

Cultural participation in major Chinese cities

Pascal Courty¹  · Fenghua Zhang²

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Abstract We study the socioeconomic determinants of cultural participation in thirteen major Chinese cities for a broad range of indicators that cover highbrow and popular cultures. Consistent with previous studies from high-income countries, we find strong support for the elitism hypothesis: education and income increase participation in a broad range of cultural activities. There are also some exceptions. Interestingly, we also find a U-shaped relation between participation and city development for free and publicly supplied culture. Moreover, the impact of education, and to some extent also income, is weaker in richer cities. These findings contribute to understanding China's key policy objective of promoting equal access to culture.

Keywords Cultural participation · China cultural policy · Highbrow and popular culture · Cultural participation and development

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✉ Pascal Courty
pcourty@uvic.ca

Fenghua Zhang
ruby@whu.edu.cn

¹ Department of Economics, University of Victoria, PO Box 1700, STN CSC, Victoria, BC V8W 2Y2, Canada

² National Institute of Cultural Development, Wuhan University, Wuhan 430072, Hubei, China

1 Introduction

Since 2004, cultural production and consumption have grown at a fast rate in China (Shan 2014). For example, China has recently been building museums at an unprecedented rate, effectively starting a period that was labeled by *The Economist*, of ‘museumification.’¹ This is in part because China has adopted policies that put culture as a strategic priority, to promote both social cohesion and stability and also economic growth that deserves government guidance and support. Despite these changes in the role and importance of culture in China, little is known about the segments of society that participate in cultural activities and whether the benefits are equally shared across regions with widely different levels of economic development.

This paper uses a recent large-scale survey to present the first study of cultural participation in China. Specifically, we address the following questions: Do educated and high-income people participate disproportionately in cultural activities, as is the case in high-income countries? Do the determinants of participation depend on the type of cultural activity? How does cultural participation depend on city development? Our main findings are as follows:

1. The ‘elitism hypothesis’ holds in China. As with other countries, we find that education, first, and income, second have a significant positive impact on cultural participation.
2. The survey covers a broad range of cultural activities, including highbrow and popular cultures, as well as free and for-profit (private) cultural activities. Cultural participation shares similar determinants for a variety of highbrow and popular activities. There are also some exceptions. Income does not increase media consumption (books and TV) or the consumption of online culture. Although high school and college education have a positive impact on all cultural activities, education above a college degree increases further participation for highbrow cultural activities but not for popular ones.
3. The 13 Chinese cities in the sample cover the main geographic regions of China with a wide range of economic development. There are many variations across regions in cultural participation. For public cultural activities, we find a U-shaped relationship between city income and cultural participation. Cities with intermediate levels of development tend to have lower levels of cultural participation. This, however, does not hold for participation in non-public cultural activities.
4. When we interact the marginal effects with city income, we find that education (and to some extent, income) have a lower impact on participation in public cultural activities in richer cities.

The elitism hypothesis holds within the 13 Chinese cities. Across cities, the picture is different. To start, for public cultural activities we find the opposite of the elitism hypothesis: The impact of education and income is weaker in rich cities. Moreover,

¹ There were about 2K museums in China in year 2000. Twelve years later, this figure had increased to 3,8K (*The Economist*, 2014).

the differences in cultural participation across cities are of about the same magnitude as the differences associated with education within cities. Cities with very different levels of development have not generated huge differences in cultural participation. These findings suggest that economic inequalities have not generated large inequalities in access to culture in China.

The rest of this paper is organized as follows: Next section reviews the literature on cultural participation and discusses the importance of cultural policy in China. Section 3 introduces our survey questionnaire, the sample of cities covered and the measures of cultural participation and presents summary statistics. Section 4 presents our empirical models. Section 5 discusses the results. Section 6 summarizes and concludes.

2 Background and literature review

China's cultural policies have evolved from exclusively supplying public culture to also supporting commercial culture (Keane 2000; Keane and Zhao 2014). Throughout this evolution China has upheld the policy imperative of guaranteeing access to culture to all its citizens. A review of these changes establishes the context for this study and points toward specific issues regarding cultural participation that are unique to the Chinese context. We also review the literature on cultural participation and summarize its main findings. This provides a background to interpret our results on cultural participation in China. We argue that China raises unique questions because of its unique cultural policies and also because of the wide differences in economic development across geographic regions.

2.1 Cultural policy in China

Although China has witnessed great progress in economic and social development over the past 40 years, growth of the cultural sector is more recent. That being said, the cultural sector has been expanding at rates around 15 to 20% in the decade 2004–2014 according to The Economist (2014).² Culture was traditionally seen as a political tool and as a source of social cohesion and stability (White and Xu 2012; Lee and Lim 2014). Recently, culture is also used to serve the economy, as a source of creativity and an engine of growth (Shan 2014). The use of culture for political and economic ends is supported by important reforms in Chinese cultural policies (Xiang and Walker 2013). In 2011, the Chinese government set in its 12th 5-year plan the goal that culture should represent 5% of the country's gross domestic product. Consistent with its commitment to ensure that the basic cultural demand of the people be met, the central government issued in 2016 the 'Public Cultural Service Guarantee Law of the People's Republic of China'.³ The government makes

² According to China's official statistics, the value added of culture (which includes sports and entertainment) increased in the same decade from 104.32 billion Yuan to 427.45 billion Yuan, corresponding to an average annual growth rate of 30.97%.

³ <http://www.lawinfochina.com/display.aspx?lib=law&id=22998>.

significant investments in public cultural infrastructure (cultural facilities and cultural programs) to satisfy the basic cultural needs of the people and to foster and promote cultural consumption habits.

Chinese cultural markets generally consist of two parts: public cultural services and cultural industries. Public cultural services are nonprofit, publicly financed, non-competitive and typically free. These services are aimed at satisfying people's basic cultural needs such as TV,⁴ radio, public libraries, state-owned museums, art galleries and cultural centers. Both central and local governments are involved in the provision of free cultural services through the development of cultural infrastructure. The fraction of public subsidies financed by the central government varies across regions. Take the case of museums. The fraction is typically lower in the richer provinces of the east (20%), medium in the central provinces (60%) and highest in the western provinces that are less rich (80%).

Cultural industries are profit oriented and competitive. This includes publishing, some performing arts,⁵ music, film, video and photography, broadcasting, visual arts and crafts, advertising, design and fashion, interactive media and online content and games (Ho and Fung 2016; Fung and Erni 2013). The central and local governments have introduced a series of financial support (tax incentives, subsidies, low-interest-rate loans) to promote the development of cultural industries. The government has also spearheaded major projects such as cultural clusters for specific industries, fostering leading enterprises and strategic investors, and promoting investments in high-technology cultural goods (Keane 2004, 2009; Flew and Cunningham 2010; White and Xu 2012; Gu 2014).

Table 1 reports consumption expenditure in 2005–2013 in urban and rural areas. In both areas, cultural consumption has increased in absolute terms and also as a fraction of total consumption. That being said, cultural consumption is significantly higher in urban areas and this holds both in absolute terms and in percentage terms. Table 2 reports the count of cultural infrastructure (public library, cultural center, museum) per million inhabitant over the period 2004–2014. Massive investments have doubled the number of museums. The per capita number of libraries and cultural centers has only slightly increased.

2.2 The determinants of cultural participation

The large literature on the socioeconomic determinants of cultural participation covers a broad range of cultural activities including arts performance, museums, libraries and also popular culture. Most studies look at individual countries or regions such as Brazil (Diniz and Machado 2011), Israel (Katz-Gerro et al. 2009), Spain (Sintas and Álvarez 2002, 2004), Chinese Taiwan (Wen and Cheng 2013), to name just a few examples. An exception is Falk and Katz-Gerro (2016) who show that the demographic determinants of cultural participation are very similar across

⁴ For example, the National Basic Public Culture Service Guidance Standard (2015–2020) stipulates a fixed number of free channels in broadcasting.

⁵ Some cultural industries, such as art performance, receive subsidies to support traditional culture and art, but still pursue profits.

Table 1 Urban versus rural cultural consumption: 2013–2015 *Source:* China Statistical Yearbook 2016, National Bureau of Statistics of China, <http://www.stats.gov.cn/tjsj/ndsj/2016/indexch.htm>

Year	Urban households		Rural households	
	Per capita yearly cultural consumption (Yuan)	Share of total consumption (%)	Per capita yearly cultural consumption (Yuan)	Share of total consumption (%)
2013	945.7	5.1	174.8	2.3
2014	1087.9	5.4	207	2.5
2015	1216.1	5.7	239	2.6

Table 2 Cultural facilities in China 2004–2014 per million people *Source:* China Statistical Yearbook on Culture and Related Industries 2016, compiled by National Bureau of Statistics of China and Publicity Department of CPC Central Committee, Beijing: China Statistics Press

Year	Public libraries	Cultural centers	Museums
2004	2.09	31.85	1.19
2005	2.11	31.81	1.21
2006	2.11	30.50	1.23
2007	2.12	30.73	1.30
2008	2.12	30.99	1.43
2009	2.14	31.44	1.69
2010	2.15	32.35	1.82
2011	2.19	32.42	1.97
2012	2.27	32.40	2.27
2013	2.29	32.53	2.55
2014	2.28	32.48	2.67

24 European countries. For high-income and Western counties, the literature has established robust results about the relationship between socioeconomic variables and cultural participation. Few studies have looked at middle- or low-income countries. We are not aware of any study on cultural participation in China.

Seaman (2006) reports in his survey of the literature wide evidence for what he labels the ‘elitism hypothesis,’ stating that arts audiences are elite in terms of education, income and profession (see also the works cited above and DiMaggio and Mukhtar 2004; Borgonovi 2004; O’Hagan 1996; Notten et al. 2015).⁶ The elitism hypothesis holds for a wide range of cultural goods and activities including books (Ringstad and Løyland 2006), music (Favaro and Frateschi 2007), theater (Ateca-Amestoy 2008), popular fiestas (Palma et al. 2013), video games (Borowiecki and Prieto-Rodriguez 2015) and museums (Brida et al. 2016). Due to survey questionnaire limitations, most studies focus on a single, or a narrow range of, cultural indicators. See Kirchberg and Kuchar (2014) for a review of the survey questions used in studies of cultural participation. Although it has limitations of its own, our

⁶ The literature has also used the terminology homology thesis or highbrow univore thesis. There is also a study of the demand for art. Demand studies focus specifically on price and cross-price elasticities (Garboua and Montmarquette 1996; Lévy-Garboua and Montmarquette 2003; Bonato et al. 1990). The issue of price is not relevant for free cultural activities.

survey offers the unique opportunity to study a wide range of cultural activities including both highbrow and popular ones.

The effect of education on cultural participation is typically large. In his review, Seaman (2006) reports early studies of the education gap, which is defined as the participation differential between college graduates and high school dropouts. For theater attendance in the USA, the education gap is between 21–25 and 55% depending on the study. Muñiz et al. (2017) and Falk and Katz-Gerro (2016) also report large effects of education. We will revisit the issue in Sect. 5.3 and in “[Comparison of marginal effects with other countries](#)” Appendix section.

3 Chinese survey on cultural participation

3.1 Survey methodology

China does not have a national survey for cultural participation. Instead, we use a survey that was carried out by the National Institute of Cultural Development at Wuhan University and supported by the Ministry of Culture.⁷ The survey was conducted by face-to-face interview in July–August 2015. A total of 46,800 individuals were approached and 43,932 completed the survey. The survey was carried out in 13 different cities in four different types of public areas: public cultural space (e.g., library, museum, gallery, cultural center, etc.), public leisure space (e.g., park, sport hall, etc.), commercial center (shopping plaza and square, etc.), and street. The breakdown of survey respondents across the four survey locations is 35%, 29%, 21% and 15%, respectively (see Table 9 in “[Data description](#)” Appendix section). An important difference with most national surveys of cultural participation is that the sampling used in this survey is not representative of the Chinese population.⁸

The questionnaire asked questions about demographic and socioeconomic status, participation in public and private cultural activities, and cultural capital. The survey covers a wide range of cultural activities including free and non-free culture, highbrow and mass culture, individual and collective culture, conventional and technology-based culture. The issues covered are similar to those covered in other national surveys (Kirchberg and Kuchar 2014), with the shared caveat that cultural participation is notoriously difficult to measure (see, for example, Katz-Gerro (2004, 2011) and the discussion in “[Comparison of marginal effects with other countries](#)” Appendix section).

Table 3 summarizes important characteristics of the 13 cities included in the survey. The cities cover most regions of China (column 2). All cities are political,

⁷ Since 2015, the Ministries of Culture and Finance jointly launched cultural pilot programs to promote cultural consumption in urban and rural areas. This survey was financed as a part of these pilot programs.

