

Cultural Consumption in Major Chinese Cities

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Abstract We study the socio-economic determinants of cultural consumption 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 for a broad range of cultural goods. There are also some exceptions. Interestingly, we also find a U-shaped relation between cultural participation and city development for free and publicly supplied services. Moreover, the impact of education, and to some extent also income, is weaker in richer cities. These findings contribute to the understanding of China's key policy objective to promote equal access to cultural goods to all citizens.

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

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 museum 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, both to promote 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 benefit from cultural goods 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 consumption and participation in China. Specifically, we address the following questions: Do educated and high income people consume a disproportional amount of cultural goods, as is the case in high income countries? Do the determinants of consumption depend on the type of cultural good consumed? 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 consumption. This holds for the main cultural indicators studied in the literature (museum, art gallery and art performance).

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

2. The survey covers a broad range of cultural activities that include highbrow and popular cultures as well as free and for profit (private) cultural goods. Cultural consumption shares similar determinants for a variety of highbrow and popular goods. There are also some exceptions. Income does not influence media consumption (books and TV) or the consumption of online culture. Although high school and college education have a positive impact on all cultural goods, education above a college degree increases further consumption for highbrow cultural goods but not for popular ones.
3. The 13 Chinese cities in the sample covers the main geographic regions of China with a wide range of economic development. We find much variations across regions in cultural participation. For free public cultural goods, 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 the consumption of non-public cultural goods.
4. When we split the 13 cities into two groups according to mean income, we find that education, and to some extent also income, have a lower impact on the consumption of public cultural goods in rich cities relative to poor ones.

The elitism hypothesis holds within the 13 Chinese cities. Across cities, the picture is different. To start, for public cultural goods we find the opposite of the elitism hypothesis: the impact of education and income is weaker in rich cities. Moreover, the differences in cultural consumption 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 consumption. These findings suggest that economics 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, the measures of cultural participation and cultural consumption, and presents summary statistics. Section 4 motivates 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 its citizen an access to culture. 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 from a wide range of countries 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 the its government role in the provision of free public cultural goods and also because of the wide differences in economic development within and across geographic regions.

2.1 Cultural production and cultural policy in China

Although China has witnessed over the past 40 years great progress in economic and social development, growth of the cultural sector is more recent. That being said, the cultural sector has been expanding at a fast rate of 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 five-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 significant investments in public cultural

² According to China's official statistics, the value-added of culture (including 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 percent.

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

Table 1: Cultural Consumption in China in 2005-2013: Urban versus rural

| Year | Urban Households | | | | Rural Households | | | |
|------|--|-----------------|-----------------------------------|---|------------------|-----------------------------------|--|--|
| | Per capita cultural consumption (yuan/year) ¹ | Growth rate (%) | Share of cultural consumption (%) | Per capita cultural consumption (yuan/year) | Growth rate (%) | Share of cultural consumption (%) | | |
| 2005 | 1097.5 | N/A | 13.8 | 295.5 | N/A | 13.8 | | |
| 2006 | 1203 | 9.61 | 13.8 | 305.1 | 3.25 | 12.6 | | |
| 2007 | 1329.2 | 10.49 | 13.3 | 305.7 | 0.20 | 11.1 | | |
| 2008 | 1358.3 | 2.19 | 12.1 | 314.5 | 2.88 | 10 | | |
| 2009 | 1472.8 | 8.43 | 12 | 340.6 | 8.30 | 9.7 | | |
| 2010 | 1627.6 | 10.51 | 12.1 | 366.7 | 7.66 | 9.5 | | |
| 2011 | 1851.7 | 13.77 | 12.2 | 396.4 | 8.10 | 8.4 | | |
| 2012 | 2033.5 | 9.82 | 12.2 | 445.5 | 12.39 | 8.2 | | |
| 2013 | 2294 | 12.81 | 12.7 | 485.6 | 9.00 | 7.9 | | |

Source: National Bureau of Statistics of PRC, Propaganda Department of the CPC Central Committee

¹The measure was computed from a Chinese household consumption survey. It includes spending on culture and education. In 2013, education accounted for about 30% of the total. Breakdown is not available in previous years.

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 consists of two parts: public cultural services and cultural industries. Public cultural services are non-profit, publicly financed, noncompetitive, 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 government are involved in the provision of free cultural goods through the development of cultural infrastructure. The fraction of public subsidies financed by the central government varies across regions. Take the case of museum. The fraction is typically lower in the richer provinces of the east (20%), medium in central provinces (50%) 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 rates) 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. See also Wang (2014). In urban areas, cultural consumption has remained fairly constant as a fraction of total consumer expenditure. During that period, income has increased at spectacular pace. It is amazing that cultural consumption has kept up with total consumption. This is not true, however, for rural areas (which are not covered in this paper). The last column in Table 1 shows that there has been a significant decrease in the share of cultural consumption in overall consumption. That being said, cultural consumption has increased at a fast rate in rural area as well.

Table 2 shows that the share of cultural products as a fraction of GDP has increased from 2.15% to 3.76% over the period 2004-2014. The Table also reports the count of cultural infrastructure (library, cultural center, museum) per million habitant over the period 2004-2014. Massive investments have doubled the number of museums. The number of libraries and cultural centers have slightly increased.

