Different Types of Internet use and the Perceived Impact of the Internet on Social Mobility: Results from a National Survey in China

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Abstract

In recent years, the issue of the rigidification of the social structure in China has attracted popular and media attention. However, little is known about the effect of Internet usage on perceived social mobility in the Chinese setting. Based on a nationally representative survey, this study demonstrates that, contrary to the utopian expectation of the Internet as a transformative technology, Internet experience in fact leads to a negative perceived impact of the Internet on social mobility. This study also reveals that personal characteristics become less important for achieving corresponding outcomes after accounting for engagement in Internet use. In particular, when other factors are controlled, capital-enhancing activities, namely, online actions and information seeking, are positively associated with the perceived impact of the Internet on social mobility.

Keywords

Digital Divide; Social Mobility; Internet use; China

Introduction

Since China became a market-oriented economy, Chinese class stratification has transformed from a politicized social mobility regime under Mao to an open, evolving class system (Bian, 2002). Some studies have shown that economic development has enabled a generally rising trend of total and upward vertical mobility in Chinese society, while social fluidity in terms of horizontal social mobility has been largely stable (Chen & Qin, 2014; Chen, 2013; Li, 2020; Narayan et al., 2018). However, recent research has found a vertical decline in social mobility (Zhou & Xie, 2019). At the individual level, scholars have studied the impact of the socioeconomic status of parents, gender, hukou status, and the massification of higher

education on the perception of social mobility (Chen & Qin, 2014; Huang, 2020; Lu, 2008; Magnani & Zhu, 2015; Mok & Wu, 2016; Wu & Treiman, 2007). Two recent studies based on nationally representative surveys reveal optimistic perceptions of social mobility among Chinese people (Chen et al., 2018; Du et al., 2021). The majority of the respondents, regardless of upward or downward mobility in the past, perceive upward social mobility, and these perceptions are associated with individual-level sociodemographic factors as well as economic factors (e.g., economic growth rate, low unemployment rate, GDP) and hukou (household registration) reforms (Chen et al., 2018; Du et al., 2021; Huang, 2020). Alternatively, some research has offered less optimistic views. For example, it is argued that compared to family background, higher education plays a less important part in enhancing the perceived upward social mobility of college students as the result of the massification of higher education in China (Mok & Wu, 2016).

However, to the best of our knowledge, there has been no study investigating the impact of the Internet on social mobility in the Chinese context. The impressive number of academic publications over 20 years of Chinese Internet research have primarily focused on the economic and political issues of the Internet (Herold & de Seta, 2015; Kluver & Yang, 2005). Scholars, particularly those who reside in Western countries, seemingly assume that the Internet could bring revolutionary change to Chinese society, commercially and politically (Kluver & Yang, 2005). The paramount interest in structural change at the societal level has, to some extent, caused a loss of focus on social mobility at the individual level. The ways in which Chinese people are using the Internet and how the Internet has influenced Chinese Internet users are rarely studied (Herold & de Seta, 2015).

Nevertheless, there is a small body of literature that studies the effect of Internet use in China, and the conclusions are mixed. Intensive Internet use is significantly associated with lower levels of Chinese people's subjective well-being (Nie et al., 2017). However, mobile Internet use has a significant positive impact on the subjective well-being of older adults in China (Lu & Kandilov, 2021). In rural areas, Internet usage has a statistically significant and negative impact on social fairness perceptions among Chinese farmers (Zhu et al., 2020). On the other hand, positive effects of Internet use on the economic well-being, measured by household income and expenditure, of rural households in China are also observed(Ma et al., 2020). However, the economic impact of Internet use is larger in the upper distributions of household income and expenditure (Ma et al., 2020). It is argued that the use of mobile Internet platforms can empower villagers in the structural, psychological, and resource dimensions and can achieve political and social participation and economic inclusion (Ye & Yang, 2020).

To the best of our knowledge, no quantitative studies have explored the relationships between Internet use and the perceived impact of the Internet on social mobility in the Chinese setting. In this study, based on a nationally representative survey, we aim to contribute to research in this area by testing whether some types of Internet use are associated with the perceived impact of the Internet on social mobility while controlling for factors known to influence social mobility.

