medical resources. An example of such an effective communication platform is the social media application WeChat, which provides a wide range of interactive services, including online lectures and the provision of qualified medical consultations by specialists in real-time.	In rural areas, limited access to the internet reduces the ability to utilise these resources. Rural residents often lack access to online courses and medical counselling, limiting their opportunities for education and healthcare.
Increased awareness of social and political issues	Social media fosters awareness of social and political issues among urban dwellers. This format of social communication ensures an increase in the level of civic consciousness, contributes to the formation of an active life position, and creates the prerequisites for participatory democracy, where each individual can directly influence the processes of making socially significant decisions.	The insufficient level of digital competence of the population and the limited infrastructure of telecommunications networks lead to a significant narrowing of opportunities for social participation, which makes it difficult to fully integrate rural communities into the national discursive space. This reduces the level of civic engagement and involvement in public life
Social integration and communication	Social media facilitates social integration and communication among urban dwellers. Platforms such as WeChat and Weibo allow users to stay connected with friends and family, find like-minded people, and take part in group discussions. This improves the quality of life and builds social connections.	In rural areas, limited access to social media reduces opportunities for communication and social inclusion. Rural residents may experience feelings of isolation and loneliness, which has a negative impact on their mental health and social wellbeing.

Parameter	Urban areas	Rural areas
Participation in cultural and social events	Social media play a significant role in organising and promoting cultural and social events in cities. Users can easily find event information, sign up to take part, and share the experience with others. It promotes cultural development and social participation.	In rural areas, involvement in cultural and social activities through social media is limited. Rural residents may be deprived of the opportunity to take part in such activities, which reduces their cultural development and social engagement.
Economic engagement and entrepreneurship	Social media is actively used to promote business and entrepreneurship in cities. Platforms such as Weibo and Douyin allow entrepreneurs to promote their products and services, find customers, and interact with audiences. This contributes to economic growth and small business development.	In rural areas, entrepreneurs face difficulties in using social media to promote their businesses due to limited access to the internet and low levels of digital literacy. This limits their opportunities for economic development and business growth.

Note. Adapted from “Impact of Internet use on economic well-being of rural households: Evidence from China” (Ma et al., 2020); “Digital technologies as solutions to China’s aging population: A systematic review of their opportunities and challenges in rural development” (Ming et al., 2025); “Unraveling the impact of social media involvement on public health participation in China: Mediating roles of social support, social trust, and social responsibility” (Gong et al., 2025); “Evolving publicness: The impact of digital platforms on public spaces in Shanghai” (Chen, 2025); “Bridging the digital divide: Leveraging new media for rural development” (Zheng et al., 2024).

Initiatives and programmes to reduce the digital divide

The Chinese government is taking active measures to reduce the digital divide between urban and rural areas. The report notes that the 5G network is available in all prefecture-level cities. As of June 2023, China has built and launched 2.937 million 5G base stations. Moreover, telecom operators continue to offer discounts on basic telecom services to 28 million rural households, which significantly reduces the cost of communication and makes the internet more affordable for rural residents (Hui et al., 2020). By June 2023, nationwide broadband

penetration reached 91.6%, up 1.4% from December 2022. There is a steady trend towards improving the quality and accessibility of internet communications (Song, 2023). Public and private initiatives have been implemented to address the digital divide by implementing comprehensive digital literacy programs designed to teach the population, in particular residents of rural areas, to effectively use modern digital technologies. In the context of modern transformations of the communication space, the private sector, represented by leading technology corporations, in particular Alibaba, Tencent and Huawei, plays a decisive role in the processes of digital inclusion. These companies implement strategic investment mechanisms aimed at technological development and the provision of widely available internet services for various social strata, which determines a significant modernisation of the communication environment.

China's digital divide is shaped by its unique economic policies, which are characterised by the interplay of state regulation and market innovation. The state is focused on regulating digital infrastructure to ensure it meets national goals. However, this centralisation can limit the flexibility needed to address regional and local issues. Meanwhile, large technology companies such as Alibaba are combining business interests with a role in national development. This dynamic demonstrates the need for public and private organisations to work together to address infrastructure and socio-cultural challenges (Zavyalova et al., 2021). As of today, the network has more than 30,000 rural centres, covering more than 1,200 administrative units. The company is consistently investing in the development of internet infrastructure, in particular through the laying of fibre-optic communications and the organisation of internet spaces. Meanwhile, Alibaba's Rural Taobao program exemplifies the beneficial effects of enhanced internet penetration on rural economies. This initiative allows rural businesses and farmers to market their products directly to urban consumers by facilitating access to e-commerce platforms. In Guizhou province, farmers indicated a 30% rise in sales revenue within two years of joining the platform. The product integrates Alibaba's logistical support with a personal dedication to digital literacy. Nonetheless, the execution of the system has been sluggish in regions with restricted broadband connection and inadequate digital proficiency.