2.2 Cultural consumption and cultural participation

The large literature on the socio-demographic determinants of cultural participation covers a broad range of cultural goods including arts performance, museum, library, and also popular culture. Most studies look at individual countries or regions such as Brazil (Diniz and Machado, 2011), Israel (Katz-Gerro et al,

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. In fact, public cultural services and cultural industries are not entirely independent of each other.

Table 2: Cultural development in China 2004-2014

| Year | Public Library per million people | Cultural centers per million people | Museums per million people | Cultural production as a share of GDP |
|------|--------------------------------------|--|-------------------------------|--|
| 2004 | 2.09 | 31.85 | 1.19 | 2.15 |
| 2005 | 2.11 | 31.81 | 1.21 | 2.3 |
| 2006 | 2.11 | 30.50 | 1.23 | 2.37 |
| 2007 | 2.12 | 30.73 | 1.30 | 2.43 |
| 2008 | 2.12 | 30.99 | 1.43 | 2.43 |
| 2009 | 2.14 | 31.44 | 1.69 | 2.52 |
| 2010 | 2.15 | 32.35 | 1.82 | 2.75 |
| 2011 | 2.19 | 32.42 | 1.97 | 2.85 |
| 2012 | 2.27 | 32.40 | 2.27 | 3.48 |
| 2013 | 2.29 | 32.53 | 2.55 | 3.63 |
| 2014 | 2.28 | 32.48 | 2.67 | 3.76 |

Source: National Bureau of Statistics of PRC, Propaganda Department of the CPC Central Committee

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 24 European countries. For high-income and Western countries, the literature has established robust results about the relationship between socio-demographic 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.

There is a wide agreement in the literature that arts audiences are elite in terms of education, income and profession (see the works cited above and also DiMaggio and Mukhtar (2004); Borgonovi (2004); O’Hagan (1996); Notten et al (2015) and Seaman (2006) for a review).⁶ The elite hypothesis holds for a wide range of cultural goods 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), museum (Brida et al, 2016). Due to limitations on survey questionnaires, most studies focus on a single, or on a narrow range of, cultural indicators. See Kirchberg and Kuchar (2014) for a review of the survey questions used in studies of cultural participation. Our survey offers the unique opportunity to study a wide range of cultural activities including both highbrow and popular goods.

The effect of education on cultural participation is typically large. In his review, Seaman (2006) reports early studies of the education gap, which is the participation differential between college graduates and high school dropouts. For theater attendance in the United States, the education gap is between a 55 percent and 21-25 percent depending on the study. Muñiz et al (2017) and Falk and Katz-Gerro (2016) also report large effects of education. See discussion in Appendix 7.1.

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 46800 individuals were approached and 43932 completed the survey. The survey was carried out in a diverse set of public areas such as urban commercial center (shopping plaza and square etc.), public leisure space (e.g. park, sport hall etc.), and public cultural space (e.g. library, museum, gallery, cultural center etc.).

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. Importantly, it does not cover rural areas. Another issue is a consequence of the sampling design. The respondent population is likely not representative of urban population.⁸ However, we argue in the model section that although this will

⁶ There is also a literature that studies the demand for the 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 goods.

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 8 and 9 in the Appendix report age distributions amongst survey respondents and within the entire Chinese population. (We could not find age distribution for urban area only. This is not crucial for our main point.) We tried to

likely bias the estimate of the average level of consumption, which is not central to this work, it is not clear why it should bias the marginal effects of demographic variables, which are the important effects here. Still, this is an important feature of the data to keep in mind when interpreting the results. The sample of respondents is representative of the urban population that frequents main public areas.

The questionnaire asked standard questions about demographics (gender, age, education, income), questions about participation in public and private cultural activities and finally questions about cultural capital. These questions are standard in other National surveys used to measure cultural participation (Kirchberg and Kuchar, 2014). Cultural consumption is notoriously difficult to measure and the literature has made mixed progress in developing widely accepted indicators (Katz-Gerro, 2004, 2011). That being said, the questions used in our survey are very similar to questions used in other national surveys with the distinction that our survey covers a wide range of cultural indicators including free and non-free culture, highbrow and mass culture, individual and collective activities, and generational differences in users across activities.

3.2 City characteristics

Table 3 summarizes important characteristics of the 13 cities included in the survey. The cities cover most regions of China (column 2). Most selected cities are provincial capitals. All cities are regional political, economic and cultural centers.⁹ Table 3 reveals that the selected cities are also amongst the most populated cities in China. The sample includes seven of the ten largest cities in China and half of the twenty largest cities.¹⁰ The average population across all 13 cities is close to 12 million habitants. The smallest city in the sample has 6.6 millions habitants 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 5 reports the average city income in each city. We will use this as a measure of economic development in the analysis. The last three columns in Table 3 show that there are important variations in the availability of public cultural goods across cities. For example, the number of public cultural spaces varies greatly across the 13 cities. This is because both central and local governments are involved in producing free public cultural goods. The proportion of total subsidy for cultural development that initiates from the central government varies with economic development.

3.3 Measures of cultural participation

Table 4 report the measures of cultural consumption asked in the survey. The first three measures covers free highbrow culture such as going to a public library, museum, cultural center or art gallery. 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 participation (monthly visits and time per visit). These two variables are categorical with four options. Table 5 reports the share of respondents who fall in the sixteen possible crossed answers. More than 47% of respondents go between 1-4 times to a public cultural activity and stay between half an hour to two hours each time.