⁸ Tables 10 and 11 in Appendix report age distributions among survey respondents and within the entire Chinese population. (We could not find age distribution for urban area only, but this is not crucial for our main point.) We tried to match the age categories used in the questionnaire as best as we could. There are important differences in the population fractions in the two tables. The survey covers a larger fraction of respondents in the mid-age category (age 18–40). Although there are small discrepancies and the overlap in categories between the two tables is not perfect, this is unlikely to explain the measured differences. It is likely that people in the mid-age category are more represented in public places where the survey was conducted.

Table 3 City characteristics
Sources: (a) 2015 Statistical Yearbook of Shanghai/Hangzhou/Beijing/Guangzhou/Nanjing/Changsha/Wuhan/Chengdu/Tianjin/Kunming/Xian/Hefei/Zhengzhou.
 (b) ‘More than 100 Chinese cities now above 1 million people,’ <https://www.theguardian.com/cities/2017/mar/20/china-100-cities-populations-bigger-liverpool>

City	Region	Per capita income (Yuan/year)	Population	
			(Million)	(Rank)
Shanghai	East	47710	24.26	1
Hangzhou	East	44632	8.89	9
Beijing	East	43910	21.52	2
Guangzhou	East	42955	8.42	3
Nanjing	East	42568	8.22	13
Changsha	Middle	36826	7.31	25
Xian	West	36100	8.63	15
Wuhan	Middle	33270	10.34	8
Chengdu	West	32665	14.43	6
Tianjin	East	31506	15.17	5
Kunming	West	31295	6.63	28
Hefei	Middle	29348	7.7	27
Zhengzhou	Middle	29095	9.38	17
Mean		37067.69	11.61	
SD		6483.46	5.64	

economic and cultural regional centers, and most are provincial capitals. Table 3 reveals that the selected cities are also among the most populated cities in China. The sample includes seven of the ten largest cities in China and half of the twenty largest cities.⁹ The average population across all 13 cities is close to 12 million inhabitants. The smallest city in the sample has 6.6 millions inhabitants, which makes it the 28th largest Chinese city. The sample of cities spans three different economic development areas: The eastern cities are typically richer, while the western ones are poorer. Column 3 reports the average city income in each city, which we will use as a measure of economic development.

3.2 Measures of cultural participation

Table 4 reports the measures of cultural participation asked in the survey. The first three measures cover free highbrow culture. These measures are not ideal because they cover a broad range of activities (going to a public museum, cultural center, art gallery or library) and we do not have the information broken down by activity.¹⁰ The large majority of respondents (94%) answer that they have visited a public cultural place in the past year. The next two questions investigate the intensity of

⁹ Rolando Y. Wee, 20 Biggest Cities In China, <http://www.worldatlas.com/articles/20-biggest-cities-in-china.html>, April 13, 2017.

¹⁰ Other surveys have grouped cultural activities together. For example, the EUROSTAT-SILC survey used by Falk and Katz-Gerro (2016) asks participants in 24 European countries how often they visited a museum, art gallery, historical monument or archaeological site in the past twelve months. It is arguable that our survey groups a broad range of activities that do not all qualify as highbrow culture. A concern with including libraries, for example, is that some respondents may use public libraries for educational rather than cultural purpose.

Table 4 Cultural participation survey questions

Label	Survey question	N	Mean
<i>Free and public cultural activities</i>			
Public	Have you participated in a public cultural activity (state-owned museum, cultural center, art gallery or library) in the past year?	41747	0.94
Frequency	How many times do you participate each month?	39342	0.24
Time	How much time do you spend per visit?	39248	0.61
<i>Other cultural activities</i>			
Have you participated in the following cultural activities in the past year:			
Media	Books, magazines, watching TV or videos?	41708	0.67
Movie	Cinema?	41758	0.65
Performance	Art performance (theater, drama, opera, dance, concert)?	41754	0.21
Karaoke	Recreations entertainment (karaoke, internet bar, cyber coffee)?	41752	0.33
Craft	Cultural creative goods?	41736	0.17
Online	Online cultural goods (e-books, games)?	41770	0.39

participation (monthly visits and time spent per visit). These two variables are categorical with four options. Table 5 reports the share of respondents who fall in the sixteen possible cells. About half of respondents participate 1–4 times to a public cultural activity and stay between half an hour and two hours each time. We created a dummy variable for each intensity measure. For ‘frequency,’ the dummy is equal to one if the respondent participates in public cultural activity five times or more per month. This is the case for 24% of respondents. For ‘time,’ the dummy is equal to one if the respondent spends an hour or more per visit. This is the case for 61% of respondents. In the core of the analysis, we use these binary responses (instead of the categorical responses) because doing so greatly simplifies the exposition without loss of major insights.

The next six measures in Table 4 cover non-free activities that are typically privately supplied. These activities belong to popular culture with the exception of art performance. In the year prior to the survey, about 67% of respondents have read a book or watched TV, 65% have gone out to the cinema, 21% have attended an art performance, 33% have participated to recreational entertainment such as karaoke, 17% have made or bought craft, and 39% have used the Internet for gaming or e-books. Table 9 in Appendix breaks down the survey participation average (last column in Table 4) by survey location. There is some variation across location, but it is small for most measures. The standard deviation across locations is about 2–4% points with the exception of time for which it is 7%.

Table 6 reports the correlation between the nine measures of cultural participation. The three measures of public participation are positively correlated with each other and also with the measures of private cultural participation (with one exception). The respondents who participate more in public culture also participate more in private culture. This is not true within private cultural activities. Media and

Table 5 Joint distribution of frequency and time

Frequency of participation	Time participating				Total
	< 30 mins	30–60 mins	60–120 mins	> 120 mins	
< 1 time	1.94	3.83	3.57	1.31	10.65
1–4 times	4.81	22.41	26.46	11.30	64.98
5–8 times	0.72	3.51	6.68	4.84	15.92
> 8 times	0.47	1.01	2.04	4.91	8.44
Total	7.94	30.76	38.94	22.36	100

Table 6 Correlations across cultural activities

	Public	Performance	Movie	Craft	Media	Karaoke
Performance	0.0148*					
Movie	0.0508*	0.0280				
Craft	0.0344*	0.1742*	– 0.0226			
Media	0.1255*	– 0.0849*	– 0.0907*	– 0.0585*		
Karaoke	0.0304*	0.0409*	0.1623*	– 0.0228*	– 0.0157*	
Online	0.0591*	– 0.0403*	0.0638*		0.0521*	0.1161*

Only correlation coefficients significant at the significance level of 10% are displayed. A star denotes a significance level of 5%

craft tend to be negatively correlated with the remaining non-public measures of cultural participation.

Table 12 in Appendix reports the level of participation across the thirteen cities for the nine cultural indicators. Participation in public cultural activities is very high (94%) with little variation across cities. (The standard deviation across cities is only 2%.) For the other eight cultural indicators, the standard deviation is also low (about 10% of the mean participation) with the exception of art performance and craft for which it is a little higher. This is despite the fact that there is much variation in average income across the thirteen cities. (The average income in the richest city is about 64% higher than in the poorest one.)

4 Empirical models

We follow the literature on cultural participation in that we use socioeconomic characteristics to explain participation, using econometric models that address the particularities of our survey data. Specifically, we consider variations of the general specification:

$$X_{c,l,i}^m = \beta_0^m + \beta_l^m + \beta_c^m + \sum_{j=1 \dots 5} \sum_{d=2 \dots d_j} \beta_{j,d}^m y_{j,d} + \sum_{j=1 \dots 5} \sum_{d=2 \dots d_j} \gamma_{j,d}^m y_{j,d} * I_c + \epsilon_i \quad (1)$$

where X^m for $m = 1 \dots 9$ is a measure of cultural participation, i a respondent index, c a city index, and l a survey location index. Respondent i was interviewed in location l of city c . There are two demographic variables, gender and age, and three socioeconomic variables, occupation, education and income. Variable j can take d_j values. Variables $y_{j,d}$ are dummies described in Table 10 in Appendix. Variable I_c is city c 's average income (from Table 3). All measures of cultural participation (dependent variables) are binary variables. Recall that two of the variables (time and frequency) were originally categorical and were transformed. We have checked that the main results do not change when we exploit the information lost in the dummy version of these variables. For the sake of exposition and clarity, we only report here the results with binary measures.

The omitted category in all specifications corresponds to a female aged under 18, with less than 12 years of education, an income lower than 1000 Yuan, occupation 'others' and living in Zhengzhou.¹¹ The reported coefficient estimates measure the impact of the categorical variables relative to this benchmark. Coefficient estimates β_c^m pick up city fixed effects. Take the case where the variables in the second double sum are omitted and $\beta_{j,d}^m$ for $d = 2 \dots d_j$ the effect of belonging to category j for demographic variable d . When the variables in the second double sum are included, $\gamma_{j,d}^m$ for $d = 2 \dots d_j$ picks up the cross-effect of demographic variable j and city income. Since all independent variables are categorical, we estimate Eq. (1) using a linear probability model (LPM). This is without loss of generality because the LPM delivers unbiased estimates of the conditional probabilities in the absence of continuous variables. (Recall that age or income is measured with categorical variables.)

Due to the sampling design, the population surveyed has not been selected to be a representative sample of the urban population. Table 8 shows that there are significant variations across cities in the fraction of participant interviewed in a given location. This could be a problem if socioeconomic characteristics are correlated with survey location. All specifications include survey location dummies β_l^m . For robustness concern, we also estimate the coefficients $\beta_{j,d}^m$ by location (available in an Online Appendix). For most socioeconomic characteristics the sign and overall magnitude of the coefficient estimates do not vary much across locations.

Participation in any given cultural activity is part of a broader time allocation problem, and there could exist interactions across activities (Borowiecki and Prieto-Rodriguez 2015). For robustness' sake, we consider a specification where we control for participation in other cultural activities, that is, we include $X_{c,i,l}^{m'}$ for $m' \neq m$ as a control in specification (1). Doing so does not change the results much. We report the results in Column 5 of Tables 13, 14, 15, 16 and 17 included in "LPM result" Appendix section.¹²

¹¹ Occupation 'others' corresponds to someone who is not employed or student. This includes unemployed, retiree, and those taking care of children or family members.

¹² Figures 10–13 in Online Appendix plot the coefficients with and without controlling for 'other activities' next to one another. Visualizing the point estimates along with their 95% confidence intervals reveals that adding controls does not have a big impact on the coefficient estimates.

We complement the LPM analysis with a seemingly unrelated model (SEM) approach (Acock 2013). The SEM model assumes that a unique latent variable determines participation in all cultural activities (Grisolía and Willis 2012). This is to compute the common determinant of cultural participation across all participation variables. We omit the first public variable (public) because the other two (frequency and time) are recorded conditional on a positive response to this question.

5 Results

Tables 13, 14, 15, 16 and 17 report the results of the LPM for the 9 participation variables. All specifications include survey location dummies. Column 1 includes socioeconomic dummies $y_{j,d}$ only, column 2 city dummies β_c^m only, and column 3 both variables. Column 4 adds socioeconomic dummies interacted with city income. This corresponds to the full specification in equation (1). Section 5.1 discusses the main results from column 3. Section 5.2 discusses the interaction effects from column 4.

The coefficient estimates do not change much between the two partial models in columns (1–2) and the model with both socioeconomic and city controls in column 3. The adjusted R^2 in the latter model is close to the sum of the R^2 in the partial models with the socioeconomic variables explaining most of the variation in cultural participation. City information explains a small fraction of the variations in cultural participation, but this variation is largely independent on the variations explained by the socioeconomic variables. Thus, cultural participation varies at the city level for reasons that are not correlated with socioeconomic factors.

To better visualize the results, Figs. 1, 2, 3, 4, 5, 6 and 7 plot the values of the coefficient estimates of main interest ($\beta_{j,d}^m, \beta_c^m$) corresponding to the specification in column (3) in Tables 13, 14, 15, 16 and 17. We do so for each cultural measure. (Each figure has 9 panels.) Each coefficient is measured relative to the omitted category and plotted with its 95% confidence interval.

5.1 Effect of education, income, age and occupation

Education increases participation for all cultural indicators. There is a leveling effect for postgraduate education for five activities (public, media, movie, karaoke and online).¹³ Education has the largest impact of all socioeconomic variables. A postgraduate degree increases by 15% the chance of attending a public cultural place at least five times per month and the chance to spend an hour or more per visit.

Income increases participation for all but two cultural activities (media and online). The impact of income, however, is smaller than education for the three public variables. For performance and craft, education and income have about the same impact. For online consumption, there is no effect of income which is

¹³ For some indicators, postgraduate education appears to lower participation, but these differences are not significant.