Tencent's WeDoctor program exemplifies how digital integration may address genuine health issues in rural China. A rural health

clinic in Yunnan province, utilising WeDoctor's telemedicine services, decreased patient journey times by as much as 70% (Xu et al., 2020). Senior people, who formerly visited metropolitan centres for specialised appointments, may now obtain real-time medical advice and medicines remotely. Nonetheless, utilisation is inconsistent, since older demographics frequently exhibit a lack of familiarity with digital devices or trust in their use (Zhang et al., 2021).

Huawei is further strengthening digital inclusion through the RuralStar project, which provides high-speed internet access to over 100 million rural residents (Bhuiyan, 2020). This initiative exemplifies the revolutionary capabilities of 5G infrastructure in isolated regions. In the Guangxi area, high-speed internet provided by RuralStar enhanced local tourism by enabling small hotels and homestays to promote their services online. Online booking revenue surged by 40% in the first year (Zeng, 2024). Nonetheless, linguistic obstacles and inadequate digital competencies among senior owners constrained the complete utilisation of these platforms.

Public and non-governmental organisations are key agents of social change aimed at increasing the digital inclusion of rural communities. The China Digital Inclusion Foundation implements comprehensive educational initiatives aimed at developing digital literacy among the rural population. Researchers (Ji et al., 2021) note that more than 50,000 rural residents have completed training programs that include in-depth mastery of computer technologies and basic internet practices. An additional vector of institutional support for the digital transformation of rural regions is the activities of the Green Digital Foundation, which ensures intersectoral cooperation with local authorities and private structures. The organisation focuses on developing internet infrastructure through the implementation of a project on the digitalisation of the educational environment, which involves creating internet access in 200 rural educational institutions. REAP provides students with modern technical learning tools and trains teachers to effectively use online tools in the educational process. In 2023, over 10,000 school children in rural areas were given access to modern educational technology (Yuan & Ding, 2023).

Examples of other successful projects and initiatives include Tencent's "Internet+" agricultural project, which helps farmers use e-commerce platforms to sell their products and improve their income and economic conditions. This is a project that provides rural farmers

with access to an e-commerce platform to sell their products (thereby increasing farmers' income by 20-30%, improving their economic situation, and reducing the digital divide) (Yao et al., 2024). Reusability of digital opportunities means leveraging data and technology to deliver sustainable benefits. In China, government and business initiatives such as REAP and Tencent's "Internet Plus" program provide flexible frameworks for the deployment of digital solutions in rural areas. Digital educational content and telemedicine systems are designed for repeatable and scalable use. However, rural areas often lack the infrastructure and knowledge needed to fully exploit these renewable resources, leading to inequality.

Furthermore, the WeCountry project was developed for rural China to help bridge the digital divide and promote social inclusion; the platform enhances users' digital capabilities and promotes their economic and social inclusion by helping them use modern information and communication technologies (Ye & Yang, 2020). Meanwhile, the "Digital Lessons for All" education project, launched by China Digital Inclusion Fund together with the Ministry of Education, provides online courses and learning materials for rural schools. In 2023, over 100,000 students in rural areas were expected to gain access to quality educational resources (Zhang et al., 2023). It was mentioned that social media and messengers are also involved in narrowing the digital divide between urban and rural China (Wang, 2024). It makes sense to look at examples of successful campaigns and initiatives by such platforms, such as Sina Weibo, to attract users from rural areas and reduce the digital divide.

Sina Weibo implements a comprehensive strategy to overcome the digital divide through multi-vector interaction with various social institutions. Scientists note the significant potential of Weibo in providing communicative support to non-profit organizations that use the platform to disseminate socially important information and give updates on the problems of rural areas (Zhou & Pan, 2016). The efforts of the government and technology companies (Weibo) involve the expansion of network communication, the introduction of fifth-generation technologies, and the development of cloud services, which creates the prerequisites for the socio-economic transformation of peripheral areas (Lin, 2023).