We created a dummy variable for each intensity measures. For ‘Frequency’, the dummy is equal to one if the respondent attends public cultural places five times or more per month. This is the case for 23% of respondents. For ‘Time’, the dummy is equal to one if the respondent spend an hour or more per visit. This is the case for 60% of respondents. In the core of the analysis, we use these binary responses (instead of the categorical responses) because this greatly simplify the exposition without loss of major insights. In a robustness section, we show that the main results hold when use the richer information set.

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

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.

⁹ All cities belongs to mainland China. The 13 cities consist of three municipalities which are directly under the jurisdiction of the central government and ten provincial capital cities.

¹⁰ Rolando Y. Wee, 20 Biggest Cities In China, <http://www.worldatlas.com/articles/20-biggest-cities-in-china.html>, April 13, 2017.

Table 3: City characteristics

| City | Region | Population rank ^a | Population (million) | Per capita income (yuan/year) | Per capita cultural share of spending (%) | Regional share of cultural expenditure (%) | gvt share of cultural expenditure (%) | Public places (per million habitant) ^b |
|-----------|--------|------------------------------|----------------------|-------------------------------|---|--|---------------------------------------|---|
| Shanghai | east | 1 | 24.26 | 47710 | 16.16 | 1.75 | | 7.05 |
| Hangzhou | east | 9 | 8.89 | 44632 | 9.3 | 2.52 | | 9.78 |
| Beijing | east | 2 | 21.52 | 43910 | 14.89 | 3.62 | | 10.04 |
| Guangzhou | east | 3 | 8.42 | 42954.6 | 12.8 | 1.67 | | 7.24 |
| Nanjing | east | 13 | 8.22 | 42568 | 15.7 | 3.35 | | 10.1 |
| Changsha | middle | 25 | 7.31 | 36826.4 | 14.22 | 1.39 | | 5.2 |
| Wuhan | middle | 8 | 10.34 | 33270.4 | 9.68 | 1.48 | | 8.51 |
| Chengdu | west | 6 | 14.43 | 32665 | 11.92 | N/A | | 5.34 |
| Tianjin | east | 5 | 15.17 | 31506 | 8.29 | 1.66 | | 4.75 |
| Kunming | west | 28 | 6.63 | 31294.9 | 16.07 | 0.95 | | 8 |
| Xian | west | 15 | 8.63 | 30714.7 | 12.6 | 1.96 | | 16.11 |
| Hefei | middle | 27 | 7.70 | 29347.6 | 9.72 | 1.36 | | 5.97 |
| Zhengzhou | middle | 17 | 9.38 | 29095 | 9.86 | 1.54 | | 6.4 |
| Mean | | | 11.60 | 36653.4 | 19.13 | 1.94 | | 8.04 |
| Std.Dev | | | 5.64 | 6718.23 | 23.62 | 0.82 | | 3.05 |

Source: 2015 Statistical Yearbook of 13 sample cities.

^a Source: 'More than 100 Chinese cities now above 1 million people', <https://www.theguardian.com/cities/2017/mar/20/china-100-cities-populations-bigger-liverpool>.

^b Count of public libraries, cultural centers and museums (including state-owned and private).

Table 4: Cultural participation survey questions

| Name | Question | Type | Mean |
|-------------|---|-----------|------|
| Public | Have you attended any public cultural activities (such as public library, state-owned museum, cultural center or art gallery) in the past year? | binary | 0.94 |
| Frequency | How many times do you attend public cultural activities each month? | bin./cat. | 0.23 |
| Time | How much time do you spend in public cultural activities per visit? | bin./cat. | 0.60 |
| | Have you consumed the following cultural goods in the past year: | | |
| Media | -books or magazines or watching TV or videos? | binary | 0.67 |
| Movie | -cinema? | binary | 0.65 |
| Performance | -theater or art performance such as drama, opera, dance, concert...? | binary | 0.21 |
| Karaoke | -recreations entertainment such as karaoke, internet bar or cyber coffee? | binary | 0.33 |
| Craft | -cultural creative goods? | binary | 0.17 |
| Online | -online cultural goods such as e-books and games? | binary | 0.39 |

Table 5: Joint Distribution of Frequency and Time

| Frequency of Participation | Time of Participation | | | | |
|----------------------------|-----------------------|------------|-------------|-----------|-------|
| | <30 mins | 30-60 mins | 60-120 mins | >120 mins | Total |
| <1 time | 3.26 | 4.49 | 4.12 | 1.52 | 13.38 |
| 1-4 times | 4.67 | 21.75 | 25.54 | 11.17 | 63.14 |
| 5-8 times | 0.68 | 3.37 | 6.61 | 4.65 | 15.32 |
| >8 times | 0.45 | 0.97 | 1.95 | 4.79 | 8.16 |
| Total | 9.07 | 30.58 | 38.22 | 22.14 | 100 |

attended an art performance, 33% have participated to recreational entertainment such as karaoke, 17% have done or bought some craft, and 39% have used the Internet for gaming or e-books.

Table 6 reports the correlation between the nine measures of cultural consumption. The three measures of public consumption are positively correlated with each other and also with the measures of private cultural consumption (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 craft tend to be negatively correlated with the remaining non-public measures of cultural consumption.