The Impact of Internet use

Internet use does not necessarily lead to beneficial outcomes for all. Such inequalities in tangible outcomes are usually referred to as the third-level digital divide (Van Deursen & Helsper, 2015; Wei et al., 2011). However, empirical research regarding the third-level digital

divide is scarce, particularly regarding the relationship between online activities and outcomes, and the results are somewhat mixed (Scheerder et al., 2017). For example, significant positive associations are found between Internet use and earnings growth, indicating that Internet use could potentially improve upward class mobility because skills and knowledge acquired by Internet use are rewarded by the labor market (DiMaggio & Bonikowski, 2008). On the other hand, a three-year longitudinal study of computer skills training at a Community Technology Center in Austin, Texas, in the U.S. reveals that information technology skills do not necessarily promote upward job mobility for lower-income people (Tufekci, 2012). In particular, the role of the Internet in social mobility is an open question. In a longitudinal analysis of the relationship between Internet use and social class mobility in Britain, it is found that Internet use has a positive effect on social class mobility when controlling for age, gender, education, health, and previous social class membership, suggesting that Internet use is important for maintaining or improving class position (Eynon et al.,2018). While using the Internet for learning is positively related to occupational mobility, it does not mitigate the preexisting structural inequality of occupational mobility because disadvantaged groups are more excluded from such use in the first place (Zhang, 2021).

Digital divide researchers have suggested that some Internet activities are more beneficial to people than others because they offer users more chances and resources to improve their life prospects (Blank & Groselj, 2014; Pearce & Rice, 2013; Scheerder et al., 2020; Van Deursen & Van Dijk, 2014; Van Deursen et al., 2015; Zillien & Hargittai, 2009). Capital-enhancing Internet use, including obtaining news and opinions, sharing political opinions with others, visiting news websites, employing search engines to find information, and participating in

social networking sites, has both direct and indirect positive effects on the demand for democracy, while recreational Internet use (playing video games and watching videos) is associated with satisfactory evaluations of nondemocratic regimes and more entrenched authoritarian worldviews (Stoycheff et al., 2016). A positive relationship is found between online information seeking and older adults' life satisfaction (Hofer et al., 2019). The educational use of ICT is associated with greater subjective well-being of students (Donoso et al., 2021). However, the direct path between Internet use measured by the most popular online activities, including checking e-mails, using search engines, looking for news online, and using online encyclopedias, and social well-being is not significant (Büchi et al., 2018). In addition, frequent Internet use leads to less social participation among senior citizens (Sun & Zhou, 2021).

Overall, the extant research has generally demonstrated that traditional digital divide indicators are significant predictors of the third-level digital divide, and the Internet remains more beneficial for those with higher social status (Ogbo et al., 2021; Van Deursen, 2020; Van Deursen & Helsper, 2015). However, personal characteristics can become less important, if not insignificant, for achieving the corresponding outcomes after accounting for engagement in Internet use (Van Deursen, 2020). It is suggested that Internet use patterns have a significant effect on outcomes from Internet use and that Internet use has collateral benefits, meaning that Internet use in a particular domain (economic, cultural, social, and personal types of engagement with the Internet) can result in outcomes in another domain independent of the characteristics of the person (Ogbo et al., 2021; Van Deursen & Helsper, 2017; Van Deursen et al., 2017).

Method

Data

The data employed in this research are derived from the Chinese General Social Survey in 2017 (CGSS2017), a nationally representative continuous survey project initiated by Renmin University of China[1]. The CGSS adopts a stratified multistage probability proportional to size (PPS) sampling design and covers 31 mainland provinces (autonomous regions and municipalities) to effectively reflect all aspects of Chinese society (Liu et al., 2021; Zhou & Jin, 2018). In the CGSS2017 questionnaire, participants' demographics, Internet usage behaviors, and perceived impact of the Internet on social mobility were surveyed. In particular, the survey includes residents' Internet usage behaviors, which provides a rare and nationally representative sample of individuals' Internet usage behaviors in China. In this article, we focus on the impact of Internet use on users' perceptions of social mobility. A total of 2430 respondents participated in the survey, and observations with missing data were excluded using pairwise deletion.