These projects mitigate the urban-rural digital gap by facilitating access to contemporary technology and enhancing digital literacy

among rural communities. Successful campaign examples illustrate how social media may enhance access to education, healthcare, and economic possibilities in remote regions. These programs are enhancing rural livelihoods and diminishing the digital gap in China. The interaction of technology, socio-economic factors, and governmental policies highlights the complex dynamics of the digital divide in China. Notwithstanding significant advancements in urban digital adoption, rural areas continue to face challenges that impede their socio-economic integration. Mitigating this imbalance requires continuous investment in infrastructure, culturally attuned digital literacy programs, and innovative legislative solutions designed to meet the unique needs of rural communities. This comprehensive plan is essential for ensuring equitable development and alleviating regional imbalances.

Discussion

The empirical data analysis demonstrates the persistent differentiation of the digital space between urban and rural areas of China, despite systematic state and private interventions in the field of internet infrastructure development. A comparative analysis with the research of Shenglin et al. (2017) confirmed the conceptual paradigm regarding the profound impact of digital inequality on socio-economic transformations. Scientists note that regional differentiations in access to digital technologies generate significant barriers to the realisation of the educational and professional potential of residents of rural areas. Institutional measures aimed at levelling this imbalance currently demonstrate limited effectiveness, which highlights the need to develop more comprehensive strategies for overcoming the digital divide. However, the current study focuses on the Chinese context and specific programmes implemented in the country, while Shenglin et al. (2017) considered global examples and general trends. Thus, both studies emphasised the significance of addressing the digital divide for socio-economic development.

The finding of a significant relationship between income and success of households in a rural area and internet accessibility (e-commerce adoption) is also supported by the study conducted by Murthy et al. (2021). Furthermore, the researchers noted that the National Rural E-commerce Comprehensive Demonstration Project in China has led to a significant increase in rural incomes and improved infrastructure in poor regions, while infrastructure issues have not received due

attention in this article. The researchers also note the positive impact of rural internet penetration not only on rural household incomes, but also on improving access to markets for rural producers, increasing digital literacy and information and communication technologies use among the rural population, and the qualitative growth of the role of infrastructure and policies in supporting e-commerce. The difference between eastern, western, northern, and southern rural regions, which show different intensity of the internet penetration effect, not considered in this study, deserves a separate study. Therewith, Murthy et al. (2021) emphasise the significance of internet access and digital technologies in bridging the digital divide between urban and rural areas. The study also made special mention of broadband internet, the spread of which plays a significant role not only in eliminating the digital divide, but also in improving the quality of life of the population, the security of Internet connections, and the profitability of e-commerce transactions. These findings are supported by Barik (2023), who also pointed out that broadband internet has a significant impact on income distribution even between cities (urban areas), contributing to the reduction of income inequality, providing digital dividends for low-income categories, strengthening market potential, and promoting agglomeration of production.

Hussain et al. (2024) also pointed to the prospect of using the internet in rural areas and improving the quality of their residents (using the internet for self-employment as an example), which confirms the findings about the substantial impact of the internet on rural areas and the need to increase the level of internet penetration in these areas. The researchers separately analysed the difference in the accessibility of the internet and the implementation of its opportunities depending on gender and age characteristics of the user, whereas the study mainly focused on age in this aspect.

Hoffmann et al. (2020) analysed the factors that influence the adoption of digital technologies by farmers in China, which complement those listed in the study, such as, e.g., the size of the farm (the larger it is, the higher the probability of digitalisation and acceptance of the fact of using the internet), the perception of profitability of new technologies, the ease of use of technologies, and the perception of risks associated with new technologies. The study confirms that the adoption of digital technologies in rural areas depends on multidimensional factors, which is worth taking as another parameter of the difference between rural

and urban internet users. The digital transformation of agriculture, Birner et al. (2021) expanded the scientific understanding of the implementation of innovative technologies, focusing on the role of large technology companies, agribusiness and government initiatives. The researchers argued that the effectiveness of digital modernisation of the agricultural sector depends not only on the technical availability of tools but also on comprehensive institutional support. This confirms the need for an integrated approach that considers both the technical and socio-economic aspects of digital innovation in rural China.