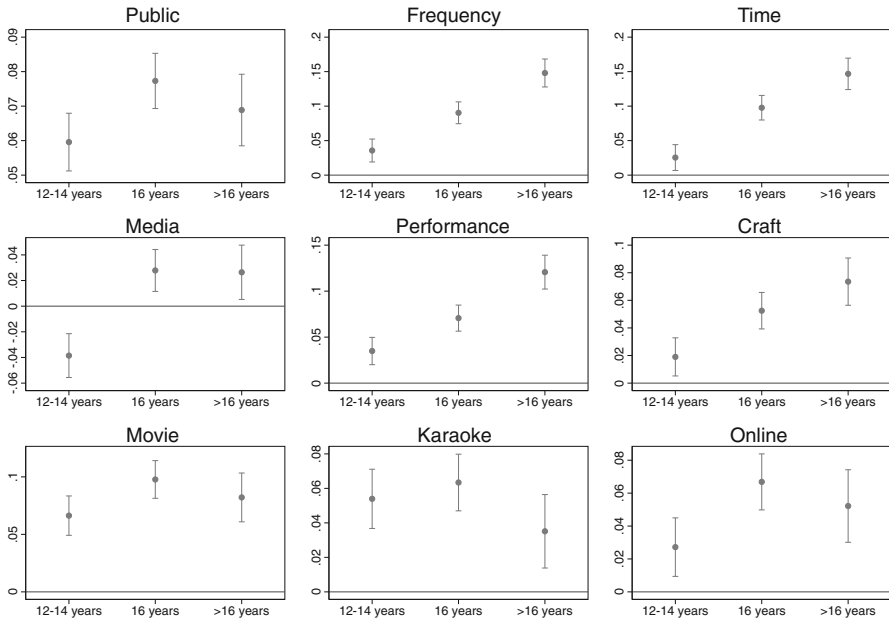


Fig. 1 Effect of education on cultural participation

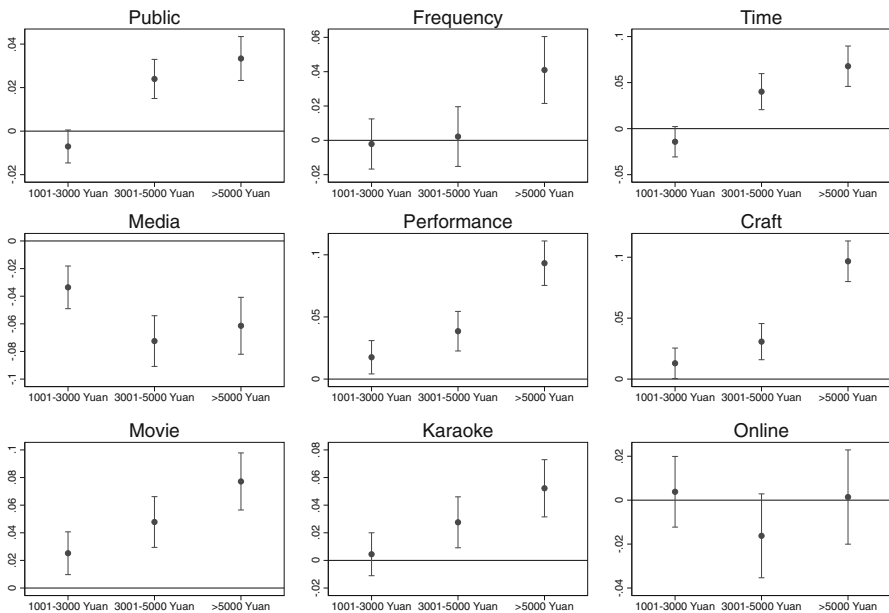


Fig. 2 Effect of income on cultural participation

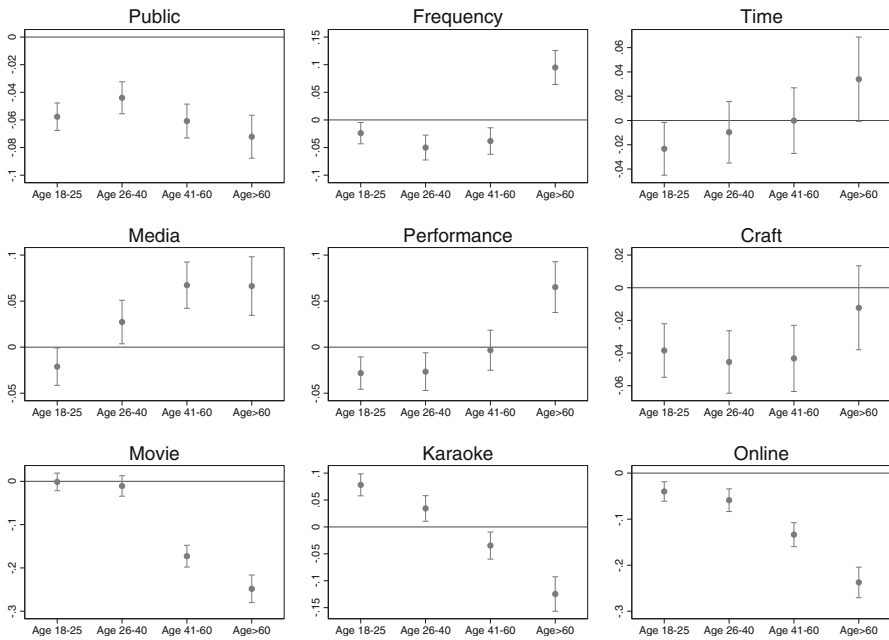


Fig. 3 Effect of age on cultural participation

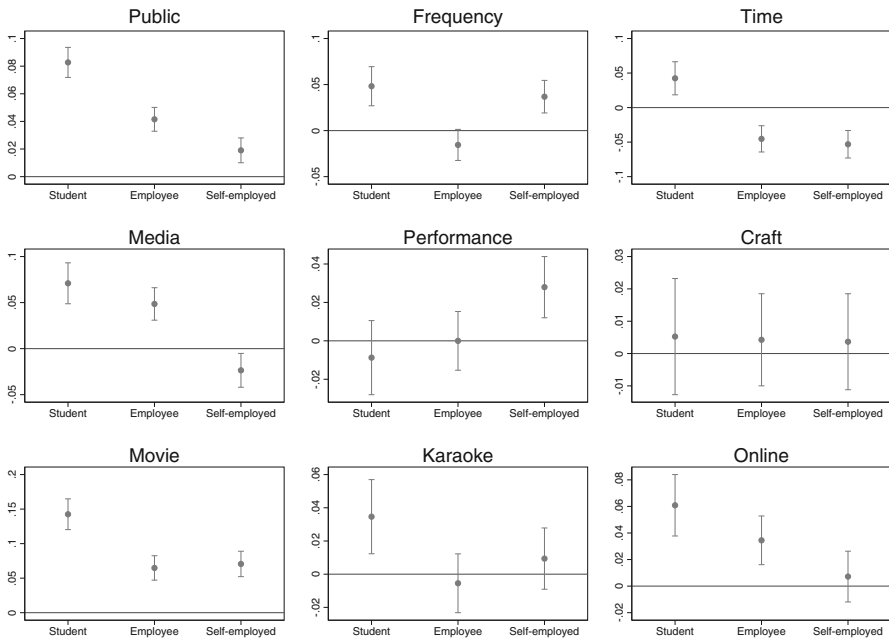


Fig. 4 Effect of occupation on cultural participation

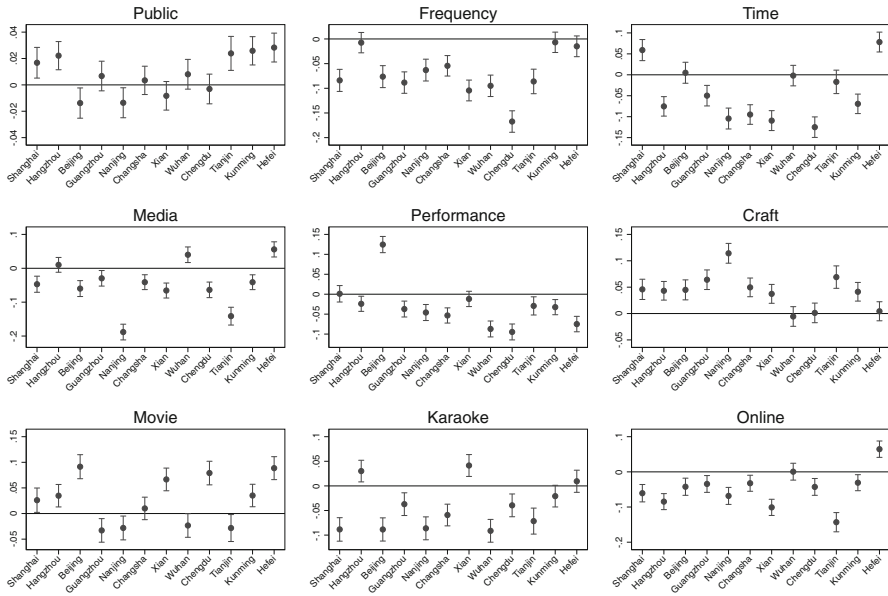


Fig. 5 City fixed effects (city income decreases from left to right)

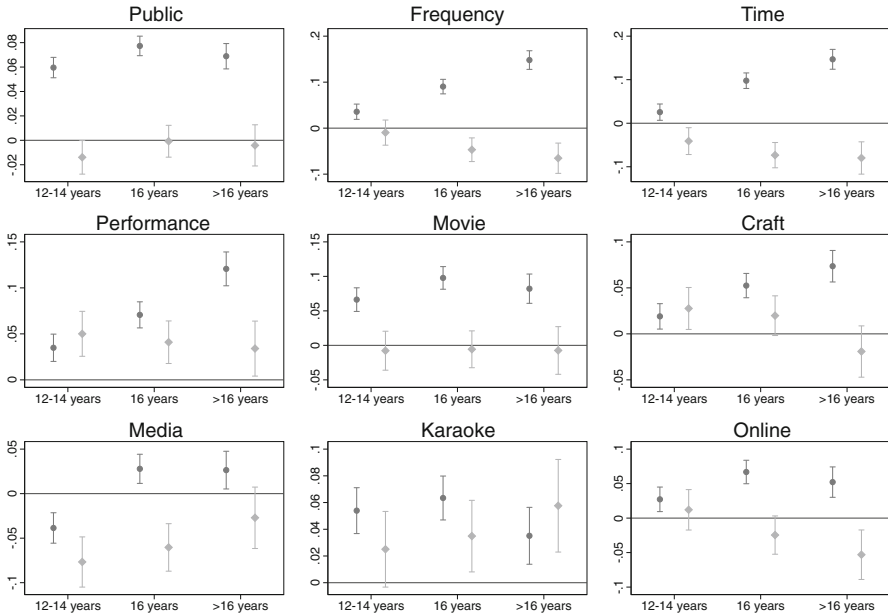


Fig. 6 Differential effect of education in rich cities (*Note:* Black dots plot the effect of socioeconomic variables and gray dots the interacted effect with city income.)

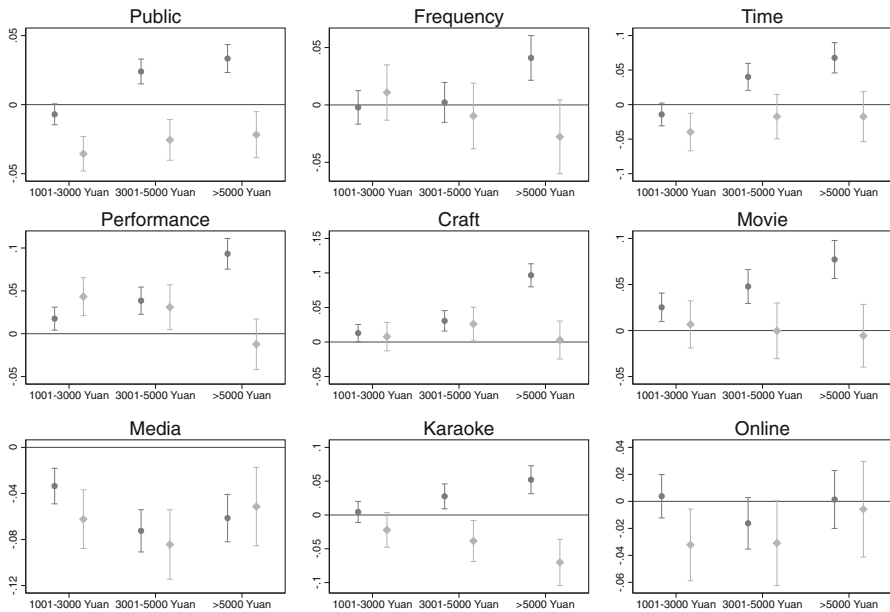


Fig. 7 Differential effect of income in rich cities (Note: Black dots plot the effect of socioeconomic variables and gray dots the interacted effect with city income.)

surprising. For media, income tends to decrease participation and this holds even when we control for participation in other activities. This could be because media consumption is time-intensive and its ‘full price’ increases with income.