Measures

Dependent variable

In the CGSS2017, two items were used to measure respondents' perceived impact of the Internet on social mobility, the dependent variable in this study. The descriptions of the two items are as follows: "the Internet can promote social equity" and "the Internet can promote social mobility." Respondents rated the items using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Higher scores represent a higher perceived impact of the Internet on social mobility. The Spearman-Brown coefficient for the scale was 0.721, which indicates

[1] The data are from the Chinese General Social Survey in 2017 (CGSS2017), funded by ***. The CGSS is maintained by ***.

that the scale had high levels of reliability (Eisinga et al., 2013). The frequency distribution of the perceived impact of the Internet on social mobility among the participants was 2% of "1", 18% of "2", 35.1% of "3", 41.3% of "4", and 3.6% of "5", which indicates that only a small number of individuals were negative about the perceived impact of the Internet on social mobility. The mean perceived impact of the Internet on social mobility was 3.151, and the standard deviation was 0.853.

Independent variables

The independent variables, Internet usage behaviors, captured participants' motivation to go online over the past year. Social use was measured by two items reflecting the situation of respondents' communication and self-presentation on the Internet. Respondents were asked how frequently they used the Internet to (1) communicate with others through email, QQ, WeChat, Skype and other platforms and (2) show themselves by recording and sharing their life and mood through WeChat Moments, QQ Zone, Micro-Blog, and other platforms (M = 3.212, SD = 0.961). The scale of the Spearman-Brown coefficient for social use was 0.648, which shows that it has good reliability. The other four Internet usage behaviors were measured by a single item. Online actions were measured by inquiring about the respondents' frequency of using the Internet to defend their rights and seek justice for others (M = 1.880, SD = 0.970). Entertainment use was measured by asking for the respondents' frequency of using the Internet to play games, listen to music, and watch videos (M = 3.310, SD = 1.128). Information seeking was measured by asking for the respondents' frequency of using the Internet to search for information and read news (M = 3.520, SD = 1.094). Economic use was measured by asking for the respondents' frequency of using the Internet to transfer money, make payments, and go

shopping (M = 2.870, SD = 1.343). Use frequency was rated on a five-point Likert scale ranging from 1 (never) to 5 (always). Higher scores indicate more frequent Internet usage behaviors.

Control variables

Health status. Health status is an important factor in explaining social mobility (Lundberg, 1991; Eynon et al., 2018). In the 2017 CGSS questionnaire, health status was captured by the question, "In general, how do you rate your health status (including physical and mental health)?" Respondents rated the items using a five-point Likert scale (1 = very good, 5 = poor) in which higher scores showed poorer health status. After reverse scoring, the mean health status was 3.227 and the standard deviation was 1.158.

Subjective social status. Social status is a core predictor of social mobility (Du et al., 2021), including objective indicators and subjective social status (Zell et al., 2018). Recent studies have revealed that subjective social status performs better than objective social status (Zeng, 2020), often measured by income, education, and occupation, perhaps because it reflects several psychological variables, such as respect and admiration in social interactions (Anderson et al., 2012). Consequently, subjective social status is used to more accurately reveal the influencing factors of social mobility. Subjective social status in the CGSS2017 was measured on a ten-point scale (1 = lowest, 10 = highest), and participants were asked to rate their current social status (Chen et al., 2018). The mean subjective social status was 4.350, and the standard deviation was 1.642.

Internet experience. Internet experience, as a vital predictor of digital inequalities, may be related to participants' perceived impact of the Internet on social mobility (Van Deursen &

Helsper, 2017; Büchi et al., 2016). Internet experience is a continuous variable that was measured by asking the respondents for the year when they first went online (computers, mobile phones and other electronic devices). The mean Internet experience was 9.331, and the standard deviation was 5.911.

Internet skills. Internet skills related to capital-enhancing forms of Internet use were developed based on prior studies (Van Ingen & Matzat, 2018; Hargittai & Dobransky, 2017; Correa, 2016). Internet skills are continuous variables that are measured by asking participants to rate a six-item scale. The items are as follows: "(1) I can use computers to open a website, (2) I can use smartphones to download and install an app, (3) it is not difficult to find the information you want on the web, (4) when I see people around me reposting important news on the Internet (such as WeChat, Micro-Blog), I will verify it before I believe it, (5) when I want to express my thoughts online, I know how to operate it, and (6) when making an online payment or transaction, I will observe the environment to decide whether to use it." Internet skills were rated on a five-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Higher scores indicate poorer Internet skills. After reverse scoring, the mean of Internet skills was 3.877 and the standard deviation was 1.034 ($\alpha = 0.903$).

