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Internet Use, Social Interaction and Social Status: from the Perspective of Emotional Regulation and Mental Health

Jianyu Chi[a], Haotian Liu[a,*], Yanfeng Lei[a]

Abstract

Background: With the rapid growth of China's economy, people's material living standards have increased and they have begun to focus not only on the absolute level of income, but also on their relative status in society. The Internet has been integrated into every aspect of people's lives in recent years and may influence people's perceptions of their social status. Based on this, we investigate the effect of Internet use on subjective social status and status identification bias, and explore the potential paths of influence. Compared with the public opinion in the era of traditional media, microblog public opinion shows different characteristics, among which the strong expression of public emotion and behavior is important and has practical impact.

Subjects and Methods: The data source for this paper is China General Social Survey 2017 (CGSS2017). We measure subjective social status (SSS) through the scale therein. We use factor analysis to combine income, party membership (CPC), and education to derive objective social status (OSS). And status identification bias (SIB) is obtained by subtracting the objective social status from the subjective social status. We analyze the effect of Internet use frequency on them with ordered probit regressions and verify the mediating role of online and offline sociation frequency, respectively. We conduct robustness checks by replacing the independent and mediating variables, and use the average frequency of Internet use in the individual's province as an instrumental variable to issue endogeneity with conditional mixed process (CMP) and bivariate ordered probit regression (bioprobit). In addition, we analyze the heterogeneity across regions, gender, and age groups. This paper takes psychological research as the main orientation, and pays attention to the public emotional factors in microblog public opinion. The main research methods are as follows: 1 literature method, through the collection and analysis of public opinion research, microblog research and public sentiment research, this paper selects the content related to this research and analyzes, arranges, synthesizes and uses it. Based on the above research, this paper puts forward a new dimension of public opinion research, and tries to innovate in research content, research perspective and research methods. 2. Case analysis method: On the basis of combing the context of the event, conduct text analysis and data statistics, register microblog through real name and interact with other users, and observe and collect relevant materials in the process of interaction. Questionnaire survey method in order to catch a glimpse of the leopard. 3. Questionnaire survey, using SCL-90 questionnaire, 208 microblog creators were selected to investigate and analyze the emotional and behavioral factors. Ten factors include somatization, anxiety, compulsion and so on.

Results: Because DACL evaluated the transient mood, the retest consistency was not high (Lubin, 1981). After one week, the retest consistency was 0.19, 0.24 and 0.22 in the second component table. In aggregate validity, DACL was moderately correlated with MMPI-D (r=0.25-0.53), and so was BDI (r=0.38-0.66). This table is moderately correlated with the clinical overall depression evaluation (male r=0.52, female r=0.23, total r=0.35) and SDS (r=0.41). However, the correlation between SDS and the second component table is slightly higher (r=0.51-0.64). Internet use increases subjective social status, with frequency of offline sociation playing a mediating role in this process. Internet use leads to status identification downward bias, i.e., subjective social status tends to be lower than objective social status. And frequency of online sociation plays a mediating role in this process. In response to the seemingly contradictory findings that Internet use raises subjective social status but leads to status identification downward bias, we further investigate the effect of Internet use on objective social status and find that Internet use also raises objective social status. And the positive effect of Internet use on objective social status is greater, which is the intuitive cause of the status identification downward bias. Heterogeneity analysis shows that Internet use has a relatively weak effect on the subjective social status of the central region group, the female group, and the middle-aged and elderly group.

Conclusions: Internet use does increase individuals' subjective social status, and it not only enhances offline connections among individuals, but also increases objective social status, which is the basis of subjective social status, and thus increases subjective social status. Internet use leads to status identification downward bias. Based on the reference group theory, we suggest that there may be three reasons: "survivorship bias" makes information in the Internet more about individuals in the middle and upper social status; the interaction of the pursuit of higher status by individuals and the "information cocoon"; other individuals' exaggeration of objective social status constituents such as income and education in the Internet due to vanity. These raise the objective social status of

[a] *School of Economics and Management, Communication University of China, Beijing 100024, China.*

[*] *Correspondence: Haotian Liu, School of Economics and Management, Communication University of China, Beijing 100024, China.*

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the individual's reference group and cause the status identification downward bias.
Keywords: Internet use, subjective social status, objective social status, status identification bias

1. Introduction

While standard economic theory assumes that individuals should be concerned only about absolute levels of their consumption, income, or wealth, historical and empirical evidence suggests that in many regions of the world, many people care about their relative position in social status[1]. A growing number of scholars have begun to pay attention to social status and have identified the important role it plays in redistributive policy preferences, voting, smoking and drinking behavior, and physical and mental health [2-5]. Therefore, we take social status as the main research object. About social status, Rosenberg argues that status identification leads to many class consciousness characteristics and status identification is a prerequisite for class consciousness [6]. Jackman and Jackman defined subjective social status as an individual's perception of one's own position in the social status hierarchy [7]. That means subjective social status is a psychological phenomenon and a sense of belonging to something. Lora and Fajardo-Gonzalez pointed out that social status should be understood as a combination of one's subjective perception and financial capacity [8]. Therefore, we argue that subjective social status measures one's social status together with the objective social status that reflects one's financial capacity.