To sum up, we find strong evidence in support of the elitism hypothesis for highbrow culture (library, museum, gallery and art performance). This is consistent with past studies and suggests that cultural participation in China fits the patterns observed in high-income countries. For popular culture, however, the support for the elitism hypothesis is more mixed. Craft, movie and, to some extent, karaoke fit the elitism narrative, but this is not the case for media and online.

Figure 3 plots the relationship between age and cultural participation. No clear pattern emerges across the nine cultural indicators. Cultural participation is decreasing with age for three measures (public, movie and online) and U-shaped for four measures (frequency, time, performance and craft). Consumption of media increases with age. The relationship for karaoke appears inverse-U-shaped. This suggests the existence of complex life cycle or generational effects. The finding that older people (above 60 and to some extent above 40 as well) are significantly less likely to engage in online activities is not that surprising. Explaining the rich set of patterns across all activities, however, is challenging.

Figure 4 presents the impact of occupation on participation. The omitted occupation is ‘others,’ and the remaining three occupations (student, employee and self-employed) are presented in an arbitrary order. Occupations do not display systematic patterns across the nine cultural indicators with the exception of students.

Students participate more in all cultural activities but performance and craft. The magnitude is large. The student effect comes on top of education and age.

We conclude with the effect of gender. The magnitude of the gender dummy is small relative to most other socioeconomic dummies. Males tend to use public cultural activities more frequently, but spend less time (one percentage point difference in both cases). They consume less media, performance, craft and movies and more karaoke and online cultural goods.

5.2 Cultural participation and development

Figure 5 reports the impact of the city dummies. The 12 cities are ordered by city income (using the measure from Table 3, column (5)), with city income decreasing as one moves from left to right and the poorest city, Zhengzhou, being omitted. For all cultural indicators, there are important differences in cultural participation across cities. Note that all coefficients hold constant socioeconomic characteristics. Thus, the impact of city income is not due to differences in personal income.

For all non-public indicators excluding art performance, city differences do not appear to be correlated with income. For highbrow culture (art performance and public cultural activities), however, the plots display a U shape with much noise. Low participation in public cultural activities is typically found in middle-income cities. Aggregating city information across all nine cultural indicators, as we do in the next section, confirms the U-shaped relationship of city income.

Note that the magnitude of the differences in cultural participation across cities is about the same magnitude as the impact of education and it is greater than income. Take the case of public cultural participation. For frequency, the greatest difference between any two city pairs is 17%. Looking at Fig. 1, the difference across education categories is about 15%, and looking at income the difference across income categories is about 4%. Doing the same exercise for time, we find that the greatest difference between city pairs is 20%, while education generates a 15% gap and income a 7% gap.

Figures 6 and 7 display the differential effect of education and income in richer cities. This corresponds to the full specification in model (1) that includes interaction effects of city income with socioeconomic variables. The black dots in Figs. 6 and 7 report the average effect of education and (individual) income. It has about the same value as the coefficients that are reported in Figs. 1 and 2. The gray dots report the interaction effects. The point estimates are reported in Tables 13, 14, 15, 16 and 17 column (4). For both education and income, we find negative and significant differences for some interaction effects. The elitism hypothesis is weaker in richer cities. This suggests that Chinese cultural policies are effective at attenuating the impact of city development on cultural participation.

Looking at non-public cultural activities, the evidence is more mixed. We find the same attenuation effect of the elitism hypothesis for media and online cultural goods, but an accentuation effect for performance (positive interaction terms imply that the marginal effects of income and education increase with city income) and the interaction effects are largely insignificant for movie and craft. This suggests that the elitism hypothesis holds both within and across cities only for performance.

5.3 Are the marginal effects and city effects small?

For the intensity measures of public cultural activities, frequency and time, the marginal effects of education and income on participation are small (4–15%) and the differences in participation across cities are also small (17–20%). What small means, however, is relative. As argued earlier, settling this issue is important to assess whether Chinese cultural policies are effective. One way to make progress is to compare these numbers with results from similar studies. Appendix section “[Comparison of marginal effects with other countries](#)” reviews the challenges of comparing marginal effects across studies. Given these limitations, this discussion is tentative and the conclusions should be read with caution. Recall that Sect. 2.2 reports a large education gap in the USA. Appendix section “[Comparison of marginal effects with other countries](#)” reviews past studies from high-income countries, that also suggest that, in contrast to China, the effect of education on cultural participation is relatively large. To be more specific, Appendix section “[Comparison of marginal effects with other countries](#)” reviews the study of Falk and Katz-Gerro (2016) because it is recent, uses a ‘frequency’ participation question similar to ours and reports differences in participation across 24 European countries. Two conclusions can be reached: The marginal effect of education on cultural participation is smaller in China than in Europe. The differences in cultural participation across Chinese cities are smaller than the differences found across the 24 European countries. These comparisons suggest that educational achievement, individual income, as well as economic inequalities across cities, have not generated large inequalities in people’s access to culture in China.

5.4 Robustness: seemingly unrelated regressions

In the SEM model, there is a single common latent variable that influences the eight measures of cultural participation. The coefficients for these relations are reported in “[SEM result](#)” Appendix section. All cultural indicators are positively associated with the latent variable, with the exception of craft which has a coefficient close to zero.

Figure 8 reports the effect of the socioeconomic variables on the latent variable. The patterns found in the LPM are confirmed in the SEM analysis. Education and income increase participation. Students participate more in cultural activities. The other two occupations have a small negative effect on participation. Recall that the age relationships were mixed in LPM. In contrast, SEM suggests that respondents aged 18–60 tend to participate less.

Figure 9 reports the city effects from the SEM model. Most interestingly, we find a U-shaped relation between cultural participation and city income. The relationship is more pronounced here than in the LPM case. The six cities with middle income have a negative impact on the latent variable, and this translates into lower cultural participation. Since city income is a measure of city development, an interpretation of this finding is that development initially decreases cultural participation, and once a certain level of development has been achieved, further development increases participation. One should be careful, however, because we are describing a relationship found in a cross section. This evidence alone cannot tell us why cultural participation is associated with city development.

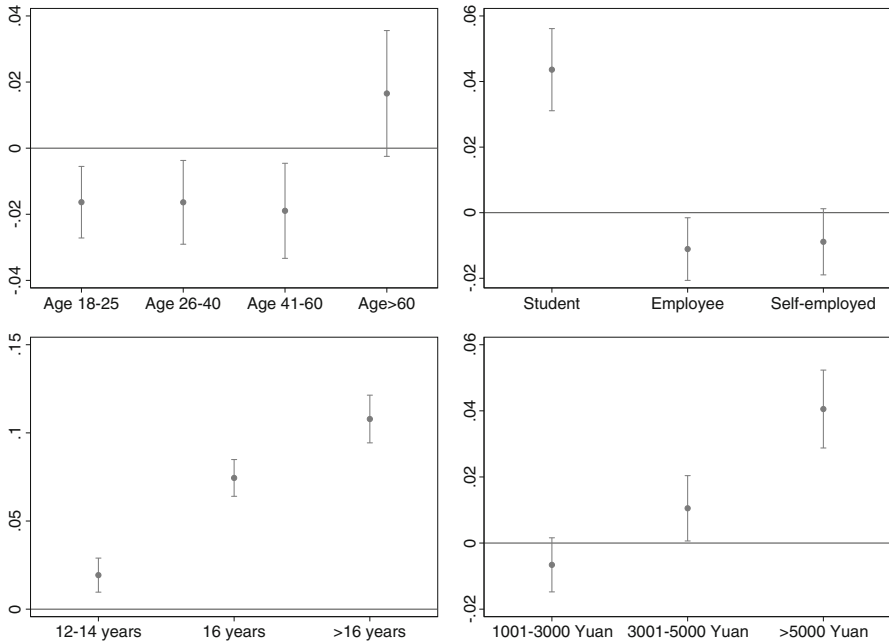


Fig. 8 Effect of main socioeconomic variables from SEM

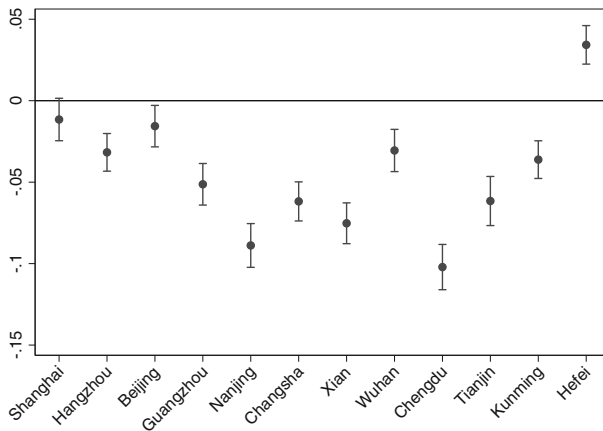


Fig. 9 City fixed effects from SEM (city income decreases from left to right)

6 Summary and conclusion

This paper documents the determinants of cultural participation in China. China is unique for two reasons: It has gone through a period of unprecedented economic growth in the past few decades and the Chinese government views equal access to culture as a key policy priority. The evidence confirms that the elitism hypothesis holds for

highbrow cultural participation in large Chinese cities: Education and income increase participation in performance arts and public cultural activities (library, museum, art galleries and cultural center). We also find that cultural participation displays a U-shaped relation against city development. Middle-income cities tend to have lower levels of cultural participation. This is true for highbrow culture and also when a single latent variable influences all cultural participation indicators. Finally, we find that the impact of education, and to some extent also income, is weaker in richer cities.

China's cultural policies have evolved dramatically over the past 20 years. China makes significant investments in cultural infrastructure to satisfy people's cultural needs and to support equal access to culture. An important policy concern is whether all socioeconomic groups and all regions have the same access to culture. Our evidence suggests this is the roughly the case in large urban centers where socioeconomic and city variables do not have a huge impact on cultural participation. Cities with very different levels of development do not display huge differences in participation. Even more surprisingly, we find that the support for the elitism hypothesis is weaker in richer cities. We tentatively conclude that these findings are consistent with Chinese policy objectives, both across individuals within a city and also across cities. Further progress on this front will happen when survey data will be available to make rigorous cross-country comparisons.

It remains to be seen whether the same patterns hold for rural areas. Other limitations of this work are associated with the survey design. We have highlighted issues related to sampling. Our respondents were interviewed in specific locations, and much effort was dedicated to investigate whether the results were representative of the urban population. Moreover, the grouping of cultural activities for some questions limited the inference. Future cultural surveys in China could address these issues. Finally, this paper does not present any causal evidence that cultural policies do actually attenuate the impact of economic inequalities on cultural participation inequalities. This is an important question that cannot be addressed with cross-sectional data. One would also want to identify the policy interventions that have had the greatest impact on people's access to culture.

Appendixes

Comparison of marginal effects with other countries

As discussed in Sect. 2.2, the literature on cultural participation covers a large number of countries and cultural activities. When comparing results across studies, one should keep in mind the following caveats: (a) The surveys are conducted in different years. (b) The surveys use different indicators of cultural participation (e.g., theater, museum, archaeological site) or a bundle of categories (e.g., see EUROSTAT-SILC below). (c) The questions sample different time windows (participation last month, last year). (d) The answers are coded differently.¹⁴

¹⁴ Take the example of frequency of participation. Muñiz et al. (2017) use a Spanish survey with an integer answer, while the EUROSTAT-SILC survey has four intervals (see Table 7).

Table 7 Comparison of the impact of education on frequency of participation

	Falk and Katz-Gerro (2016), Table 3, p. 140		Frequency variable (China)	
Survey year	2006		2015	
Cultural activities	Museums, art galleries, historical monuments and archaeological sites	Museums, art galleries, historical monuments and archaeological sites	Museums, art galleries, public libraries, cultural centers	Museums, art galleries, public libraries, cultural centers
Time window	Past 12 months	Past 12 months	Monthly average in past year	Monthly average in past year
Impact of education on frequency from ordered Probit	High school education	None 1–3 4–6 7–12 > 12 – 0.145 0.066 0.041 0.021 0.017	None 1–4 5–8 > 8 – 0.018 – 0.015 0.017	None 1–4 5–8 > 8 – 0.018 – 0.015 0.017
	University education	– 0.353 0.113 0.108 0.066 0.066	16 years > 16 years – 0.056 – 0.093	16 years > 16 years – 0.056 – 0.093
	Average of marginal effects across 24 countries. Almost all ordered Probit country coefficients are statistically significant at 1% level	Average of marginal effects across 24 countries. Almost all ordered Probit country coefficients are statistically significant at 1% level	Marginal effects from ordered Probit. All coefficients are statistically significant at 1% level	Marginal effects from ordered Probit. All coefficients are statistically significant at 1% level

(e) Differences in estimation models, which may be due to the way the variables are coded, further complicate the comparisons. (f) Some studies (e.g., Wen and Cheng 2013; Palma et al. 2013) do not report marginal effects.