Table 6: Correlations across Cultural Activities (all observations)

| | Public | Freq | Time | Media | Movie | Perf. | Karaoke | Craft |
|-----------|--------------------|--------------------|------|-------|-------|-------|---------|-------|
| Frequency | 0.0941 (0.0000) | | | | | | | |
| Time | 0.1236 (0.0000) | 0.1850 (0.0000) | | | | | | |

| | | | | | | | | |
|-------------|--------------------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| Media | 0.1274 (0.0000) | 0.0627 (0.0000) | 0.1269 (0.0000) | | | | | |
| Movie | 0.0490 (0.0000) | -0.0123 (0.0102) | 0.0154 (0.0013) | -0.0917 (0.0000) | | | | |
| Performance | 0.0141 (0.0031) | 0.0611 (0.0000) | 0.0253 (0.0000) | -0.0855 (0.0000) | 0.0301 (0.0000) | | | |
| Karaoke | 0.0296 (0.0000) | 0.0072 (0.1326) | 0.0018 (0.7039) | -0.0155 (0.0012) | 0.1633 (0.0000) | 0.0459 (0.0000) | | |
| Craft | 0.0360 (0.0000) | 0.0456 (0.0000) | 0.0333 (0.0000) | -0.0548 (0.0000) | -0.0197 (0.0000) | 0.1754 (0.0000) | -0.0198 (0.0000) | |
| Online | 0.0569 (0.0000) | 0.0337 (0.0000) | 0.0260 (0.0000) | 0.0504 (0.0000) | 0.0635 (0.0000) | -0.0389 (0.0000) | 0.1181 (0.0000) | 0.0064 (0.1791) |

Table 10 in the 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

Our approach follows the literature on cultural participation. The socio-economic characteristics of audience and participants are used to explain cultural participation. We consider variations of the general specification:

$$X_{c,i}^m = \beta_0^m + \beta_c^m + \sum_{j=1..5} \sum_{d=2..d_j} \beta_{j,d}^m y_{j,d} + \sum_{j=1..5} \sum_{d=2..d_j} \beta_{j,d,r}^m y_{j,d} I(c \in R) + \epsilon_{c,i} \quad (1)$$

where X^m for $m = 1..9$ is a measure of cultural consumption, i is a respondent index, and c a city index. Respondent i was interviewed in city c . There are two demographic variables, gender and age, and 3 socio-economic variables, occupation, education and income. Variable j can take d_j values. Variables $y_{j,d}$ are dummies described in Table 8 in the Appendix. Variable $I(c \in R)$ is a dummy taking value one if individual i lives in one of the rich cities.¹¹ 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 show in a robustness section 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 a female aged under 18, with less than 12 years of education, an income lower than 1000 Yuan, occupation ‘other’, and living in Zhengzhou. The reported coefficient estimates measure the impact of the categorical variables relative to this benchmark. Take the case where the variables in the second double sum are omitted. Coefficients estimates β_c^m pick up city fixed effects and $\beta_{j,d}^m$ for $d = 2..d_j$ the effect of demographic variable j . When the variables in the second double sum are included, $\beta_{j,d,r}^m$ for $d = 2..d_j$ picks up the effect of demographic variable j in rich cities.

Since all independent variables are categorical, we estimate equation (1) using a linear probability model (LPM). This is without loss of generality because the LPM delivers an unbiased estimates of the conditional probabilities in the absence of continuous variables (recall that age or income are measured with categorical variables). Also, none of our participation and consumption measures are count data, which means that we do not have to deal with the econometric issues addressed in Ateca-Amestoy (2008); Muñiz et al (2017).

We revisit the sample design. The population surveyed has not been selected to be a representative sample of the urban population. Clearly, the average level of cultural consumption from our sample may not be a valid estimate of average cultural consumption in urban ares. That is, coefficient β_0^m could be biased. But, it is not clear why the marginal effects, the $\beta_{j,d}^m$, should be biased. These coefficients

¹¹ We split the set of 13 cities into two groups using the median city income as cutoff (the split does not change if we use mean city income instead).

estimates differences across demographic groups. The estimated values should not be influenced by the fact that the sampling of demographic groups does not match the targeted population. The argument is even stronger for the $\beta_{j,d,r}^m$ which measure a difference in difference (the differential effect of demographic variables in richer cities).

We complement the LPM analysis with a Seemingly Unrelated Model (SEM) approach (Acock et al, 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 consumption 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 first question.

5 Results

Tables 11-15 report the results of the LPM for the 9 participation variables. Column (1) corresponds to the model with city dummies and $y_{j,d}$. Column (2) includes only socio-economic dummies $y_{j,d}$ and column (3) only city dummies. Column (4) has all four variables in specification in equation (1).

The coefficient estimates do not change much between the two partial models and the model with both. The adjusted R^2 in the latter model is close to the sum of the R^2 in the partial models with the socio-economic 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 of the variations explained by the socio-economic variables. Thus, cultural participation varies at the city level for reasons that are not correlated with socio-economic factors.

To better visualize the results reported in Tables 11-15, Figures 1-7 plot the values of the coefficient estimates of main interest ($\beta_m^{j,d}$, β_c^m and $\beta_{j,d,r}^m$) with 95 percent confidence intervals. We do so for each cultural measure (each figure has 9 panels, one for each cultural measures). Each coefficient is measured relative to the omitted category.

5.1 Effect of education, income, age and occupation

Education increases consumption for all cultural indicators with a leveling effect at the level of post-graduate education for five categories (public, media, movie, karaoke, and online).¹² Education has the largest impact across all socio-economic variables. A post-graduate 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.