Regarding the formation process of subjective social status, many scholars believe that objective social status including income, occupation and education is the basis of subjective social status, and has proved its predictive effect on subjective social status [9-11]. Therefore, subjective social status is also defined as objective status characteristics filtered by individuals subjectively [1]. However, a large number of studies based on empirical investigation have found that although there is a certain degree of positive correlation between objective social status and subjective social status, the differences between the two, namely status identification bias, do exist [8, 12]. There are two types of status identification bias: status identification upward bias, that is, the individual's subjective social status is higher than the objective social status. And status identification downward bias, that is, the individual's subjective social status is lower than the objective social status.

There are three main views on the causes of status identification bias:

First, objective social status and subjective social status are two independent indicators, each of which reflects other aspects of social status not covered by the other indicator. Therefore, the two do not need to be consistent, and can provide more realistic and meaningful information when the two indicators are used in combination [13, 14].

Second, in addition to objective social status, there are other factors that can affect subjective social status. Some studies have found that people's individual characteristics can have a significant effect on subjective social status. These individual characteristics include age, gender, race, housing, social capital, psychological factors, physical health indicators, personality traits, and intergenerational social mobility [1, 12, 15-19]. In addition, some studies have pointed out that macroeconomic variables such as gross national product, income inequality, and unemployment rate also have an impact on subjective social status [20, 21].

Third, many residents are more inclined to perceive themselves as "middle class", a perception that is inconsistent with their objective social status [3, 15, 22-24]. This phenomenon can be explained by the reference group theory. The theory defines reference group as a group against which individuals psychologically include themselves and accept their influence in evaluation, attitude, behavior, norm and value formation. Hyman defined one's subjective social status as self-awareness of social status derived from the comparison with a reference group [25]. When people make judgments, they often rely on the experience and information that comes to their mind first, and use this as the basis for judgment. Therefore, people base their perceptions on parts of the social environment with which they are familiar. That means most of the reference groups that people choose are individuals they know and interact with frequently, which leads people to overestimate the number of individuals in the same class as themselves, which in turn causes the bias of being in the middle of society [26].The existence of reference group processes weakens the link between objective social status and subjective social status, resulting in status identification bias [22].

Nowadays, the Internet has been deeply integrated into people's daily life. So, does Internet use affect people's subjective social status? In this regard, this study will investigate the channels through which Internet use affects subjective social status and its impact on status identification bias from the perspectives of sociology and economics. This study argues that one of the mechanisms by which objective social status affects subjective social status is that an individual's objective social status affects the status of one's friends and neighbors with whom he interacts, which in turn affects the formation of his subjective social status to a certain extent [7]. The Internet is an important way for people to socialize. Compared with offline socializing, the social status of online social objects is located in a broader range. Thus, Internet use may affect the individual's subjective social status by affecting the form and frequency of sociation, changing the social status of the reference group with whom the individual often interacts, and thus affecting the individual's subjective social status. Specifically, the selection of individual reference groups is mainly determined by the availability of reference group information and the correlation between reference groups and individuals [27]. The Internet is also an important channel for people to obtain information about the objective social status of their reference groups. Survivorship bias will make individuals who publish information on the Internet more from the middle or upper social status; the interaction between the individual's desire to achieve higher status and the information cocoons will also make individuals actively receive more information about higher social status groups. At the same time, due to the anonymity of the Internet, other individuals selected as one's reference objects may exaggerate their objective social status in the network. Therefore, the use of the Internet will affect the objective social status information about the reference group obtained by the individual, change the correlation between the reference group and the individual, and then lead to the generation of status identification bias.

This study verifies these views with the data from CGSS2017. It is found that Internet use not only increases subjective social status directly, but also increases subjective social status by increasing the frequency of offline sociation indirectly. Internet use can lead to status identification downward bias, and the frequency of online sociation playing a mediating role in the process. The internal mechanism of this phenomenon is that Internet use will also raise the objective social status, and its positive effect on objective social status is greater than that on subjective social status. Internet use weakens the link between objective social status and subjective social status.

Compared with the previous literature, the marginal contributions of this study are mainly reflected in the following two points. First, in terms of empirical evidence, the positive

effect of Internet use on subjective social status is verified. For the first time, it was found that Internet use can lead to the status identification downward bias, and the mediating role of the form and frequency of sociation was found. Second, in terms of theory, this study verifies the non-negligible role of Internet use on the formation of individual subjective social status. At the same time, for the seemingly contradictory phenomenon that Internet use raises subjective social status but leads to the status identification downward bias, this study finds that the reason is that Internet use has a greater positive effect on one's objective social status than one's subjective social status. And this can be explained by reference group theory. The research in this study further illustrates the importance of reference groups and objects of sociation in the formation of subjective social status.