These differences make it impossible to compare participation across most studies. Comparing the marginal effects is possible under the assumption that the differences across surveys and econometric models do not affect the margins. The marginal effects for education and income largely agree: Education has a large effect on cultural participation and income a smaller one. We focus here on education since it is widely reported as the variable with the greatest impact on cultural participation. The effects found in the literature are large. Recall Seaman (2006)'s review discussed in Sect. 2.2. Muñoz et al. (2017) look at participation to cultural events in Spain, where participation is broadly defined as visits to theater, ballet, classical dance, cinema, concert, museum, historical monument in the past four weeks. For the probability to participate, they report a 12% increase for primary education, 23% increase for high school education and 35% increase for university education (see Table 6, p. 87). These figures are larger than the marginal effects reported in Fig. 1.

Falk and Katz-Gerro (2016) use the EUROSTAT-SILC survey. The survey asks participants in 24 European countries how often they visited a museum, art gallery, historical monument or archaeological site in the past twelve months. We compare our results for China with their findings because the study is recent, covers a large number of countries and asks a similar participation question.

The left panel on Table 7 reports the marginal effects from an ordered Probit specification. See Table 3, p. 140. We run a similar specification using the 'frequency' categorical variable and report the results on the right panel. University education increases the probability to participate by 35.3% on average across the 24 European countries. This is a large effect. In contrast, university education increases participation by only 5.6–6.5% in China. Similarly, high school education has a much larger impact on participation in Europe than in China.

We are not aware of any study that compares cultural participation across regions or countries with the exception of Falk and Katz-Gerro (2016). They were able to do so because their survey covers 24 European countries. They find large differences across the countries represented: 'Our second main conclusion is that after accounting for socioeconomic and demographic correlates of cultural participation, there are still large differences in the probability of museum and historical site visits across countries.' (p. 146).¹⁵ Table 10 (p.159) reports large marginal effects: Greeks are 32% less, and Finnish are 13% more, likely to participate than Germans. In contrast, we find a small range of variation in participation across cities located in different Chinese regions. In our ordered Probit model, which matches their study on several points, the largest difference in participation between any city pair is 12.6 percent (Chengdu versus Zhengzhou).

¹⁵ They also report 'The country dummy variables show large and significant differences in the probability and number of museum and historical site visits across the EU countries after controlling for individual and household factors. We find that the probability and number of visits are significantly higher for Sweden, Denmark, Finland, and the United Kingdom when compared to the benchmark country, Germany.' (p.145)

Data description

See Tables 8, 9, 10, 11 and 12.

Table 8 Distribution of survey locations sampling by city

	Survey location				Total
	Public cultural place	Public leisure place	Commercial	Street	
Beijing	27.48	29.80	27.92	14.80	100.00
Shanghai	24.60	43.05	15.71	16.64	100.00
Tianjin	40.18	7.09	0.00	52.73	100.00
Guangzhou	31.25	44.51	12.07	12.17	100.00
Hangzhou	37.69	37.04	12.64	12.64	100.00
Nanjing	28.05	29.47	42.48	0.00	100.00
Hefei	30.10	37.43	32.47	0.00	100.00
Wuhan	38.60	21.50	39.90	0.00	100.00
Changsha	38.09	25.44	23.65	12.82	100.00
Zhengzhou	38.14	25.70	11.93	24.23	100.00
Xian	35.71	26.22	11.99	26.07	100.00
Chengdu	42.34	0.00	28.85	28.81	100.00
Kunming	36.42	37.79	12.89	12.89	100.00
Total	34.57	28.77	21.39	15.28	100.00

Table 9 Cultural participation conditional on survey location

	Public cultural place	Public leisure place	Commercial center	Street	Overall	SD across survey locations
Public	0.96	0.94	0.94	0.91	0.94	0.02
Frequency	0.26	0.26	0.22	0.2	0.24	0.03
Time	0.7	0.58	0.58	0.53	0.62	0.07
Media	0.72	0.65	0.63	0.64	0.67	0.04
Performance	0.19	0.25	0.21	0.2	0.21	0.03
Craft	0.15	0.2	0.18	0.16	0.17	0.02
Movie	0.65	0.63	0.67	0.63	0.65	0.02
Karaoke	0.32	0.35	0.34	0.29	0.33	0.03
Online	0.38	0.43	0.38	0.38	0.39	0.03

Table 10 Summary of demographic variables

	<i>N</i>	Mean
Male	41770	0.49
Age ≤ 18	41770	0.12
Age 18–25	41770	0.41
Age 26–40	41770	0.32
Age 41–60	41770	0.12
Age > 60	41770	0.04
Student	41770	0.38
Employee	41770	0.31
Self-employed	41770	0.21
Others	41770	0.1
< 12 years	41770	0.20
12–14 years	41770	0.22
16 years	41770	0.48
> 16 years	41770	0.11
≤ 1000 Yuan	41770	0.28
1001–3000 Yuan	41770	0.25
3001–5000 Yuan	41770	0.29
> 5000 Yuan	41770	0.19

Table 11 Age distribution in Chinese population in 2014 *Source:* China Statistics Yearbook 2015, compiled by National Bureau of Statistics of China, <http://www.stats.gov.cn/tjsj/ndsj/2015/indexch.htm>

Age range	Percent
≤ 19 years old	22.25
20–24 years old	8.07
25–39 years old	23.41
40–59 years old	30.73
≥ 60 years old	15.54

Table 12 Cultural participation by city

City	Public	Frequency	Time	Media	Performance	Craft	Movie	Karaoke	Online
Beijing	0.93	0.25	0.68	0.64	0.4	0.21	0.75	0.3	0.4
Shanghai	0.96	0.25	0.72	0.66	0.25	0.19	0.68	0.3	0.4
Tianjin	0.95	0.22	0.64	0.61	0.19	0.18	0.59	0.27	0.31
Guangzhou	0.94	0.23	0.61	0.67	0.22	0.2	0.58	0.33	0.38
Hangzhou	0.96	0.3	0.58	0.72	0.23	0.18	0.64	0.39	0.34
Nanjing	0.92	0.24	0.55	0.52	0.21	0.26	0.55	0.27	0.33
Hefei	0.97	0.29	0.72	0.75	0.16	0.14	0.73	0.4	0.5
Wuhan	0.95	0.21	0.66	0.75	0.16	0.13	0.62	0.3	0.43
Changsha	0.94	0.24	0.55	0.66	0.18	0.18	0.64	0.31	0.4
Zhengzhou	0.92	0.29	0.63	0.71	0.23	0.12	0.58	0.33	0.42
Xian	0.93	0.2	0.54	0.65	0.22	0.16	0.69	0.41	0.35
Chengdu	0.94	0.14	0.54	0.66	0.12	0.13	0.73	0.34	0.41
Kunming	0.96	0.3	0.57	0.66	0.21	0.17	0.65	0.35	0.40
Overall	0.94	0.24	0.62	0.67	0.21	0.17	0.65	0.33	0.39
SD across cities	0.02	0.05	0.07	0.06	0.06	0.04	0.06	0.04	0.05

LPM result

See Tables 13, 14, 15, 16 and 17.

Table 13 LPM: public and frequency

	Public					Frequency				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Male	- 0.0102*** (0.00)		- 0.0107*** (0.00)	0.0184 (0.01)	- 0.0088*** (0.00)	0.0152*** (0.00)	0.0113*** (0.00)	- 0.0425 (0.03)	0.0149*** (0.00)	
Age 18–25	- 0.0571*** (0.01)		- 0.0577*** (0.01)	- 0.1621*** (0.03)	- 0.0548*** (0.01)	- 0.0307*** (0.01)	- 0.0239** (0.01)	- 0.1382** (0.06)	- 0.0194** (0.01)	
Age 26–40	- 0.0434*** (0.01)		- 0.0440*** (0.01)	- 0.1768*** (0.04)	- 0.0429*** (0.01)	- 0.0493*** (0.01)	- 0.0500*** (0.01)	- 0.1089 (0.07)	- 0.0478*** (0.01)	
Age 41–60	- 0.0613*** (0.01)		- 0.0608*** (0.01)	- 0.2392*** (0.04)	- 0.0579*** (0.01)	- 0.0383*** (0.01)	- 0.0382*** (0.01)	- 0.2045*** (0.07)	- 0.0410*** (0.01)	
Age > 60	- 0.0729*** (0.01)		- 0.0722*** (0.01)	- 0.3983*** (0.05)	- 0.0635*** (0.01)	0.1048*** (0.02)	0.0948*** (0.02)	- 0.0821 (0.09)	0.0877*** (0.02)	
Student	0.0834*** (0.01)		0.0827*** (0.01)	0.2400*** (0.03)	0.0749*** (0.01)	0.0427*** (0.01)	0.0482*** (0.01)	0.0909 (0.07)	0.0487*** (0.01)	
Employee	0.0426*** (0.00)		0.0415*** (0.00)	0.2166*** (0.03)	0.0375*** (0.00)	- 0.0121 (0.01)	- 0.0156* (0.01)	- 0.1530*** (0.05)	- 0.0162* (0.01)	
Self-employed	0.0218*** (0.00)		0.0190*** (0.00)	0.1772*** (0.03)	0.0190*** (0.00)	0.0456*** (0.01)	0.0368*** (0.01)	- 0.0385 (0.05)	0.0381*** (0.01)	
12–14 years	0.0593*** (0.00)		0.0596*** (0.00)	0.1088*** (0.03)	0.0586*** (0.00)	0.0353*** (0.01)	0.0357*** (0.01)	0.0713 (0.05)	0.0360*** (0.01)	
16 years	0.0775*** (0.00)		0.0773*** (0.00)	0.0784*** (0.02)	0.0704*** (0.00)	0.0879*** (0.01)	0.0903*** (0.01)	0.2614*** (0.05)	0.0842*** (0.01)	
> 16 years	0.0672*** (0.01)		0.0689*** (0.01)	0.0836** (0.03)	0.0614*** (0.01)	0.1415*** (0.01)	0.1480*** (0.01)	0.3920*** (0.06)	0.1387*** (0.01)	
1001–3000 Yuan	- 0.0066* (0.00)		- 0.0070* (0.00)	0.1221*** (0.02)	- 0.0064* (0.00)	0.0001 (0.01)	- 0.0021 (0.01)	- 0.0392 (0.05)	- 0.0014 (0.01)	

Table 13 continued

	Public					Frequency				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
3001–5000 Yuan	0.0242*** (0.00)	0.0240*** (0.00)	0.0240*** (0.00)	0.1167*** (0.03)	0.0254*** (0.00)	– 0.0011 (0.01)	0.0022 (0.01)	0.0360 (0.05)	0.0059 (0.01)	0.0059 (0.01)
> 5000 Yuan	0.0316*** (0.01)	0.0334*** (0.01)	0.0334*** (0.01)	0.1109*** (0.03)	0.0314*** (0.01)	0.0332*** (0.01)	0.0410*** (0.01)	0.1422** (0.06)	0.0382*** (0.01)	0.0382*** (0.01)
Shanghai		0.0464*** (0.01)	0.0168*** (0.01)	0.0787*** (0.02)	0.0223*** (0.01)		– 0.0569*** (0.01)	– 0.0840*** (0.04)	– 0.0803*** (0.01)	– 0.0803*** (0.01)
Hangzhou		0.0350*** (0.01)	0.0221*** (0.01)	0.0717*** (0.02)	0.0220*** (0.01)		0.0043 (0.01)	– 0.0075 (0.03)	– 0.0054 (0.01)	– 0.0054 (0.01)
Beijing		0.0130** (0.01)	– 0.0138** (0.01)	0.0355** (0.02)	– 0.0121** (0.01)		– 0.0328*** (0.01)	– 0.0764*** (0.03)	– 0.0793*** (0.01)	– 0.0793*** (0.01)
Guangzhou		0.0175*** (0.01)	0.0067 (0.01)	0.0510*** (0.02)	0.0103* (0.01)		– 0.0731*** (0.01)	– 0.1022*** (0.03)	– 0.0865*** (0.01)	– 0.0865*** (0.01)
Nanjing		– 0.0010 (0.01)	– 0.0136** (0.01)	0.0264* (0.01)	– 0.0027 (0.01)		– 0.0475*** (0.01)	– 0.0631*** (0.03)	– 0.0795*** (0.01)	– 0.0535*** (0.01)
Changsha		0.0189*** (0.01)	0.0034 (0.01)	0.0281*** (0.01)	0.0064 (0.01)		– 0.0573*** (0.01)	– 0.0544*** (0.02)	– 0.0499*** (0.01)	– 0.0499*** (0.01)
Xian		0.0019 (0.01)	– 0.0083 (0.01)	0.0133 (0.01)	– 0.0042 (0.01)		– 0.0833*** (0.01)	– 0.1044*** (0.02)	– 0.0987*** (0.01)	– 0.0987*** (0.01)
Wuhan		0.0275*** (0.01)	0.0080 (0.01)	0.0194*** (0.01)	0.0081 (0.01)		– 0.0782*** (0.01)	– 0.0950*** (0.01)	– 0.1052*** (0.01)	– 0.0926*** (0.01)
Chengdu		0.0215*** (0.01)	– 0.0031 (0.01)	0.0069 (0.01)	0.0017 (0.01)		– 0.1509*** (0.01)	– 0.1674*** (0.01)	– 0.1566*** (0.01)	– 0.1566*** (0.01)
Tianjin		0.0370*** (0.01)	0.0239*** (0.01)	0.0311*** (0.01)	0.0340*** (0.01)		– 0.0702*** (0.01)	– 0.0861*** (0.01)	– 0.0771*** (0.01)	– 0.0771*** (0.01)