According to prior related research, we controlled for gender (Robinson et al., 2015), age (Helsper & Reisdorf, 2017) and employment (Clayton & Macdonald, 2013). Gender was included as a dichotomous variable, with 0 representing males (49.5%) and 1 representing females (50.5%), which indicates an approximately balanced distribution. Age was captured by inquiring about the respondents' year of birth and ranged from 18 to 86 (M=42.104, SD = 14.265). Finally, employment was coded as a dichotomous variable with 0 representing

unemployed individuals (34.7%) and 1 representing employed individuals (65.3%). Table 1 presents the description of the variables.

Table 1 Description of Variables

	Variable	Code	N	Mean (Standard deviation)
Dependent variable	Perceived impact of Internet on social mobility	continuous variable (1 = strongly disagree, 5 = strongly agree)	2199	3.151 (0.853)
Independent variables	Social use	continuous variable (1 = never, 5 = always)	2426	3.212 (0.961)
	Online actions		2422	1.880 (0.970)
	Entertainment use		2425	3.310 (1.128)
	Information seeking		2425	3.520 (1.094)
	Economic use		2423	2.870 (1.343)
Control variables	Gender	0 = male, 1 = female	2430	0.505 (0.500)
	Age	continuous variable (years)	2430	42.104 (14.265)
	Employment	0 = unemployed, 1 = employed	2430	0.650 (0.476)
	Health status	continuous variable (1 = very good, 5 = poor)	2429	3.227 (1.158)
	Subjective social status	continuous variable (1 = lowest, 10 = highest)	2418	4.350 (1.642)
	Internet experience	continuous variable (years)	2064	9.331 (5.911)
	Internet skills	continuous variable (1 = strongly agree, 5 = strongly disagree)	2318	3.877 (1.034)

Statistical analysis

The current study aims to examine the effects of different types of Internet use on the perceived impact of the Internet on social mobility. Hierarchical regression analyses are the main statistical tools adopted. First, we add the independent variables of gender, age, employment, health, subjective social status, Internet experience, and Internet skills. Second, we add different types of Internet use. The results of hierarchical regression analysis are shown in Table 2. In model 1, age, health, subjective social status and Internet experience are significantly related to the perceived impact of the Internet on social mobility. Specifically, individuals who are older ($p<0.01$), healthier ($p<0.05$), and with a higher subjective social status ($p<0.001$) are more likely to believe that Internet use promotes social mobility. However,

our study confirms that Internet experience is negatively related to the perceived impact of the Internet on social mobility ($p<0.05$). This conclusion is consistent with Van Deursen and Helsper (2017): Internet experience has a negative effect on cultural outcomes. In addition, the relationship between Internet skills and the perceived impact of the Internet on social mobility is insignificant. This finding contradicts Van Deursen and Helsper (2017), who found that Internet skills are associated with outcomes in other domains.

In model 2, different types of Internet use are added as a second step in the regression. This significantly improves the variance explained. Approximately 4.5% of the variance in the perceived impact of the Internet on social mobility can be accounted for by the linear combination of all the variables. Although the adjusted R^2 is relatively small, the effects are statistically significant. As shown in Table 2, the results indicate that both online actions ($\beta = 0.148$, $p<0.001$) and information seeking ($\beta = 0.089$, $p<0.01$) have a significant positive effect on the perceived impact of the Internet on social mobility, controlling for gender, age, employment, health, subjective social status, Internet experience and Internet skills. However, social use ($\beta = 0.019$, $p>0.05$), entertainment use ($\beta = -0.017$, $p>0.05$) and economic use ($\beta = -0.013$, $p>0.05$) tend to have no significant impact on the perceived impact of the Internet on social mobility. In addition, age, health, subjective social status and Internet experience are still significantly related to the perceived impact of the Internet on social mobility. More importantly, when individuals engage in Internet use, the regression coefficients of some personal characteristics decrease. Specifically, the regression coefficient of health decreases from 0.059 to 0.052, and the same is true for subjective social status, which decreases from 0.102 to 0.096. Besides, the regression coefficient of online actions is larger than that of

personal characteristics, and the absolute value of the regression coefficient of information seeking is larger than that of health and Internet experience. These results partially confirm previous research (Van Deursen, 2020), that is, personal characteristics become less important for achieving the corresponding outcomes after accounting for engagement in Internet use.