2. Research Hypothesis

The Internet is a new type of information technology. The use of various applications in the Internet may have an impact on the subjective social status of individuals. According to the Statistical Report on the Development of Chinese Internet, Internet applications can be divided into four categories: basic applications, business transaction applications, online entertainment applications and public service applications. These Internet applications have brought great convenience to individuals in communication, work, consumption, life, entertainment, travel, education, health, etc. They reduce transaction costs, and affect individuals' subjective social status. Therefore, this study proposes the first hypothesis.

H1: Internet use have an positive effect on subjective social status

The Internet is also a new type of social media, which has changed the way people socialize and how often they socialize. Sociation is one of the channels through which people's subjective social status is formed. People can gain a sense of acquisition and belonging in sociation, which may improve individuals' subjective social status. Therefore, this study argues that one of the ways in which the Internet affects individuals' subjective social status is its influence on their frequency of sociation. However, the impact on subjective social status may vary depending on the form of sociation. The objects that people socialize with online are more casual, and the sense of satisfaction and belonging that online socialization brings to individuals is also uneven, while the objects that people socialize with offline tend to be strictly screened. Therefore, the quality of offline sociation is often higher than that of online sociation, and individuals are more likely to obtain spiritual satisfaction and enhance their subjective social status in offline socializing. Then, we propose the second hypothesis.

H2: Frequency of offline sociation plays a mediating role in the process by which Internet use affects subjective social status. That is, Internet use not only affects subjective social status directly, but also indirectly by influencing frequency of offline sociation, whereas frequency of online sociation has no mediating role.

However, how will the Internet affect the frequency of sociation? On the one hand, the effect of Internet use on frequency of online sociation is clearly positive, while on the other hand, the effect of Internet use on frequency of offline sociation is not easy to distinguish. The Internet may improve the convenience of communication between individuals and relatives or friends, making it easier for individuals to connect with each other and organize offline social activities, thus increasing their frequency of offline sociation. However, Internet socialization may also have an alternative effect on offline socialization and reduce the frequency of offline socialization. Therefore, this study proposes the following two competing hypotheses.

H2a: Internet use will increase frequency of offline sociation

H2b: Internet use will decrease frequency of offline sociation

Kulik and Ambrose proposed a reference group selection model [27]. According to this model, the choice of individual reference groups is mainly determined by the availability of reference group information and the correlation between reference groups and individuals. Therefore, we believe that the use of the Internet will change the availability of reference group information and change the form of socialization at the same time, which will affect the correlation between reference groups and individuals. Thus, Internet use will cause status identification bias. To be more specific, the Internet makes it possible for people to obtain information and socialize with groups whose objective status is far higher than their own. And considering the current Internet society situation in China and the existence of "survivorship bias", individuals who are able to publish information about themselves on the Internet are more likely to be in the middle or upper status. Due to the individual's desire for status promotion and the popularization of algorithmic intelligent push, individuals will also see more information about higher-status individuals they want to follow. Finally, due to the anonymity of the Internet, other individuals selected as one's reference group on the Internet may exaggerate their objective social status in the network. These will lead to the upward shift of the objective social status of individuals' reference group, and then individuals' subjective social status will deviate downward from the objective social status. Therefore, this study puts forward the following hypothesis.

H3: Internet use can cause status identification downward bias. Frequency of online sociation playing a mediating role in this process. That means Internet use not only directly skews people's social status downward, but also indirectly by increasing the frequency of online sociation.

3. Data and Variables

The data source of this study is the Chinese General Social Survey 2017(CGSS2017).

The Chinese General Social Survey is the first nationwide, comprehensive and continuous large-scale social survey project in China. A total of 12,582 valid samples were completed in the CGSS2017. The questionnaire consists of three major modules, namely the A core module, the C social network and online society module and the D household questionnaire module. Among them, both modules A and C contain questions on individuals' Internet use, which are rare, nationally representative, individual Internet use data in China at present. The total sample size of this study was 11,213, after eliminating the invalid samples of "don't know", "refused to answer", or obviously unrealistic answers to the key questions.

The dependent variables in this study are subjective social status and status identification bias. Subjective social status is measured by question 43 in Module A of the questionnaire, 'On balance, in which level of social status are you currently located?' The value range is an integer from 1 to 10. The smaller the value is, the lower the subjective social status will be. Status identification bias is measured by the difference between subjective social status and objective social status. For objective social status, according to the previous section, it should include three variables: education, occupation, and income. However, there are controversies in the academic community about judging the social status by occupation. Therefore, we use the Communist Party of China (CPC) variable instead of the occupation variable according to the current situation of Chinese society. The objective social status component variables in this study will include income, CPC, and education. Among them, income is a continuous variable in RMB 10,000, which is measured by question 8 of module A in the questionnaire, "What was your personal total income last year (2016)?"; CPC is measured by question 10 of module A in the questionnaire, "What is your current political affiliation?", which is coded as "1=Member of the CPC, 0=Not a member of the CPC"; education is measured by

question 7 of module A in the questionnaire, which is coded as "1=primary school or below, 2=middle school or high school, 3=junior college, 4=undergraduate college or above". The results of the KMO test for these three variables are shown in Table 1. The KMO value of each variable is higher than 0.5, so factor analysis can be performed. Then, we perform factor rotation, extract a common factor and calculate the factor scores. We divide the factor scores into tenths and use them as objective social status variables, whose value range is also an integer from 1 to 10. The smaller the value is, the lower the objective social status will be. Therefore, the status identification bias variable obtained by subtracting the subjective and objective social status takes values in the range of integers from -9 to 9.