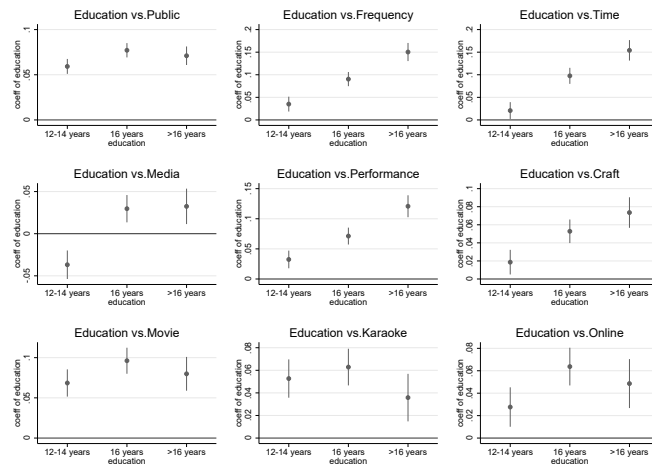


Fig. 1: Effect of Education on Cultural Consumption

¹² For some indicators, post-graduate education appear to lower participation but these differences are not significant.

Income increases consumption for all but two cultural goods (media and online). The impact of income, however, is smaller than education for the three public variables. For performance and art, however, education and income have about the same impact on consumption. For online consumption, there is no effect of income which is surprising. For media, income tends to decrease consumption. 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 consumption in China fits the consumption 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 cultural goods.

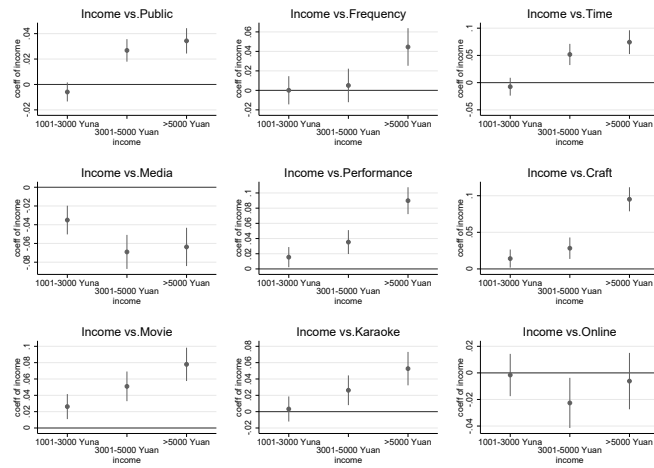


Fig. 2: Effect of Income on Cultural Consumption

Figure 3 plots the relationship between age and cultural participation. No clear pattern emerge across the nine cultural indicators. Cultural participation is decreasing with age for 3 measures (public, movie and online) and U-shaped for 4 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.

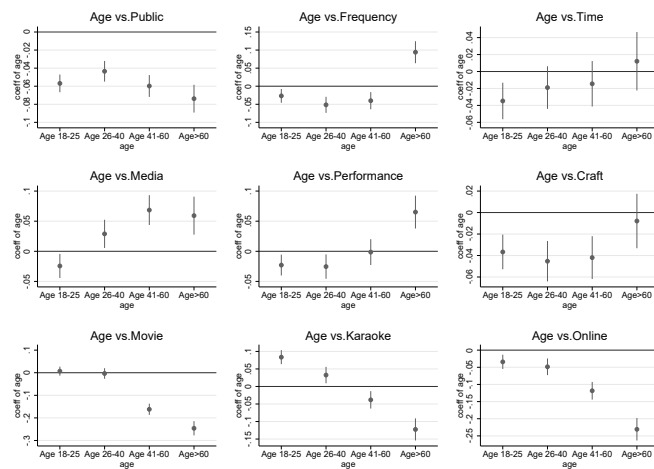


Fig. 3: Effect of Age on Cultural Consumption

Figure 4 presents the impact of occupation on participation. The omitted occupation is ‘others’ and the remaining three occupations (student, full-time employment, and self-employment) are presented in an arbitrary order. Occupations do not display systematic patterns across the nine cultural indicators with the exception of students. Students consume more of all cultural goods but performance and craft. The magnitude is large. The student effect comes on top of education and age.

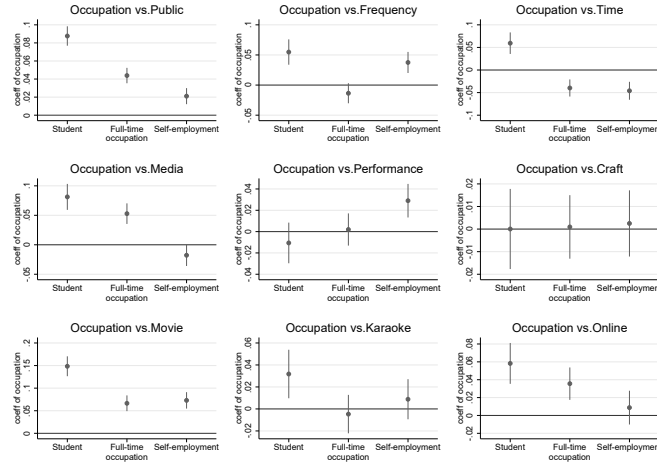


Fig. 4: Effect of Occupation on Cultural Consumption

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

5.2 Cultural consumption and development

Figure 5 reports the impact of the city dummies. The 12 cities are ordered by average income (using the city income 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 consumption across cities.