In this context, it is also worth mentioning the study by Choudrie et al. (2020), who among other parameters of rural internet users' behaviour (and their perception of the internet as a convenient tool for learning or e-commerce), also pointed out a direct correlation between digital literacy, desire, and the actual behaviour of rural residents in the internet environment. The researchers point out that digital literacy helps to overcome barriers of lack of funds, technology, and labour, enabling farmers to convert their e-commerce sales intentions into action. This confirms the findings of this study regarding the relationship between digital literacy and the effectiveness of internet use, and the need to implement digital literacy programmes, and initiatives specifically for the rural population (especially the elderly). The same conclusions were shared by Blažič and Blažič (2020), who put special emphasis on older users and the possibility of positive changes associated with the transformation of digital literacy policy aimed at people over 50-60 years old.

Special attention should be paid to the opportunities offered by artificial intelligence (AI), which can be used, among other things, to bridge the digital divide for low-literate users or representatives of other language (dialect) groups who struggle with complex services and web-based platforms (Kitsara, 2022). Although the use of AI is a controversial issue in the context of Chinese cybersecurity, history has a fair number of confirmed cases of AI's ability to bridge the digital divide between members of different social strata and populations (e.g., different regions, as well as differing cultural and social norms on AI) (Broeders & van den Berg, 2020).

The findings of this study highlight the significant digital divide between urban and rural China, despite numerous efforts to improve internet infrastructure and digital literacy. Internet penetration and use of digital technologies in rural areas is considerably lower than in urban

areas, which continues to create substantial barriers to educational and economic opportunities in rural areas (van Dijk, 2020).

Employing the model of the digital divide as a framework reveals that the rural-urban discrepancy encompasses not only physical access to digital resources, but also substantial obstacles related to digital skills and socio-economic advantages (van Dijk, 2020). The main concern about access in the digital divide is shown in the disparity of internet penetration between urban and rural regions. Urban regions have an internet penetration rate of 85.1%, whilst rural areas only attain 60.5%, significantly affecting rural populations' capacity to engage in the digital economy. Although the nation has achieved significant progress in infrastructure development, as seen by the proliferation of 5G networks and enhanced internet coverage, the rate of infrastructure deployment in rural regions has been inconsistent. Rural regions, especially those that are isolated and economically disadvantaged, continue to encounter substantial obstacles, such as inadequate digital infrastructure, elevated internet service fees, and restricted access to devices. These constraints effectively exclude rural communities from essential digital services, perpetuating obstacles to comprehensive digital inclusion. While mobile internet connectivity offers rural people a means to participate in the digital realm, the disparity in quality between urban and rural internet access hinders rural areas from reaping the full benefits, thereby perpetuating the digital divide.

The disparity develops beyond access, particularly concerning skills and usage. Digital literacy in rural China is markedly inferior to that in metropolitan regions. The age-related divide intensifies the skills gap since older rural residents are often less willing or less capable of engaging with new technology. The psychological resistance to technology adoption, especially among older generations who maintain traditional lifestyles, contributes to the digital divide. Younger, urban people exhibit higher digital literacy and adapt to new technologies more rapidly, resulting in more engagement in the digital economy.

The research indicates that while programmes like Alibaba's Rural Taobao and Tencent's WeDoctor facilitate access to digital services like e-commerce and telemedicine, their efficacy is limited by the inadequate levels of digital literacy among rural populations. The skills gap, influenced by resource availability for training and cultural aversion to new technology, significantly contributes to the persistence

of the digital divide, hindering rural inhabitants from fully using digital technologies.

The third level of the digital divide reveals an inequitable distribution of advantages from digital technology between urban and rural people. Urban inhabitants get considerable socio-economic advantages from digital involvement, including access to schooling, healthcare services, financial instruments, and entrepreneurial prospects. Urban centres benefit from many e-commerce platforms, including online retail and digital financial services, which substantially boost their economic engagement and social integration.

Conversely, rural communities have substantial obstacles in fully accessing the advantages of modern technology. Although e-commerce in rural regions has shown modest development, exemplified by efforts such as Rural Taobao, the total size and acceptance rate remain significantly inferior to that of metropolitan areas. Access to online education and healthcare in remote regions is substantially impeded by inadequate digital skills and deficient infrastructure. The lack of strong digital ecosystems in rural areas hinders people and enterprises from accessing the possibilities offered by the digital economy.

Extensive and multi-faceted efforts are necessary to close the digital gap. Based on the conducted study, the following recommendations can be proposed to narrow the digital divide between urban and rural China and improve the digital literacy of the population. At Level 1 (access), strategies should concentrate on enhancing internet infrastructure in rural areas, emphasising both the physical availability of connection and the quality of service. Considering the significance of mobile internet in rural regions, enhancing the accessibility of high-speed mobile networks (including 5G) and subsidising digital gadgets would be imperative.