Table1: KMO test and factor loadings

Variable	KMO	factor loadings
Income	0.5698	0.4690
CPC	0.6238	0.4019
Education	0.5495	0.5214

The core independent variable in this study is the frequency of Internet use, which is measured by question 28 of Module A of the questionnaire, "How often did you use the Internet in the past year", which is coded as "1=never, 2=rarely, 3=sometimes, 4=often, 5=very often".

The two mediating variables in this study are frequency of online sociation and frequency of offline sociation. The former is measured by question 27 in Module C, "Now think of all the contacts you have with your family and close friends, how many of them are through SMS, WeChat, cell phones or other online communication devices?" After recoding, "1= never, 2=none or almost none, 3= part, 4=about half, 5=most, 6=all or almost all". The latter is measured by question 31 in Module A, "How often do you engage in social and recreational activities with other friends", which is recoded as "1=never, 2=once a year or less, 3= several times a year, 4=about once a month, 5= several times a month, 6= one or two times a week, 7=almost every day".

The control variables in this study mainly include objective social status component variables, demographic characteristics variables, subjective social status mobility variables, and province dummies. The objective social status component variables are coded as described in the previous section. Among the demographic characteristics variables, age is a continuous variable. Gender is coded as "1=male, 0=female". Marriage is coded as "1=married, 0=unmarried". Region is coded as "0=rural, 1=urban". Health is coded as "1=very unhealthy, 2= relatively unhealthy, 3=average, 4= relatively healthy, 5=very healthy". Among the subjective social status mobility variables, intergenerational social mobility(ISM) is measured by the question "In general, in which level of society do you personally belong to at present?" and "Where did you think your family located in the society when you were 14 years old?" We calculate the difference value between the scores of the two questions. And recode it as "1=0, no intergenerational mobility, 2=less than 0, downward social mobility, 3=more than 0, upward social mobility". Equality is coded as "1=not fair at all, 2=more unfair, 3=not fair but not unfair either, 4=more fair, 5=completely fair". We also add province dummies to control for provincial-level fixed effects. The descriptive statistics of variables used in this study are shown in Table 2.

Table 2: Descriptive Statistics

Variable	Mean	SD	Min	Max	Obs
Dependent variable					
Subjective social status (SSS)	4.145	1.701	1	10	11213
Objective social status (OSS)	5.440	2.877	1	10	11213
Status identification bias (SIB)	-1.296	2.923	-9	9	11213
Independent and mediating variable					
Internet use frequency	2.835	1.717	1	5	11213
Offline sociation frequency	3.993	1.852	1	7	11213
Online sociation frequency	4.090	1.609	1	6	3766
Control Variable					
Income	3.651	6.977	0	200	11213
CPC	0.117	0.321	0	1	11213
Education	1.976	0.935	1	4	11213
Age	55.07	16.64	22	107	11213
Sex	0.479	0.500	0	1	11213
Marriage	0.766	0.424	0	1	11213
Region	0.471	0.499	0	1	11213
Health	3.471	1.095	1	5	11213
intergenerational social mobility (ISM)	2.314	0.884	1	3	11213
Equality	3.109	1.063	1	5	11213

4. Empirical Analysis

4.1 Benchmark Regression

4.1.1 Effect of Internet use on subjective social status

We verify the influence of Internet use on subjective social status. In this regression, the independent variable is subjective social status, which is an ordered categorical variable. So, we use the ordered probit model for regression, and the latent variable method is used to derive the MLE estimator. The specific model is as follows:

$$SSS_{ij} = F(IU_{ij} + X\beta + \varepsilon_{ij})$$

Where SSS_{ij} represents the level of subjective social status of individual i residing in region j; IU_{ij} is the core independent variable, i.e., the frequency of Internet use, and F(x) is a nonlinear function expressed in the following form:

$$F(SSS_{ij}^{*}) = \begin{cases} 1, & SSS_{ij}^{*} \le C1 \\ 2, & C1 \le SSS_{ij}^{*} \le C2 \\ \cdots\cdots & \\ 10, & C9 \le SSS_{ij}^{*} \end{cases}$$

C1, C2……C9 are the value of the points of tangency, which

are parameters to be estimated. SSS_{ij}* are continuous variables representing the subjective social status of individuals, but it cannot be effectively observed through the data, so it is called a latent variable, which can be expressed as a linear combination of observable variables. We obtain the following model:

$$SSS_{ij} = \beta IU_{ij} + \gamma Controls_{ij} + Province_j + \varepsilon_{ij}$$

where SSS_{ij}* and IU_{ij} are defined as described previously; $Controls_{ij}$ includes control variables that have been confirmed by existing research which could affect people's subjective social status, i.e., objective social status component variables, demographic characteristics variables and subjective social status mobility variables. $Province_j$ controls the fixed effect of region j, representing factors that do not change with time at the provincial level. And ε_{ij} is stochastic disturbance term.