Table 13 continued

	Public					Frequency				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Kunming	0.0372*** (0.01)	0.0258*** (0.01)	0.0302*** (0.01)	0.0290*** (0.01)	0.0030 (0.01)	0.0030 (0.01)	0.0068 (0.01)	- 0.0149 (0.01)	- 0.0030 (0.01)	
Hefei	0.0429*** (0.01)	0.0283*** (0.01)	0.0253*** (0.01)	0.0244*** (0.01)	0.0016 (0.01)	0.0016 (0.01)	- 0.0149 (0.01)	- 0.0215*** (0.01)	- 0.0138 (0.01)	
Male*city-income			- 0.0078** (0.00)				0.0147** (0.01)			
Age 18–25*city-income			0.0288*** (0.01)				0.0314** (0.02)			
Age 26–40*city-income			0.0365*** (0.01)				0.0164 (0.02)			
Age 41–60*city-income			0.0489*** (0.01)				0.0452** (0.02)			
Age > 60*city-income			0.0895*** (0.01)				0.0476* (0.02)			
Student*city-income			- 0.0417*** (0.01)				- 0.0130 (0.02)			
Employee*city-income			- 0.0464*** (0.01)				0.0367*** (0.01)			
Self-employed*city-income			- 0.0419*** (0.01)				0.0198 (0.01)			
12–14 years*city-income			- 0.0139** (0.01)				- 0.0097 (0.01)			
16 years*city-income			- 0.0008 (0.01)				- 0.0470*** (0.01)			

Table 13 continued

	Public					Frequency				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
> 16 years*city- income				- 0.0042 (0.01)					- 0.0654*** (0.02)	
1001–3000 Yuan*city-income				- 0.0356*** (0.01)					0.0108 (0.01)	
3001–5000 Yuan*city-income				- 0.0256*** (0.01)					- 0.0096 (0.01)	
> 5000 Yuan*city- income				- 0.0218** (0.01)					- 0.0278* (0.02)	
Media					0.0569*** (0.00)					0.0479*** (0.00)
Performance					0.0100*** (0.00)					0.0525*** (0.01)
Craft					0.0203*** (0.00)					0.0380*** (0.01)
Movie					0.0130*** (0.00)					- 0.0195*** (0.00)
Karaoke					0.0053** (0.00)					- 0.0002 (0.00)
Online					0.0165*** (0.00)					0.0211*** (0.00)

Table 13 continued

	Public					Frequency				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Survey location dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,618	42,678	40,618	40,618	40,443	38,257	40,161	38,257	38,257	38,107
Adjusted R^2	0.038	0.010	0.042	0.046	0.057	0.018	0.013	0.029	0.031	0.036

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 14 LPM: time and media

	Time					Media				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Male	-0.0088* (0.00)		-0.0173*** (0.00)	0.0124 (0.03)	-0.0120** (0.00)	-0.0337*** (0.00)		-0.0383*** (0.00)	-0.0120 (0.03)	-0.0423*** (0.00)
Age 18–25	-0.0247** (0.01)		-0.0223** (0.01)	-0.3058*** (0.07)	-0.0195* (0.01)	-0.0069 (0.01)		-0.0212** (0.01)	-0.3198*** (0.06)	-0.0063 (0.01)
Age 26–40	-0.0090 (0.01)		-0.0097 (0.01)	-0.2350*** (0.08)	-0.0108 (0.01)	0.0429*** (0.01)		0.0273** (0.01)	-0.1589** (0.07)	0.0355*** (0.01)
Age 41–60	-0.0094 (0.01)		-0.0001 (0.01)	-0.3037*** (0.08)	-0.0056 (0.01)	0.0708*** (0.01)		0.0673*** (0.01)	-0.0330 (0.08)	0.0613*** (0.01)
Age > 60	0.0240 (0.02)		0.0340* (0.02)	-0.0898 (0.10)	0.0265 (0.02)	0.0603*** (0.02)		0.0663*** (0.02)	-0.0080 (0.09)	0.0592*** (0.02)
Student	0.0438*** (0.01)		0.0424*** (0.01)	0.2098*** (0.08)	0.0343*** (0.01)	0.0775*** (0.01)		0.0709*** (0.01)	0.4646*** (0.07)	0.0546*** (0.01)
Employee	-0.0503*** (0.01)		-0.0453*** (0.01)	0.0017 (0.06)	-0.0504*** (0.01)	0.0591*** (0.01)		0.0485*** (0.01)	0.2804*** (0.05)	0.0453*** (0.01)
Self-employed	-0.0480*** (0.01)		-0.0531*** (0.01)	0.0173 (0.06)	-0.0515*** (0.01)	-0.0075 (0.01)		-0.0236** (0.01)	0.2699*** (0.06)	-0.0147 (0.01)
12–14 years	0.0261*** (0.01)		0.0255*** (0.01)	0.1764*** (0.06)	0.0300*** (0.01)	-0.0440*** (0.01)		-0.0385*** (0.01)	0.2419*** (0.05)	-0.0510*** (0.01)
16 years	0.1035*** (0.01)		0.0977*** (0.01)	0.3671*** (0.06)	0.0922*** (0.01)	0.0262*** (0.01)		0.0279*** (0.01)	0.2501*** (0.05)	0.0126 (0.01)
>16 years	0.1545*** (0.01)		0.1468*** (0.01)	0.4448*** (0.07)	0.1397*** (0.01)	0.0242** (0.01)		0.0264** (0.01)	0.1231* (0.07)	0.0156 (0.01)
1001–3000 Yuan	-0.0092 (0.01)		-0.0143* (0.01)	0.1313** (0.05)	-0.0116 (0.01)	-0.0257*** (0.01)		-0.0336*** (0.01)	0.1941*** (0.05)	-0.0289*** (0.01)

Table 14 continued

	Time					Media				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
3001–5000 Yuan	0.0411*** (0.01)		0.0402*** (0.01)	0.1030* (0.06)	0.0474*** (0.01)	- 0.0710*** (0.01)		- 0.0725*** (0.01)	0.2371*** (0.06)	- 0.0732*** (0.01)
> 5000 Yuan	0.0739*** (0.01)		0.0678*** (0.01)	0.1271* (0.07)	0.0692*** (0.01)	- 0.0707*** (0.01)		- 0.0614*** (0.01)	0.1254* (0.07)	- 0.0568*** (0.01)
Shanghai		0.1202*** (0.01)	0.0590*** (0.01)	0.1341*** (0.04)	0.0649*** (0.01)		- 0.0373*** (0.01)	- 0.0470*** (0.01)	0.1744*** (0.04)	- 0.0450*** (0.01)
Hangzhou		- 0.0517*** (0.01)	- 0.0754*** (0.01)	- 0.0218 (0.04)	- 0.0750*** (0.01)		0.0075 (0.01)	0.0101 (0.01)	0.2012*** (0.03)	0.0210* (0.01)
Beijing		0.0574*** (0.01)	0.0049 (0.01)	0.0654* (0.04)	0.0061 (0.01)		- 0.0732*** (0.01)	- 0.0599*** (0.01)	0.1206*** (0.03)	- 0.0179 (0.01)
Guangzhou		- 0.0041 (0.01)	- 0.0498*** (0.01)	0.0008 (0.03)	- 0.0447*** (0.01)		- 0.0241** (0.01)	- 0.0296** (0.01)	0.1439*** (0.03)	- 0.0328*** (0.01)
Nanjing		- 0.0738*** (0.01)	- 0.1044*** (0.01)	- 0.0576* (0.03)	- 0.0855*** (0.01)		- 0.1774*** (0.01)	- 0.1882*** (0.01)	- 0.0240 (0.03)	- 0.1793*** (0.01)
Changsha		- 0.0818*** (0.01)	- 0.0948*** (0.01)	- 0.0674*** (0.02)	- 0.0886*** (0.01)		- 0.0500*** (0.01)	- 0.0410*** (0.01)	0.0525*** (0.02)	- 0.0425*** (0.01)
Xian		- 0.0804*** (0.01)	- 0.1094*** (0.01)	- 0.0848*** (0.02)	- 0.1007*** (0.01)		- 0.0641*** (0.01)	- 0.0656*** (0.01)	0.0189 (0.02)	- 0.0407*** (0.01)
Wuhan		0.0238* (0.01)	- 0.0019 (0.01)	0.0111 (0.02)	- 0.0041 (0.01)		0.0373*** (0.01)	0.0399*** (0.01)	0.0882*** (0.01)	0.0336*** (0.01)
Chengdu		- 0.0956*** (0.01)	- 0.1250*** (0.01)	- 0.1133*** (0.01)	- 0.1152*** (0.01)		- 0.0489*** (0.01)	- 0.0637*** (0.01)	- 0.0179 (0.01)	- 0.0443*** (0.01)
Tianjin		0.0115 (0.01)	- 0.0168 (0.01)	- 0.0090 (0.02)	- 0.0002 (0.01)		- 0.1240*** (0.01)	- 0.1413*** (0.01)	- 0.1115*** (0.01)	- 0.1401*** (0.01)

Table 14 continued

	Time					Media				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Kunming		- 0.0515*** (0.01)	- 0.0693*** (0.01)	- 0.0640*** (0.01)	- 0.0649*** (0.01)		- 0.0456*** (0.01)	- 0.0411*** (0.01)	- 0.0190 (0.01)	- 0.0319*** (0.01)
Hefei		0.0960*** (0.01)	0.0782*** (0.01)	0.0758*** (0.01)	0.0722*** (0.01)		0.0505*** (0.01)	0.0558*** (0.01)	0.0553*** (0.01)	0.0512*** (0.01)
Male*city-income				- 0.0077 (0.01)					- 0.0071 (0.01)	
Age 18–25*city-income				0.0765*** (0.02)					0.0810*** (0.02)	
Age 26–40*city-income				0.0612*** (0.02)					0.0503*** (0.02)	
Age 41–60*city-income				0.0822*** (0.02)					0.0281 (0.02)	
Age > 60*city-income				0.0344 (0.03)					0.0223 (0.03)	
Student*city-income				- 0.0452** (0.02)					- 0.1056*** (0.02)	
Employee*city-income				- 0.0120 (0.02)					- 0.0617*** (0.01)	
Self-employed*city-income				- 0.0183 (0.02)					- 0.0779*** (0.01)	
12–14 years*city-income				- 0.0411*** (0.02)					- 0.0767*** (0.01)	
16 years*city-income				- 0.0733*** (0.01)					- 0.0604*** (0.01)	

Table 14 continued

	Time					Media				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
> 16 years*city-income				- 0.0798*** (0.02)					- 0.0271 (0.02)	
1001–3000 Yuan*city-income				- 0.0397*** (0.01)					- 0.0623*** (0.01)	
3001–5000 Yuan*city-income				- 0.0174 (0.02)					- 0.0844*** (0.02)	
> 5000 Yuan*city-income				- 0.0174 (0.02)					- 0.0515*** (0.02)	
Media					0.1144*** (0.01)					- 0.0781*** (0.01)
Performance					0.0183*** (0.01)					- 0.0590*** (0.01)
Craft					0.0387*** (0.01)					- 0.1015*** (0.01)
Movie					0.0057 (0.01)					- 0.0064 (0.01)
Karaoke					- 0.0057 (0.01)					0.0308*** (0.00)
Online					0.0134*** (0.01)					0.0368*** (0.01)
Frequency										0.0982*** (0.00)
Time										0.0982*** (0.00)

Table 14 continued

	Time					Media				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Survey location dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	38,164	40,052	38,164	38,164	38,018	40,542	42,584	40,542	40,542	37,944
Adjusted R^2	0.034	0.035	0.050	0.051	0.062	0.021	0.022	0.038	0.041	0.068

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 15 LPM: performance and craft