For all non-public indicators excluding art performance, these differences do not appear to be correlated with income. For highbrow culture (art performance and public cultural goods—library, museum and art galleries), however, the plots display a U-shape with much noise. Low consumption of public cultural goods is typically found in middle income cities. Note that all coefficients hold constant demographic characteristics. Thus, the impact of city income is not due to differences in personal income. Aggregating city information across all nine cultural indicators, as we do in the next Section, confirms the U-shape relationship of city income.

Note that the magnitude of the differences in cultural consumption across cities is of about the same magnitude as the impact of education and it is greater than income. Take the case of public cultural consumption. For frequency, most cities are within 10 percent of each other. Looking at figures 1, the difference across education categories is about 15 percent and looking at income the difference across income categories about 4 percent. Doing the same exercise for time, we find that cities are about 15 percent of each other while education generates a 15 percent gap and income a 7 percent gap.

Figures 6 and 7 display the differential effect of income and education in rich cities relative to poor ones. We supplement model (1) with variables that interact the rich city dummy with the demographic measures. Figures 6 and 7 report the interaction effect of education and income. The middle points in figure 6 and 7 reports the average effect. It is about the same value than the coefficients that were reported in figures 1 and 2. The two points on each side report the impact of education and income in rich and poor cities. The point estimates are reported in Table 11-15 column (4). For both education and income, we find a significant difference between poor and rich cities for public cultural goods (see the

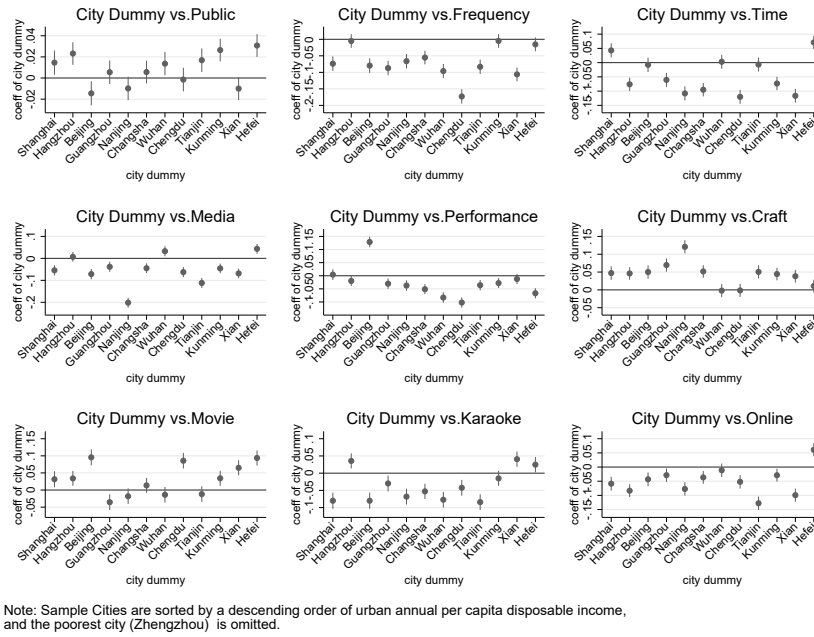


Fig. 5: City Fixed Effects (cities are ordered by descending income)

top three panels and note also that most of the interaction coefficients in Table 11-12 column (4) are significant). The elitism hypothesis is weaker in rich cities. This suggests that Chinese cultural policies are effective at attenuating the impact of city development on cultural consumption.

Looking at non-public cultural goods, we find the same attenuation effect of the elitism hypothesis for online cultural goods, but the relationship is reversed for performance and karaoke (the effect of income and education is stronger in rich cities) and there is no difference for the remaining four categories. This suggests that the elitism hypothesis holds both within and across cities only for performance and karaoke.