Level 2 (skills and usage) should emphasise digital literacy initiatives aimed at both young and elderly adults. Customised programmes must target particular obstacles, including linguistic and cultural disparities, and use voice-assisted technology to aid non-literate communities. Addressing cultural resistance via focused awareness efforts will be essential for facilitating the uptake of digital technology in rural areas.

At Level 3 (benefits), augmenting the tangible effects of digital technologies in rural regions requires sustained investment in sector-specific initiatives, such as digital health services, online education platforms, and e-commerce opportunities, that directly enhance rural lives. Furthermore, using social media and messaging platforms for

public awareness, social integration, and community development would facilitate the dissemination of digital technology advantages to all demographics, especially in remote regions.

There is a need for an advertising and education campaign that would overcome stereotypes and prejudice against the internet on the part of rural residents, increase the focus on the older generation of users, and develop applications that either offer a much more simplified interface for using applications and web services (without including additional features) or take the form of a digital assistant that would allow an older or less educated population to use web services and applications. Among other things, such an assistant (or such simplified applications) should support voice control (verbal counselling), which could compensate for the low literacy (or dialect discrepancy) of users. Platforms such as the communicative potential of influential people provides not only large-scale information coverage, but also increases the motivational component for mastering digital competencies. Of particular importance are innovative educational strategies focused on eliminating technological barriers for the older generation through the implementation of specialized educational initiatives aimed at developing online communication and digital interaction skills. The proposed measures are of strategic importance for bridging the digital divide and ensuring the socio-economic development of rural areas in China. Their implementation will contribute not only to increasing the level of digital competence of the population, but also to creating the prerequisites for the integration of rural regions into the modern digital economic space, expanding access to educational and economic opportunities.

Conclusions

The purpose of this study was to analyse the digital divide between urban and rural areas in China and its impact on regional socio-economic development. The study found that the country's internet penetration rate is 76.4%, with 99.8% of users preferring mobile devices to access the web. However, there is a considerable gap between urban (85.1% internet penetration) and rural areas (60.5%) due to a series of factors such as lack of skills, limited literacy, infrastructural differences, and economic constraints. The findings confirm that digital inequality substantially affects the socio-economic development of regions. In urban areas, prominent levels of internet penetration contribute to

improving the quality of education, healthcare, and the development of various economic sectors. At the same time, in rural areas, limited internet access reduces opportunities for educational and economic development, resulting in considerable social and economic barriers. Thus, the hypothesis that China's digital divide has a substantial impact on all aspects of society can be considered confirmed.

It is also worth noting that China's policies to bridge the digital divide are impressive, diverse, and very productive, but at the same time, it is possible to note certain shortcomings and limitations that affect the divide and perceptibly reduce the effectiveness of these measures. This primarily refers to the lack of a targeted campaign to change the perceptions and overcome the cultural and mental barriers of the rural population towards the internet and its possibilities, as well as the lack of the use of advanced tools such as artificial intelligence, which can significantly facilitate the use of web applications and services for low-literate users or other language groups, which are also widely represented in China, due to irrational fears of totalitarianism, rather than to the lack of a targeted campaign to change the perceptions and overcome the cultural and mental barriers of the rural population towards the internet and its possibilities.

The main limitation of this study was that the data was collected only from official sources and may not consider all aspects of internet use in less accessible regions, and may contain methodological errors. Recommendations include popularising the internet, developing programmes to make applications or web services easier to use, and creating virtual audio assistants for older and less literate users. For further investigation, it is recommended to conduct field research in remote regions to assess the impact of cultural and economic factors on internet access and to monitor the effectiveness of current programmes.

To further explore the subject, it is recommended to conduct the following research: field studies and population surveys in different regions, including the most remote and hard-to-reach areas, to obtain more accurate and up-to-date data on the real state of the digital divide; explorations of how cultural and language barriers affect access to the internet and digital technologies in rural areas and develop strategies to overcome them; real-world assessments of the effectiveness of current programmes and initiatives to reduce the digital divide, implemented by both government and private companies; examinations the economic factors affecting internet access in rural areas, including the cost of

devices and internet services, as well as household incomes and their impact on digital access; long-term monitoring studies to track the changes in internet penetration and digital literacy among different population groups to adjust policies and programmes in a timely manner.

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