Table 2 Hierarchical regression analysis summary of different types of Internet use

Predictor (perceived impact of Internet on social mobility)	Model 1		Model 2	
	β	SE	β	SE
Gender	-0.011	0.040	-0.007	0.040
Age	0.096**	0.002	0.107***	0.002
Employment	0.036	0.043	0.038	0.043
Health	0.059*	0.018	0.052*	0.018
Subjective social status	0.102***	0.012	0.096***	0.012
Internet experience	-0.063*	0.004	-0.076**	0.004
Internet skills	0.034	0.026	-0.043	0.030
Social use			0.019	0.027
Online actions			0.148***	0.022
Entertaining use			-0.017	0.022
Information seeking			0.089**	0.024
Economic use			-0.013	0.022
Adjusted R^2 (%)	2.1		4.5	
Incremental R^2 (%)			2.6***	

*p < 0.05. **p < 0.01. ***p < 0.001

Discussion

Regarding the social impact of the Internet, the early utopian expectation of the Internet's significant potential to achieve greater social equity and enhance the life opportunities of disadvantaged members of society has given way to a more nuanced understanding of how the Internet adapts to existing patterns (Anderson & Center for Information Revolution Analysis (Rand Corporation), 1995; DiMaggio et al., 2001; Mehra et al.,2004). Digital divide scholars have generally concluded that differentiated use of the Internet reflects known offline economic, social, and cultural inequalities and that this differentiated usage also contributes to reproducing existing societal inequalities (Goldfarb & Prince, 2008; Gutiérrez & Gamboa,

2010; Hargittai & Hinnant, 2008; Van Deursen & Van Dijk, 2014; Van Deursen et al., 2015; Witte & Mannon, 2010; Zillien & Hargittai, 2009). The negative relationship between Internet experience and the perceived impact of Internet use on social mobility found in this study seems to indirectly support this line of argument. In other words, the longer people use the Internet, the less likely they are to believe that the Internet can break social rigidity. Internet experience leads to a negative perceived impact of the Internet on social mobility. The contradiction between the growing loss of confidence in the empowerment impact of the Internet and increasing experience with the Internet suggests to some extent that Internet newcomers often hold utopian expectations of the Internet and that optimistic beliefs diminish over time. Interestingly, Internet skills are found to have no effect on the perceived impact of social mobility in our analysis. It must be noted that our result does not disprove existing studies, which generally find positive links between digital skills and capital-enhancing Internet use (Correa, 2016; Hargittai & Dobransky, 2017; Martínez-Cantos, 2017; Van Deursen & Van Dijk, 2010). Rather, it implies that Internet use and Internet outcomes might have different sets of antecedents. This finding calls for more research in the future.

In this study, we find that people who are older, have better health status and have higher social status are more likely to believe that Internet use can lead to social mobility. Recent research reveals that personal characteristics may become less important, if not insignificant, to achieving the corresponding outcomes after accounting for engagement in Internet use (Van Deursen, 2020). Our results partially confirm this point (Table 2). This seems to indicate that to achieve a positive perceived impact of the Internet on social mobility, personal characteristics should be taken into account and corresponding Internet usage should be taken

seriously by policy makers.

In view of existing research, which is unclear about the impacts of Internet use on outcomes, this article examines whether Internet use has an effect on the perceived impact of the Internet on social mobility. Interestingly, as demonstrated in Table 2, both online actions and information seeking are positively associated with the perceived impact of the Internet on social mobility in China. Few prior studies have reported this finding. Additionally, these results further confirm that several Internet activities contribute to positive outcomes (Donoso et al., 2021; Hofer et al., 2019; Bakker & de Vreese, 2011), perhaps because online actions and information seeking are often seen as capital-enhancing online activities (Pearce & Rice, 2017). Moreover, these capital-enhancing online activities encourage people to obtain information and protect their rights, which can translate to political opportunities in the offline world (Stoycheff et al., 2016). Conversely, there is no significant relation between social use, entertainment use and economic use and the perceived impact of the Internet on social mobility. It is possible that social use and entertainment use are assumed to be less capital enhancing (Van Deursen & Helsper, 2017; Van Deursen et al., 2015). These findings indicate that whether Internet use has a positive effect on the perceived impact of the Internet on social mobility depends on what people do online (Van Deursen and Van Dijk 2014; Blank and Groselj, 2014).