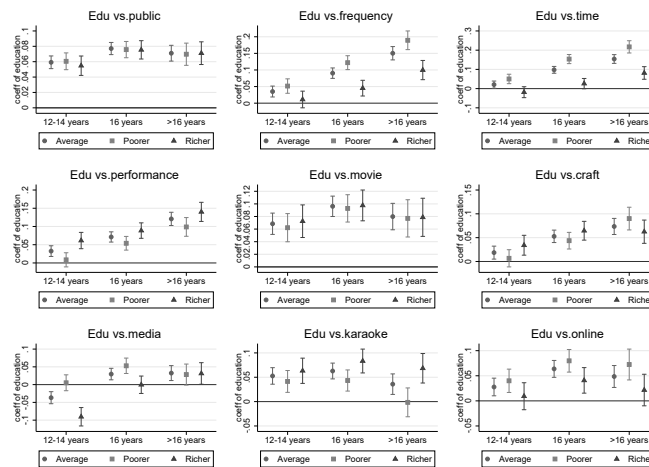


Fig. 6: Differential effect of education in rich cities

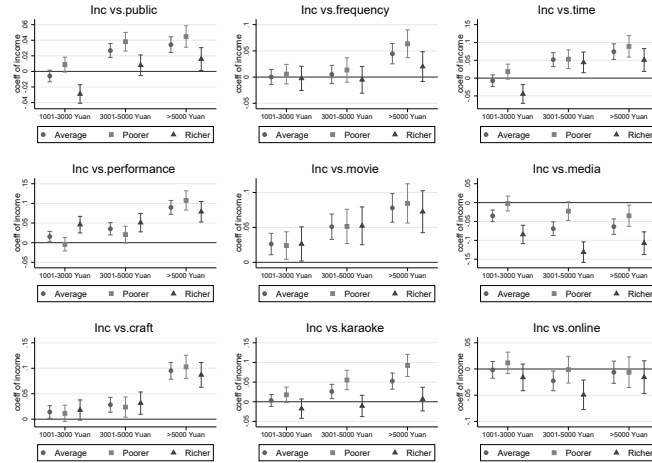


Fig. 7: Differential effect of income in rich cities

5.3 Are the marginal effects and city effects small?

The marginal effects of education and income on participation are small (5-15 percent) and the differences in participation across cities are also small (10-15 percent). 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 figures with results from similar studies. Appendix 7.1 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 Section 2.2 reported a large education gap in the United States. Appendix 7.1 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, take the study of Falk and Katz-Gerro (2016). We select this study because it is recent, uses a ‘frequency’ participation question similar to ours and reports differences in participation across 24 European countries. Appendix 7.1 reaches two conclusions: The marginal effect of education on cultural participation is smaller in China than in Europe. The differences in cultural participation across Chinese cities is smaller than the differences found across the 24 European countries. This evidence suggests that education differences, and economic inequalities across cities as well, 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 Appendix 7.4. 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 socio-economic variables on the latent variable. The patterns found in the LPM are confirmed in the SEM analysis. Education increases participation and the effect of education levels out for post graduate education. Income increases cultural participation. Student participate more in cultural activities. The other two occupations have a small positive effect on participation. Recall that the age relationships were mixed in LPM. In contrast, SEM suggests that respondents 40 years old and older tend to participate less.

Figure 9 reports the city effects from the SEM model. Most interestingly, we find a U-shape 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 in 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 interpreting a relationship found in a cross-section and there are other interpretations.

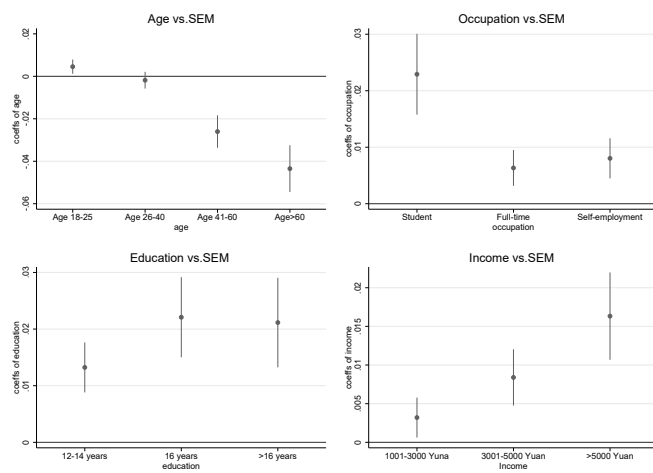


Fig. 8: Effect of main demographic variables from SEM

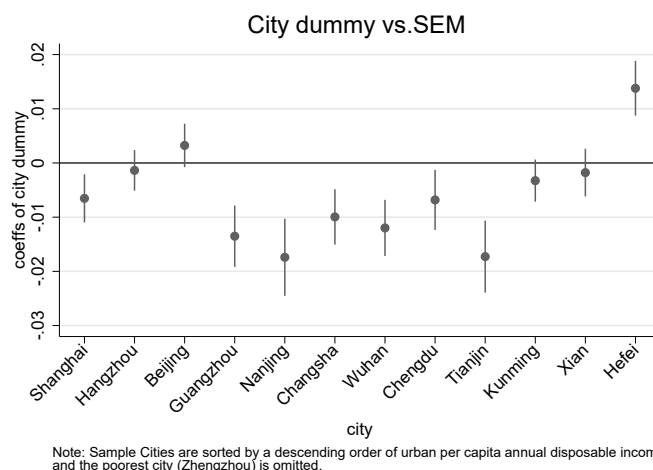


Fig. 9: City Fixed Effects from SEM (cities are ordered by descending income)

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 cultural goods 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 goods (library, museum and cultural center). We also find that cultural participation displays a U-shape relation against city development. Middle income cities tend to have lower cultural participation. This is true for highbrow culture and also when a 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 twenty 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 socio-economic groups and all regions have the same access to culture. Our evidence suggests this is the roughly the case in large urban centers where socio-economic 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 cultural consumption. 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 or within-China trend measurements.

It remains to be seen whether the same patterns hold for rural areas. Another limitation of this work is that the findings hold for the urban population that frequents public spaces. We have argued that this should not bias the marginal effects analyzed here but it will be important, once the data is available, to replicate the analysis for a representative sample of urban population. Moreover, this paper does not present any causal evidence that cultural policies do actually attenuate the impact of economic inequalities on cultural consumption inequalities. This is an important question that cannot be addressed with cross-section data. One would also want to identify the policy interventions that have had an impact on people's access to culture.

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7 Appendixes

7.1 Comparison of marginal effects with other countries

As discussed in Section 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, archeological 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.¹³ (e) Differences in estimation models, which are in part in response to the way 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 the levels of 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 consumption 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) early evidence discussed in Section 2.2. Muñiz 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 (see Table 6, p. 87) a 12 percent increase for primary education, 23 percent increase for high school education and 35 percent increase for university education. These figures are larger than the marginal effects reported in Figure 1.