The results are shown in Table 3. We directly run ordered probit regression of Internet use frequency on subjective social status in column 1. And add demographic characteristics variables, subjective social status mobility variables and province dummies on this basis in columns 2-4. It can be seen from Table 3 that in the process of gradually adding control variables, the frequency of Internet use has a positive effect on subjective social status with a high level of significance. The more frequently the Internet is used, the greater its positive effect on subjective social status will be. Therefore, hypothesis 1 that Internet use positively affects subjective social status is confirmed.

Table 3: The effect of Internet use on subjective social status

	(1)	(2)	(3)	(4)
Internet use frequency ("never" as base group)				
rarely	0.132***	0.023	0.100**	0.077*
	(0.003)	(0.614)	(0.028)	(0.093)
sometimes	0.149***	0.045	0.107***	0.092**
	(0.000)	(0.270)	(0.010)	(0.027)
often	0.310***	0.088***	0.143***	0.116***
	(0.000)	(0.010)	(0.000)	(0.001)
very often	0.401***	0.113***	0.199***	0.163***
	(0.000)	(0.001)	(0.000)	(0.000)
Objective social status constituents	No	Yes	Yes	Yes
Demographic characteristics	No	Yes	Yes	Yes
Subjective social status mobility	No	No	Yes	Yes
Province dummies	No	No	No	Yes
Obs	11213	11213	11213	11213

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05,*** p<0.01.

4.1.2 The mediating effects of the frequency of sociation

We continue to analyze the effect of Internet use on frequency of online and offline sociation, along with the mediating role of the frequency of sociation. We perform the ordered probit regression of Internet use frequency on frequency of online and offline sociation, corresponding to columns 1-2 of Table 4, respectively. We can see that Internet use has a positive effect on both of them with a high level of significance, so the hypothesis H2a is supported and we reject hypothesis H2b. That means the frequency of Internet use significantly increases the frequency of online sociation. Based on the regression in column 4 of Table 3, we respectively add frequency of offline sociation and frequency of online sociation to the regression in columns 3-4 of Table 4. And we add both of them simultaneously in column 5 of Table 4. Through column 3 of Table 4, we can see that there is a positive effect of frequency of offline sociation on subjective social status. From the comparison between column 3 of Table 4 and column 4 of Table 3, it can be seen that after adding the frequency of offline sociation to the regression, the coefficient of Internet use frequency is still significant, but the level significance and the value of the coefficient have decreased. Therefore, frequency of offline sociation plays a mediating role in the influence of Internet use on subjective social status. In contrast, as seen in column 4 of Table 4, there is no significant effect of frequency of online sociation on subjective social status. Therefore, hypothesis 2 is confirmed. Internet use will increase individuals' subjective social status by increasing their frequency of offline sociation.

4.1.3 The effect of Internet use on status identification bias and mediating effect of sociation

We analyze the effect of Internet use on status identification bias and the mediating effect of the frequency of online sociation. Since the positive effect of Internet use on frequency of online sociation has been verified in the previous section, we directly incorporate frequency of online sociation as the independent variable to examine the mediating effect. Columns 1-3 of Table 5 show that Internet use frequency leads to social status identification downward bias. And the higher the frequency of Internet use is, the greater the degree of downward bias in social status identification will be.

Regarding the mediating effect of online sociation frequency, it can be seen from column 4 that there is a significant negative effect of frequency of online sociation on status identification bias. At the same time, by comparing the coefficients of Internet use frequency in column 3 with those in column 4, we can see that the coefficient of Internet use frequency remains significant but decreases in absolute value after adding frequency of online sociation to the regression. Therefore, frequency of online sociation plays a mediating role in the influence of Internet use on status identification bias. Hypothesis 3 is proved. Internet use has a significant negative effect on status identification bias, and frequency of online sociation plays a mediating role in this process.