Conclusion

In recent years, the issue of the rigidification of the social structure in China has gained popular and media attention. Existing studies have related Chinese people's perceived social mobility to individual-level sociodemographic factors, education, economic factors (e.g., economic growth rate, low unemployment rate, GDP) and hukou (household registration)

reforms (Chen et al., 2018; Du et al., 2021; Huang, 2020; Mok & Wu, 2016). However, to the best of our knowledge, no study has investigated the impact of the Internet on social mobility in the Chinese context. The scarcity in this line of inquiry is interesting because the Internet has been assumed to have the potential to bring revolutionary change to Chinese society, both commercially and politically (Kluver & Yang, 2005).

Based on a nationally representative survey, this study demonstrates that, contrary to the utopian expectation of the Internet as a transformative technology, Internet experience in fact leads to a negative perceived impact of the Internet on social mobility. More experienced users appear to have less faith in the idea that the Internet could break social rigidity. In addition, skills have no impact on people's perception of the impact of the Internet on social mobility. Overall, Chinese Internet users do not consider the Internet a revolutionary technology for Chinese society. However, this study also reveals that several personal characteristics become less important for achieving the corresponding outcomes after accounting for engagement in Internet use. In particular, when other factors are controlled, capital-enhancing activities, namely, online actions and information seeking, are positively associated with the perceived impact of the Internet on social mobility. Digital divide researchers have suggested that some Internet activities are more beneficial to people than others because they offer users more opportunities and resources for improving their life prospects (Blank & Groselj, 2014; Pearce & Rice, 2013; Van Deursen & Van Dijk, 2014; Van Deursen et al., 2015; Zillien & Hargittai, 2009). Indeed, our study indicates that when studying the social impact of the Internet, what people do online matters. These conclusions have several important implications for policy makers. To achieve positive outcomes, the government should value what people do on the

Internet and formulate effective measures to guide and encourage individuals to participate in capital-enhancing online activities.

Like most empirical work, this study is not without limitations that require further improvement. First, we aim to understand the varied types of Internet use and to examine certain Internet usage types (online actions and information seeking) as potential predictors of the perceived impact of the Internet on social mobility. Therefore, in this study, we do not consider Internet nonusers. Future studies can further examine the differences in perceived social mobility among Internet nonusers and users. Second, the openness of the Internet provides citizens with free space for expression. In effect, Chinese online platforms such as WeChat are "semiclosed" due to the unique cultural setting (Ren, 2019). Consequently, Chinese netizens are unable to access more information on the Internet. Cultural differences seem to affect the perceived impact of the Internet on social mobility. In future research, cross-cultural studies of the perceived impact of the Internet on social mobility can be further explored. Finally, social mobility can be measured in a number of ways, but there is no consensus on which is the most effective. Generally, education (Black et al., 2005; Bauer & Riphahn, 2006), income (Chetty et al., 2014), and occupation (Goldthorpe, 2016; Martin & Jonas, 2016) are used to measure social mobility. However, these measures have significant limitations. For instance, income has transitory fluctuations (Gottschalk, 1982), and permanent income is difficult to obtain. Measuring social mobility by occupation ignores social and cultural factors (Eynon et al., 2018). In recent years, scholars have noted these issues by proposing the perception of social mobility, which is captured by comparisons among social status in the past, in the present, and in the future (Chen et al., 2018). This approach not only

takes into account different time points but is relatively easy for participants to evaluate (Du et al., 2021). However, it is worth noting that individuals' assessments of social status in the past (10 years ago) and in the future (10 years later) are more ambiguous and less accurate than individuals' assessments of current social status. This article measures the perceived impact of the Internet on social mobility based on self-report questionnaire data rather than objective indicators such as income and occupation. Future research on social mobility can use objective measures to further verify these conclusions through observational and longitudinal research.

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