	Performance					Craft				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Male	-0.0232*** (0.00)		-0.0270*** (0.00)	-0.0252 (0.02)	-0.0260*** (0.00)	-0.0190*** (0.00)		-0.0169*** (0.00)	-0.0507** (0.02)	-0.0158*** (0.00)
Age 18–25	-0.0323*** (0.01)		-0.0282*** (0.01)	0.1835*** (0.05)	-0.0222** (0.01)	-0.0467*** (0.01)		-0.0384*** (0.01)	-0.0148 (0.05)	-0.0310*** (0.01)
Age 26–40	-0.0249** (0.01)		-0.0266** (0.01)	0.1047* (0.06)	-0.0133 (0.01)	-0.0534*** (0.01)		-0.0455*** (0.01)	-0.1048* (0.06)	-0.0367*** (0.01)
Age 41–60	-0.0088 (0.01)		-0.0033 (0.01)	0.0159 (0.07)	0.0139 (0.01)	-0.0434*** (0.01)		-0.0433*** (0.01)	-0.0653 (0.06)	-0.0403*** (0.01)
Age > 60	0.0650*** (0.01)		0.0652*** (0.01)	0.1465* (0.08)	0.0777*** (0.01)	-0.0068 (0.01)		-0.0123 (0.01)	-0.0673 (0.08)	-0.0229* (0.01)
Student	-0.0114 (0.01)		-0.0087 (0.01)	0.1005* (0.06)	-0.0179* (0.01)	0.0049 (0.01)		0.0052 (0.01)	-0.0625 (0.06)	0.0066 (0.01)
Employee	-0.0079 (0.01)		-0.0000 (0.01)	0.2313*** (0.05)	-0.0041 (0.01)	-0.0010 (0.01)		0.0043 (0.01)	0.0705 (0.04)	0.0056 (0.01)
Self-employed	0.0242*** (0.01)		0.0279*** (0.01)	0.3138*** (0.05)	0.0170** (0.01)	-0.0007 (0.01)		0.0037 (0.01)	0.1088** (0.05)	-0.0012 (0.01)
12–14 years	0.0343*** (0.01)		0.0349*** (0.01)	-0.1486*** (0.05)	0.0210*** (0.01)	0.0218*** (0.01)		0.0190*** (0.01)	-0.0814* (0.04)	0.0116 (0.01)
16 years	0.0734*** (0.01)		0.0707*** (0.01)	-0.0811* (0.04)	0.0492*** (0.01)	0.0535*** (0.01)		0.0525*** (0.01)	-0.0197 (0.04)	0.0399*** (0.01)
> 16 years	0.1365*** (0.01)		0.1207*** (0.01)	-0.0059 (0.06)	0.0942*** (0.01)	0.0749*** (0.01)		0.0735*** (0.01)	0.1506*** (0.05)	0.0506*** (0.01)
1001–3000 Yuan	0.0201*** (0.01)		0.0176** (0.01)	-0.1392*** (0.04)	0.0161** (0.01)	0.0120* (0.01)		0.0130** (0.01)	-0.0161 (0.04)	0.0114* (0.01)

Table 15 continued

	Performance					Craft				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
3001–5000 Yuan	0.0421*** (0.01)		0.0385*** (0.01)	– 0.0763 (0.05)	0.0267*** (0.01)	0.0375*** (0.01)		0.0307*** (0.01)	– 0.0654 (0.05)	0.0203*** (0.01)
> 5000 Yuan	0.1088*** (0.01)		0.0933*** (0.01)	0.1439** (0.06)	0.0705*** (0.01)	0.1072*** (0.01)		0.0967*** (0.01)	0.0881* (0.05)	0.0799*** (0.01)
Shanghai		0.0302*** (0.01)	0.0011 (0.01)	0.0603* (0.04)	– 0.0035 (0.01)		0.0820*** (0.01)	0.0458*** (0.01)	– 0.0030 (0.03)	0.0397*** (0.01)
Hangzhou		– 0.0001 (0.01)	– 0.0241** (0.01)	0.0218 (0.03)	– 0.0353*** (0.01)		0.0586*** (0.01)	0.0432*** (0.01)	0.0020 (0.03)	0.0483*** (0.01)
Beijing		0.1620*** (0.01)	0.1245*** (0.01)	0.1718*** (0.03)	0.1068*** (0.01)		0.0759*** (0.01)	0.0449*** (0.01)	0.0065 (0.03)	0.0300*** (0.01)
Guangzhou		– 0.0252*** (0.01)	– 0.0372*** (0.01)	– 0.0007 (0.03)	– 0.0540*** (0.01)		0.0711*** (0.01)	0.0641*** (0.01)	0.0255 (0.03)	0.0686*** (0.01)
Nanjing		– 0.0232** (0.01)	– 0.0459*** (0.01)	– 0.0118 (0.03)	– 0.0747*** (0.01)		0.1294*** (0.01)	0.1142*** (0.01)	0.0770*** (0.02)	0.1057*** (0.01)
Changsha		– 0.0461*** (0.01)	– 0.0533*** (0.01)	– 0.0340** (0.02)	– 0.0609*** (0.01)		0.0548*** (0.01)	0.0496*** (0.01)	0.0289* (0.02)	0.0508*** (0.01)
Xian		– 0.0127 (0.01)	– 0.0118 (0.01)	0.0051 (0.02)	– 0.0222** (0.01)		0.0386*** (0.01)	0.0373*** (0.01)	0.0183 (0.01)	0.0459*** (0.01)
Wuhan		– 0.0700*** (0.01)	– 0.0872*** (0.01)	– 0.0791*** (0.01)	– 0.0801*** (0.01)		0.0104 (0.01)	– 0.0056 (0.01)	– 0.0164 (0.01)	0.0084 (0.01)
Chengdu		– 0.0942*** (0.01)	– 0.0947*** (0.01)	– 0.0892*** (0.01)	– 0.0916*** (0.01)		0.0111 (0.01)	0.0012 (0.01)	– 0.0079 (0.01)	0.0182* (0.01)
Tianjin		– 0.0276** (0.01)	– 0.0294** (0.01)	– 0.0249** (0.01)	– 0.0396*** (0.01)		0.0735*** (0.01)	0.0691*** (0.01)	0.0632*** (0.01)	0.0600*** (0.01)

Table 15 continued

	Performance					Craft				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Kunming		-0.0219** (0.01)	-0.0325*** (0.01)	-0.0305*** (0.01)	-0.0473*** (0.01)		0.0505*** (0.01)	0.0413*** (0.01)	0.0358*** (0.01)	0.0448*** (0.01)
Hefei		-0.0721*** (0.01)	-0.0749*** (0.01)	-0.0798*** (0.01)	-0.0728*** (0.01)		0.0110 (0.01)	0.0043 (0.01)	0.0053 (0.01)	0.0136 (0.01)
Male*city-income				-0.0007 (0.01)					0.0091 (0.01)	
Age 18–25*city-income				-0.0571*** (0.01)					-0.0066 (0.01)	
Age 26–40*city-income				-0.0355** (0.02)					0.0158 (0.02)	
Age 41–60*city-income				-0.0054 (0.02)					0.0059 (0.02)	
Age > 60*city-income				-0.0221 (0.02)					0.0146 (0.02)	
Student*city-income				-0.0287* (0.02)					0.0188 (0.01)	
Employee*city-income				-0.0614*** (0.01)					-0.0175 (0.01)	
Self-employed*city-income				-0.0765*** (0.01)					-0.0280** (0.01)	
12–14 years*city-income				0.0500*** (0.01)					0.0276** (0.01)	
16 years*city-income				0.0409*** (0.01)					0.0198* (0.01)	

Table 15 continued

	Performance					Craft				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
> 16 years*city-income				0.0340** (0.02)					- 0.0192 (0.01)	
1001–3000 Yuan*city-income				0.0432*** (0.01)					0.0078 (0.01)	
3001–5000 Yuan*city-income				0.0309** (0.01)					0.0260** (0.01)	
> 5000 Yuan*city-income				- 0.0123 (0.02)					0.0029 (0.01)	
Frequency					0.0447*** (0.00)					0.0262*** (0.00)
Time					0.0061 (0.00)					0.0202*** (0.00)
Media					- 0.0602*** (0.00)					- 0.0402*** (0.00)
Movie					0.0217*** (0.00)					- 0.0232*** (0.00)
Online					- 0.0293*** (0.00)					0.0133*** (0.00)
Karaoke					0.0444*** (0.00)					- 0.0247*** (0.00)
Craft					0.1721*** (0.01)					
Performance										0.1521*** (0.00)

Table 15 continued

	Performance					Craft				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Survey location dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,582	42,624	40,582	40,582	37,944	40,564	42,607	40,564	40,564	37,944
Adjusted R^2	0.028	0.024	0.043	0.046	0.079	0.016	0.011	0.023	0.024	0.053

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 16 LPM: movie and karaoke

	Movie					Karaoke				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Male	0.0022 (0.00)	0.0006 (0.00)	0.0006 (0.00)	- 0.1039*** (0.03)	- 0.0052 (0.00)	0.0110** (0.00)	0.0112** (0.00)	0.0832*** (0.03)	0.0069 (0.00)	0.0069 (0.00)
Age 18–25	0.0101 (0.01)	- 0.0013 (0.01)	- 0.0013 (0.01)	- 0.1477** (0.06)	- 0.0089 (0.01)	0.0881*** (0.01)	0.0782*** (0.01)	0.0373 (0.06)	0.0848*** (0.01)	0.0848*** (0.01)
Age 26–40	- 0.0016 (0.01)	- 0.0107 (0.01)	- 0.0107 (0.01)	- 0.4012*** (0.07)	- 0.0127 (0.01)	0.0466*** (0.01)	0.0343*** (0.01)	- 0.2143*** (0.07)	0.0436*** (0.01)	0.0436*** (0.01)
Age 41–60	- 0.1742*** (0.01)	- 0.1729*** (0.01)	- 0.1729*** (0.01)	- 0.6185*** (0.08)	- 0.1590*** (0.01)	- 0.0218* (0.01)	- 0.0346*** (0.01)	- 0.4409*** (0.08)	0.0063 (0.01)	0.0063 (0.01)
Age > 60	- 0.2598*** (0.02)	- 0.2483*** (0.02)	- 0.2483*** (0.02)	- 0.6915*** (0.10)	- 0.2326*** (0.02)	- 0.1118*** (0.02)	- 0.1246*** (0.02)	- 0.4685*** (0.10)	- 0.0595*** (0.02)	- 0.0595*** (0.02)
Student	0.1451*** (0.01)	0.1426*** (0.01)	0.1426*** (0.01)	- 0.0868 (0.07)	0.1409*** (0.01)	0.0373*** (0.01)	0.0346*** (0.01)	0.0041 (0.07)	0.0189 (0.01)	0.0189 (0.01)
Employee	0.0653*** (0.01)	0.0648*** (0.01)	0.0648*** (0.01)	0.0467 (0.05)	0.0648*** (0.01)	0.0000 (0.01)	- 0.0055 (0.01)	0.0919* (0.05)	- 0.0121 (0.01)	- 0.0121 (0.01)
Self-employed	0.0740*** (0.01)	0.0706*** (0.01)	0.0706*** (0.01)	0.1337** (0.06)	0.0625*** (0.01)	0.0161* (0.01)	0.0094 (0.01)	0.2517*** (0.06)	0.0030 (0.01)	0.0030 (0.01)
12–14 years	0.0655*** (0.01)	0.0663*** (0.01)	0.0663*** (0.01)	0.0938* (0.05)	0.0512*** (0.01)	0.0505*** (0.01)	0.0539*** (0.01)	- 0.0389 (0.05)	0.0379*** (0.01)	0.0379*** (0.01)
16 years	0.1001*** (0.01)	0.0978*** (0.01)	0.0978*** (0.01)	0.1184** (0.05)	0.0848*** (0.01)	0.0565*** (0.01)	0.0634*** (0.01)	- 0.0656 (0.05)	0.0398*** (0.01)	0.0398*** (0.01)
> 16 years	0.0860*** (0.01)	0.0822*** (0.01)	0.0822*** (0.01)	0.1072 (0.07)	0.0722*** (0.01)	0.0266** (0.01)	0.0351*** (0.01)	- 0.1842*** (0.07)	0.0150 (0.01)	0.0150 (0.01)
1001–3000 Yuan	0.0244*** (0.01)	0.0252*** (0.01)	0.0252*** (0.01)	- 0.0002 (0.05)	0.0238*** (0.01)	0.0055 (0.01)	0.0044 (0.01)	0.0856* (0.05)	- 0.0021 (0.01)	- 0.0021 (0.01)