Table 4: The mediating role of frequency of sociation

	(1)	(2)	(3)	(4)	(5)
Internet use frequency ("never" as base group)					
rarely	0.375***	0.187***	0.063	0.129	0.117
	(0.000)	(0.000)	(0.168)	(0.100)	(0.136)
sometimes	0.393***	0.267***	0.071*	0.097	0.082
	(0.000)	(0.000)	(0.088)	(0.185)	(0.263)
often	0.561***	0.383***	0.084**	0.130**	0.105*
	(0.000)	(0.000)	(0.017)	(0.035)	(0.095)
very often	0.720***	0.453***	0.126***	0.142**	0.111*
	(0.000)	(0.000)	(0.001)	(0.027)	(0.088)
Frequency of online sociation ("never" as base group)					
none or almost none				0.034	0.029
				(0.662)	(0.706)
part				0.101	0.090
				(0.188)	(0.242)
about half				0.155*	0.137
				(0.075)	(0.115)
most				0.094	0.087
				(0.206)	(0.244)
all or almost all				0.078	0.075
				(0.316)	(0.337)
Frequency of offline sociation ("never" as base group)					
once a year or less			0.020		0.008
			(0.614)		(0.912)
several times a year			0.083**		0.052
			(0.026)		(0.412)
about once a month			0.110**		0.066
			(0.013)		(0.391)
several times a month			0.202**		0.137**
			(0.000)		(0.033)
one or two times a week			0.227***		0.207***
			(0.000)		(0.002)
almost every day			0.240***		0.194**
			(0.000)		(0.014)
Controls	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes
Obs	3766	11213	11213	3766	3766

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

The previous section shows that Internet use will positively affect the subjective social status. However, it is also stated here that Internet use will lead to social status identification downward bias. For this seemingly contradictory conclusion, we argue that Internet use can also raise the objective social status at the same time. And its positive effect on subjective social status is lower than that on objective social status. We will examine this explanation by running regressions of the Internet use frequency on the objective social status and its component variables.

We respectively run regressions of Internet use frequency on objective social status, subjective social status, education, CPC and income. The results are shown in Table 6. It can be seen in columns 3-5 that there is a significant positive effect of Internet use frequency on individuals' education, CPC and income. And as seen in column 1, the frequency of Internet use also has a significant positive effect on the objective social status, which combines the three variables above. The comparison between columns 1 and 2 shows that under the premise of the same control variables, the positive effect of Internet use frequency on objective social status is greater than that on subjective social status. The reason may be that the Internet makes individuals' choice of reference groups more irrational. Specifically, due to the existence of "survivorship bias", the information on the Internet is more about the middle or upper status groups in the society. At the same time, the interaction between individuals' pursuit of higher status and the "information cocoon" also makes them obtain more information about higher status groups, which leads to individuals' tendency to choose people with higher objective social status as their reference group. In addition, due to people's vanity, they may exaggerate their income, degree of education and other objective social status components on the Internet, which leads to the inconsistency between the objective status of Internet users in the Internet society and the objective status of residents in the real society. And individuals who use the Internet frequently may take other netizens who have been glorified on the Internet as their reference group. As a result, Internet use raises the objective social status of individuals' reference groups and leads to the status identification downward bias.

Table 5: The effect of Internet use on status identification bias and the mediating role of online sociation frequency

	(1)	(2)	(3)	(4)
Internet use frequency ("never" as base group)				
rarely	-0.542***	-0.335***	-0.267***	-0.222***
	(0.000)	(0.000)	(0.000)	(0.004)
sometimes	-0.590***	-0.404***	-0.391***	-0.339***
	(0.000)	(0.000)	(0.000)	(0.000)
often	-0.966***	-0.683***	-0.629***	-0.561***
	(0.000)	(0.000)	(0.000)	(0.000)
very often	-1.184***	-0.814***	-0.767***	-0.695***
	(0.000)	(0.000)	(0.000)	(0.000)
Frequency of online sociation ("never" as base group)				
none or almost none				-0.108
				(0.151)
part				-0.169**
				(0.023)
about half				-0.271***
				(0.001)
most				-0.318***
				(0.000)
all or almost all				-0.313***
				(0.000)
Controls	No	Yes	Yes	Yes
Province dummies	No	No	Yes	Yes
Obs	11213	11213	3766	3766

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05, *** p<0.01. The Obs in column 4 are 3766 due to the deficiency of the variable "Frequency of online sociation" .To compare the change in coefficients, we control the sample in column 3 to be consistent with column 4. The control variables for the regressions in this table do not include the three objective social status component variables of education, CPC and income.

Table 6: The effect of Internet use on objective social status and its components

	(1) OSS	(2) SSS	(3) Education	(4) CPC	(5) Income
Internet use frequency ("never" as base group)					
rarely	0.425***	0.110**	0.327***	0.157*	0.344**
	(0.000)	(0.015)	(0.000)	(0.078)	(0.023)
sometimes	0.536***	0.142***	0.413***	0.215***	0.584***
	(0.000)	(0.001)	(0.000)	(0.007)	(0.000)
often	0.821***	0.223***	0.706***	0.330***	1.111***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
very often	0.995***	0.318***	0.906***	0.350***	1.569***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Controls	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes
Obs	11213	11213	11213	11213	11213

Notes: (i)For columns 1-4, p-value of t-test in parentheses. For column 5, p-value of t-test in parentheses. (ii)* p<0.1,** p<0.05,*** p<0.01. (iii)The controls in columns 1-2 do not include the three objective social status component variables of education, CPC and income. And the controls in columns 3-5 do not include education, CPC and income, respectively.

4.2 Heterogeneity Analysis

Because objective factors such as Internet penetration and economy developing level vary greatly across regions in China, we divide China into eastern, central and western regions and run group regressions to examine the regional heterogeneity of the effect of Internet use on subjective social status. At the same time, because the formation of subjective social status has strong individual differences, we also analyze the heterogeneity of individual characteristics of Internet use on subjective social status from two dimensions: gender and age.

In terms of regions, according to the "Seventh Five-Year Plan" adopted at the Fourth Session of the Sixth National People's Congress (NPC) and the criteria of the Fifth Session of the Eighth NPC, this study divides 31 provinces in China, municipalities directly under the Central Government and autonomous regions into three regions: the Eastern region includes Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan. The central region includes Shanxi, Inner Mongolia, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan and Guangxi. And the western region includes Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang and Chongqing. The regression results at the regional level in Table 7 show that the frequency of Internet use has a significant effect on the subjective social status of the eastern and western regions, while it has a significant positive effect on the subjective social status of the central region only when the frequency of Internet use reaches "very frequent". In terms of gender, as shown in Table 7, the effect of Internet use on subjective social status is significantly positive for the male group, while it has a significant positive effect on subjective social status for the female group only when the frequency of Internet use

reaches “often” or above.

Table 7: The effect of Internet use on subjective social status by region and gender groups

	Eastern	Central	Western	Male	Female
Internet use frequency (“never” as base group)					
rarely	0.109	0.091	0.076	0.178***	-0.018
	(0.120)	(0.244)	(0.433)	(0.006)	(0.778)
sometimes	0.155**	0.005	0.168*	0.117*	0.083
	(0.019)	(0.946)	(0.061)	(0.060)	(0.142)
often	0.133***	0.076	0.275***	0.144***	0.094*
	(0.008)	(0.202)	(0.001)	(0.004)	(0.055)
very often	0.202***	0.134**	0.226**	0.149***	0.182***
	(0.000)	(0.029)	(0.011)	(0.004)	(0.000)
Controls	Yes	Yes	Yes	Yes	Yes
Province dummies	No	No	No	Yes	Yes
Obs	5082	3980	2151	5369	5844

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

In terms of age, according to the age classification standard of the World Health Organization of the United Nations, we identify 18 to 44 years old as “youth”; 45 to 59 years old as “middle-aged”; and 60 years old and above as “aged”. The regression results in Table 8 show that the lower the age group of the individual is in, the more significant the positive effect of Internet use on the subjective social status will be. For middle-aged people, only when the frequency of Internet use reaches “very frequent” can it significantly increase subjective social status. For aged people, Internet use hardly have a significant effect on subjective social status.

Table 8: The effect of Internet use on subjective social status in different age groups

	Youth	Middle-aged	Aged
Internet use frequency (“never” as base group)			
rarely	0.210	0.046	0.072
	(0.132)	(0.527)	(0.300)
sometimes	0.184	0.071	0.109
	(0.122)	(0.257)	(0.135)
often	0.276***	0.070	0.105*
	(0.010)	(0.198)	(0.086)
very often	0.334***	0.121**	0.050
	(0.002)	(0.036)	(0.427)
Controls	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes
Obs	3236	3410	4567

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

Table 9: Replace the independent variable

	(1)	(2)	(3)
Whether use the Internet in the last six months or not	0.120***	0.093***	0.323***
	(0.000)	(0.001)	(0.000)
Frequency of offline sociation (“never” as base group)			
once a year or less		0.020	
		(0.615)	
several times a year		0.083**	
		(0.025)	
about once a month		0.111**	
		(0.012)	
several times a month		0.204***	
		(0.000)	
one or two times a week		0.229***	
		(0.000)	
almost every day		0.242***	
		(0.000)	
Controls	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes
Obs	11213	11213	11213

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

Table 10: Replace the mediating variable

	(1)	(2)	(3)
Internet use frequency ("never" as base group)			
rarely	0.077*	0.067	0.187***
	(0.093)	(0.149)	(0.000)
sometimes	0.092**	0.071*	0.334***
	(0.027)	(0.088)	(0.000)
often	0.116***	0.078**	0.472***
	(0.001)	(0.026)	(0.000)
very often	0.163***	0.118***	0.579***
	(0.000)	(0.001)	(0.000)
Frequency of friends gathering ("never" as base group)			
several times a year or less		0.069**	
		(0.018)	
several times a month		0.235***	
		(0.000)	
several times a week		0.217***	
		(0.000)	
every day		0.115*	
		(0.075)	
Controls	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes
Obs	11213	11206	11206

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

4.3 Robustness Checks

In order to make the regression results more robust and credible, we do robustness checks by replacing the core independent variable "Frequency of Internet use" with "Whether use the Internet in the last six months or not", which is measured by question 30e in module A, "Have you used the Internet in the last six months?", where "0=no, 1=yes". And replacing the mediating variable "Frequency of offline sociation" with "Frequency of friends gathering", which is measured by the score of the dimension of gathering with friends in question 30 in module A, "In the past year, did you often engage in the following activities in your spare time", where "1=never, 2 = several times a year or less, 3 = several times a month, 4 = several times a week, 5 = every day".