Table 16 continued

	Movie					Karaoke				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
3001–5000 Yuan	0.0415*** (0.01)	0.0478*** (0.01)	0.0498 (0.06)	0.0373*** (0.01)	0.0220** (0.01)	0.0276*** (0.01)	0.1696*** (0.06)	0.0250*** (0.01)	0.1696*** (0.06)	0.0250*** (0.01)
> 5000 Yuan	0.0777*** (0.01)	0.0772*** (0.01)	0.0985 (0.07)	0.0674*** (0.01)	0.0371*** (0.01)	0.0522*** (0.01)	0.3163*** (0.07)	0.0423*** (0.01)	0.3163*** (0.07)	0.0423*** (0.01)
Shanghai		0.1042*** (0.01)	0.0260** (0.01)	- 0.1575*** (0.04)	0.0399*** (0.01)	- 0.0360*** (0.01)	- 0.0884*** (0.04)	- 0.0860*** (0.01)	- 0.0884*** (0.04)	- 0.0860*** (0.01)
Hangzhou		0.0639*** (0.01)	0.0348*** (0.03)	- 0.1226*** (0.01)	0.0406*** (0.01)	0.0585*** (0.01)	0.0069 (0.03)	0.0332*** (0.01)	0.0069 (0.03)	0.0332*** (0.01)
Beijing		0.1640*** (0.01)	0.0914*** (0.03)	- 0.0592* (0.01)	0.1115*** (0.01)	- 0.0349*** (0.01)	- 0.1070*** (0.03)	- 0.0971*** (0.01)	- 0.1070*** (0.03)	- 0.0971*** (0.01)
Guangzhou		- 0.0044 (0.01)	- 0.0330*** (0.03)	- 0.1720*** (0.01)	- 0.0386*** (0.01)	- 0.0194* (0.01)	- 0.0586* (0.03)	- 0.0203* (0.01)	- 0.0586* (0.03)	- 0.0203* (0.01)
Nanjing		- 0.0292** (0.01)	- 0.0282** (0.01)	- 0.1651*** (0.03)	- 0.0202 (0.01)	- 0.0782*** (0.01)	- 0.1102*** (0.03)	- 0.0831*** (0.01)	- 0.1102*** (0.03)	- 0.0831*** (0.01)
Changsha		0.0591*** (0.01)	0.0099 (0.02)	- 0.0685*** (0.01)	0.0236** (0.01)	- 0.0262** (0.01)	- 0.0592*** (0.02)	- 0.0584*** (0.01)	- 0.0592*** (0.02)	- 0.0584*** (0.01)
Xian		0.1144*** (0.01)	0.0666*** (0.01)	- 0.0044 (0.02)	0.0617*** (0.01)	0.0688*** (0.01)	0.0298 (0.02)	0.0387*** (0.01)	0.0298 (0.02)	0.0387*** (0.01)
Wuhan		0.0375*** (0.01)	- 0.0233** (0.01)	- 0.0644*** (0.01)	- 0.0037 (0.01)	- 0.0427*** (0.01)	- 0.0983*** (0.01)	- 0.0867*** (0.01)	- 0.0983*** (0.01)	- 0.0867*** (0.01)
Chengdu		0.1522*** (0.01)	0.0790*** (0.01)	0.0387*** (0.01)	0.0792*** (0.01)	0.0108 (0.01)	- 0.0466*** (0.01)	- 0.0467*** (0.01)	- 0.0466*** (0.01)	- 0.0467*** (0.01)
Tianjin		0.0038 (0.01)	- 0.0283** (0.01)	- 0.0548*** (0.01)	- 0.0261* (0.01)	- 0.0539*** (0.01)	- 0.0715*** (0.01)	- 0.0583*** (0.01)	- 0.0715*** (0.01)	- 0.0583*** (0.01)

Table 16 continued

	Movie					Karaoke				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Kunming		0.0809*** (0.01)	0.0351*** (0.01)	0.0115 (0.01)	0.0371*** (0.01)		0.0120 (0.01)	- 0.0208* (0.01)	- 0.0277*** (0.01)	- 0.0246*** (0.01)
Hefei		0.1478*** (0.01)	0.0886*** (0.01)	0.0842*** (0.01)	0.0925*** (0.01)		0.0514*** (0.01)	0.0094 (0.01)	0.0028 (0.01)	- 0.0079 (0.01)
Male*city-income				0.0283*** (0.01)					- 0.0195*** (0.01)	
Age 18–25*city-income				0.0398** (0.02)					0.0114 (0.02)	
Age 26–40*city-income				0.1056*** (0.02)					0.0672*** (0.02)	
Age 41–60*city-income				0.1205*** (0.02)					0.1097*** (0.02)	
Age > 60*city-income				0.1202*** (0.03)					0.0934*** (0.03)	
Student*city-income				0.0618*** (0.02)					0.0084 (0.02)	
Employee*city-income				0.0049 (0.01)					- 0.0259* (0.01)	
Self-employed*city-income				- 0.0171 (0.01)					- 0.0654*** (0.01)	
12–14 years*city-income				- 0.0078 (0.01)					0.0250* (0.01)	
16 years*city-income				- 0.0057 (0.01)					0.0349** (0.01)	

Table 16 continued

	Movie					Karaoke				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
> 16 years*city-income				- 0.0074 (0.02)					0.0576*** (0.02)	
1001–3000 Yuan*city-income				0.0067 (0.01)					- 0.0221* (0.01)	
3001–5000 Yuan*city-income				- 0.0004 (0.02)					- 0.0385*** (0.02)	
> 5000 Yuan*city-income				- 0.0057 (0.02)					- 0.0702*** (0.02)	
Frequency					- 0.0241*** (0.01)					0.0004 (0.01)
Time					0.0084* (0.01)					- 0.0050 (0.01)
Media					- 0.1038*** (0.01)					- 0.0067 (0.01)
Performance					0.0288*** (0.01)					0.0601*** (0.01)
Online					0.0213*** (0.00)					0.0997*** (0.00)
Karaoke					0.1321*** (0.01)					
Craft					- 0.0348*** (0.01)					- 0.0378*** (0.01)
Movie										0.1348*** (0.01)

Table 16 continued

	Movie					Karaoke				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Survey location dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,586	42,626	40,586	40,586	37,944	40,582	42,623	40,582	40,582	37,944
Adjusted R^2	0.052	0.017	0.060	0.061	0.088	0.020	0.010	0.029	0.032	0.060

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 17 LPM: online

	Online				
	(1)	(2)	(3)	(4)	(5)
Male	0.0359*** (0.00)		0.0324*** (0.00)	0.0943*** (0.03)	0.0323*** (0.01)
Age 18–25	– 0.0374*** (0.01)		– 0.0399*** (0.01)	– 0.1203* (0.06)	– 0.0406*** (0.01)
Age 26–40	– 0.0570*** (0.01)		– 0.0588*** (0.01)	– 0.1552** (0.08)	– 0.0576*** (0.01)
Age 41–60	– 0.1368*** (0.01)		– 0.1337*** (0.01)	– 0.1549* (0.08)	– 0.1218*** (0.01)
Age > 60	– 0.2415*** (0.02)		– 0.2374*** (0.02)	– 0.5847*** (0.10)	– 0.2176*** (0.02)
Student	0.0615*** (0.01)		0.0609*** (0.01)	0.3151*** (0.07)	0.0335*** (0.01)
Employee	0.0372*** (0.01)		0.0345*** (0.01)	0.1834*** (0.06)	0.0227** (0.01)
Self-employed	0.0157 (0.01)		0.0072 (0.01)	0.1805*** (0.06)	– 0.0028 (0.01)
12–14 years	0.0268*** (0.01)		0.0272*** (0.01)	– 0.0181 (0.06)	0.0130 (0.01)
16 years	0.0686*** (0.01)		0.0668*** (0.01)	0.1560*** (0.05)	0.0445*** (0.01)
> 16 years	0.0492*** (0.01)		0.0522*** (0.01)	0.2541*** (0.07)	0.0346*** (0.01)
1001–3000 Yuan	0.0078 (0.01)		0.0038 (0.01)	0.1228** (0.05)	0.0070 (0.01)
3001–5000 Yuan	– 0.0164* (0.01)		– 0.0162* (0.01)	0.0967 (0.06)	– 0.0198* (0.01)
> 5000 Yuan	– 0.0047 (0.01)		0.0014 (0.01)	0.0159 (0.07)	– 0.0082 (0.01)
Shanghai		– 0.0118 (0.01)	– 0.0607*** (0.01)	0.0626 (0.04)	– 0.0670*** (0.01)
Hangzhou		– 0.0766*** (0.01)	– 0.0846*** (0.01)	0.0097 (0.04)	– 0.1063*** (0.01)
Beijing		– 0.0094 (0.01)	– 0.0423*** (0.01)	0.0553 (0.03)	– 0.0349*** (0.01)
Guangzhou		– 0.0381*** (0.01)	– 0.0344*** (0.01)	0.0525 (0.03)	– 0.0459*** (0.01)
Nanjing		– 0.0722*** (0.01)	– 0.0684*** (0.01)	0.0084 (0.03)	– 0.0652*** (0.01)
Changsha		– 0.0119 (0.01)	– 0.0324*** (0.01)	0.0126 (0.02)	– 0.0446*** (0.01)

Table 17 continued

	Online				
	(1)	(2)	(3)	(4)	(5)
Xian		– 0.0645*** (0.01)	– 0.1010*** (0.01)	– 0.0618*** (0.02)	– 0.1185*** (0.01)
Wuhan		0.0280** (0.01)	0.0005 (0.01)	0.0199 (0.01)	– 0.0018 (0.01)
Chengdu		0.0095 (0.01)	– 0.0428*** (0.01)	– 0.0264* (0.01)	– 0.0491*** (0.01)
Tianjin		– 0.1204*** (0.01)	– 0.1431*** (0.01)	– 0.1311*** (0.01)	– 0.1421*** (0.01)
Kunming		– 0.0136 (0.01)	– 0.0309*** (0.01)	– 0.0236* (0.01)	– 0.0445*** (0.01)
Hefei		0.0919*** (0.01)	0.0645*** (0.01)	0.0566*** (0.01)	0.0401*** (0.01)
Male*city-income				– 0.0166** (0.01)	
Age 18–25*city-income				0.0221 (0.02)	
Age 26–40*city-income				0.0264 (0.02)	
Age 41–60*city-income				0.0065 (0.02)	
Age > 60*city-income				0.0949*** (0.03)	
Student*city-income				– 0.0682*** (0.02)	
Employee*city-income				– 0.0392*** (0.01)	
Self-employed*city-income				– 0.0457*** (0.02)	
12–14 years*city-income				0.0120 (0.01)	
16 years*city-income				– 0.0246* (0.01)	
> 16 years*city-income				– 0.0531*** (0.02)	
1001–3000 Yuan*city-income				– 0.0323** (0.01)	
3001–5000 Yuan*city-income				– 0.0309* (0.02)	
> 5000 Yuan*city-income				– 0.0058 (0.02)	

Table 17 continued

	Online				
	(1)	(2)	(3)	(4)	(5)
Frequency					0.0251*** (0.01)
Time					0.0101* (0.01)
Media					0.0351*** (0.01)
Performance					– 0.0434*** (0.01)
Movie					0.0237*** (0.01)
Karaoke					0.1090*** (0.01)
Craft					0.0223*** (0.01)
Survey location dummies	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes
Observations	40,594	42,637	40,594	40,594	37,944
Adjusted R^2	0.024	0.012	0.032	0.034	0.045

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

SEM result

See Table 18.

Table 18 SEM

Latent var.	
Male	– 0.0085*** (0.00)
Age 18–25	– 0.0164*** (0.01)
Age 26–40	– 0.0164** (0.01)
Age 41–60	– 0.0190*** (0.01)
Age > 60	0.0165* (0.01)
Student	0.0436*** (0.01)
Employee	– 0.0111**

Table 18 continued

	(0.00)
Self-employed	– 0.0089*
	(0.01)
12–14 years	0.0193***
	(0.00)
16 years	0.0744***
	(0.01)
> 16 years	0.1079***
	(0.01)
1001–3000 Yuan	– 0.0066
	(0.00)
3001–5000 Yuan	0.0105**
	(0.01)
> 5000 Yuan	0.0405***
	(0.01)
Shanghai	– 0.0115*
	(0.01)
Hangzhou	– 0.0317***
	(0.01)
Beijing	– 0.0156**
	(0.01)
Guangzhou	– 0.0513***
	(0.01)
Nanjing	– 0.0889***
	(0.01)
Changsha	– 0.0618***
	(0.01)
Xian	– 0.0752***
	(0.01)
Wuhan	– 0.0306***
	(0.01)
Chengdu	– 0.1021***
	(0.01)
Tianjin	– 0.0616***
	(0.01)
Kunming	– 0.0362***
	(0.01)
Hefei	0.0343***
	(0.01)
Survey location dummies	Yes
Constant	Yes
Measurement	
Frequency	

Table 18 continued

Latent var.	1.0000 (.)
Time latent var.	1.6607*** (0.06)
Media latent var.	0.7061*** (0.04)
Performance latent var.	0.2634*** (0.03)
Craft latent var.	0.1590*** (0.03)
Movie latent var.	0.2600*** (0.05)
Karaoke latent var.	0.2617*** (0.04)
Online latent var.	0.4161*** (0.04)
Constant	Yes
Observations	37,944

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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