In Tables 9 and 10, column 3 is the regression of Internet use on frequency of offline sociation, while columns 1-2 are the regressions of Internet use on subjective social status and the results after adding frequency of offline sociation. It can be seen that no matter how the independent variable and mediating variable are changed, the frequency of Internet use has a positive effect on subjective social status and frequency of offline sociation plays a mediating role in this process

4.4 Endogeneity Issue

The core independent variable in this study, the frequency of Internet use, may be endogenous due to omitted variables or measurement errors. In order to solve this potential problem, we use the average Internet use frequency of the province where the individual is living as the instrument variable. And run regressions with conditional mixed process and bivariate ordered probit model respectively. The results are shown in Table 11. The first-stage regressions of both models show that the average Internet use frequency in an individual's province positively affects the frequency of Internet use at the significance level of 0.01, so it can be used as the instrument variable. Meanwhile, the endogeneity test parameter "atanhrho_12" of the conditional mixed process model shows that endogeneity of Internet use frequency does exist at the significance level of 0.01. In the second-stage regression, after correcting the endogeneity error, there is still a significant positive effect of Internet use frequency on subjective social status, so our conclusions are robust and reliable.

Table 11: Conditional mixed process and bivariate ordered probit regression

	CMP		Bioprobit	
	Stage 1	Stage 2	Stage 1	Stage 2
Internet use frequency		0.307***		0.076***
		(0.000)		(0.001)
Instrument variable	0.384***		0.420***	
	(0.000)		(0.000)	
atanhrho_12	-0.310***			
	(0.000)			
athrho			-0.043	
			(0.190)	
Controls	Yes	Yes	Yes	Yes
Province dummies	No	No	No	No
Obs	11213	11213	11213	11213

Notes: p-value of t-test in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

5. Conclusion

This study empirically analyzes the effects of Internet use on subjective social status, objective social status, and status identification bias with the data from CGSS2017. We find that

Internet use significantly increases individuals' subjective social status and causes status identification downward bias, that is, the individual's subjective social status tends to be lower than the objective social status. The form and frequency of sociation is one of the mechanisms by which Internet use affects subjective social status and status identification bias. This study also analyzes the heterogeneity of the effect of Internet use on subjective social status from the three dimensions of region, gender and age. We find that Internet use has a relatively weak effect on the improvement of subjective social status of the central region group, the female group, and the middle-aged and aged group.

The findings of this study reveal that Internet use can indeed raise individuals' subjective social status, and its effect on subjective social status is a complex process. For the purpose of this study, Internet use not only enhances offline connections among individuals, but also improves objective social status, which is the basis of subjective social status, and thus increases subjective social status. This suggests that, on the one hand, the form and frequency of sociation is a factor that cannot be ignored in the formation of subjective social status. On the other hand, the Internet can be regarded as a kind of social capital, and whether people can use the Internet or not reflects one's financial capacity. And the frequency of Internet use also reflects one's income and degree of education to a certain extent. Individuals in higher status are often inseparable from the use of the Internet in their work and life. The Internet has become an important resource for individuals to survive and develop in the society. Internet use also causes individuals' status identification downward bias. The reason is that compared with subjective social status, Internet use has a greater positive effect on objective social status. According to reference group theory, we argue that the following three situations raise the objective social status of individuals' reference groups and make individuals' subjective social status tends to be lower than objective social status: "survivorship bias" makes information in the Internet more about individuals in the middle or upper social status; the interactions of the pursuit of higher status by individuals and the "information cocoons"; and the exaggeration of objective social status components such as income and education on the Internet by other individuals due to vanity. Therefore, in order to make full use of the positive effect of Internet use on subjective social status and mitigate the negative effects of status identification bias, we can start from three aspects: improving the authenticity of information in the Internet, enhancing the similarity between the Internet society and the real society, and promoting the rational use of recommendation technologies. In addition, there is heterogeneity in the effect of Internet use on subjective social status. This aspect indicates that the process of subjective social status formation may differ among different groups. Therefore, when studying the formation mechanism of subjective social status, the heterogeneity among groups should be taken into account. On the other hand, it also reflects to a certain extent that the target users of content production or service design on the Internet may more likely be male and youth, while ignoring the Internet usage needs of female, especially middle-aged and aged people. In turn, the middle-aged and the aged belong to the disadvantaged group in the use of the Internet. Therefore, launching personalized Internet application services for the middle-aged and aged people is crucial to their integration into the Internet society and to enhance their subjective social status.

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