Falk and Katz-Gerro (2016) use the EUROSTAT-SILC survey for 24 European countries. The survey asks participants 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 percent on average across the 24 countries. This is a large effect. In contrast, university education increases participation by only 5.6 to 6.5 percent in China. Similarly, high school education has a much larger impact on participation in Europe than in China.

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, public libraries, cultural centers | | | | |
| Time window | past 12 months | | | | | | monthly average in past year | | | | |
| Impact of education on frequency from ordered Probit | | none | 1-3 | 4-6 | 7-12 | >12 | | none | 1-4 | 5-8 | >8 |
| | High school education | -0.145 | 0.066 | 0.041 | 0.021 | 0.017 | 12-14 years | -0.018 | -0.015 | 0.017 | 0.016 |
| | University education | -0.353 | 0.113 | 0.108 | 0.066 | 0.066 | 16 years | -0.056 | -0.042 | 0.051 | 0.047 |
| | | | | | | | >16 years | -0.065 | -0.096 | 0.073 | 0.088 |
| | 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. | | | | |

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.”

¹³ 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).

(p. 146).¹⁴ Table 10 (p.159) reports large marginal effects: Greeks are 32 percent less, and Finish are 13 percent more, likely to participate than Germans. In contrast, we find a small range of variation in participation across 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).

¹⁴ 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)

7.2 Data description

Table 8: Summary of Demographic Variables

| Variables | Type | N | Mean |
|-----------------|--------|-------|------|
| Male | binary | 43456 | 0.49 |
| Age <=18 | binary | 43664 | 0.12 |
| Age 18-25 | binary | 43664 | 0.41 |
| Age 26-40 | binary | 43664 | 0.32 |
| Age 41-60 | binary | 43664 | 0.12 |
| Age >60 | binary | 43664 | 0.04 |
| Student | binary | 43492 | 0.39 |
| Full-time | binary | 43492 | 0.31 |
| Self-employment | binary | 43492 | 0.21 |
| Others | binary | 43492 | 0.1 |
| <12 years | binary | 43573 | 0.2 |
| 12-14 years | binary | 43573 | 0.21 |
| 16 years | binary | 43573 | 0.48 |
| >16 years | binary | 43573 | 0.11 |
| <=1000Yuan | binary | 42341 | 0.28 |
| 1001-3000Yuan | binary | 42341 | 0.25 |
| 3001-5000Yuan | binary | 42341 | 0.29 |
| >5000Yuan | binary | 42341 | 0.19 |

Table 9: Age distribution in Chinese population in 2014

| Age structure | 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 |

Source: 2014 National Sample Survey on Population Change.

Table 10: Income and cultural participation (for the 9 indicators) by city

| City | Income (yuan) | Public | Frequency | Time | Media | Movie | Performance | Karaoke | Craft | Online |
|-----------|---------------|--------|-----------|------|-------|-------|-------------|---------|-------|--------|
| Shanghai | 3976 | .96 | .24 | .72 | .67 | .68 | .26 | .3 | .2 | .4 |
| Hangzhou | 3719 | .96 | .29 | .57 | .72 | .64 | .23 | .39 | .18 | .34 |
| Beijing | 3659 | .93 | .25 | .66 | .63 | .74 | .39 | .3 | .2 | .4 |
| Guangzhou | 3580 | .94 | .21 | .61 | .68 | .57 | .21 | .31 | .2 | .38 |
| Nanjing | 3547 | .92 | .23 | .55 | .52 | .55 | .21 | .27 | .26 | .33 |
| Changsha | 3069 | .94 | .22 | .53 | .66 | .64 | .18 | .31 | .18 | .4 |
| Wuhan | 2773 | .95 | .21 | .65 | .74 | .62 | .16 | .3 | .13 | .43 |
| Chengdu | 2722 | .94 | .13 | .52 | .67 | .73 | .12 | .33 | .13 | .41 |
| Tianjin | 2626 | .95 | .21 | .64 | .62 | .59 | .19 | .26 | .17 | .31 |
| Kunming | 2608 | .96 | .29 | .57 | .67 | .65 | .21 | .34 | .17 | .4 |
| Xian | 2560 | .92 | .2 | .52 | .65 | .69 | .21 | .39 | .16 | .35 |
| Hefei | 2446 | .96 | .28 | .71 | .75 | .73 | .16 | .39 | .14 | .5 |
| Zhengzhou | 2425 | .92 | .27 | .61 | .71 | .57 | .22 | .33 | .12 | .42 |
| Mean | 3054.62 | .94 | .23 | .6 | .67 | .65 | .21 | .32 | .17 | .39 |
| Std.Dev | 559.68 | .02 | .04 | .07 | .06 | .07 | .06 | .04 | .04 | .05 |

7.3 LPM Result

Table 11: LPM for Public and Frequency

| | Public | | | | Frequency | | | |
|--------------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| Male | -0.01*** (0.00) | | -0.01*** (0.00) | -0.01* (0.00) | 0.01** (0.00) | | 0.01* (0.00) | 0.00 (0.01) |
| Age 18-25 | -0.06*** (0.00) | | -0.06*** (0.00) | -0.07*** (0.01) | -0.03*** (0.01) | | -0.03** (0.01) | -0.06*** (0.01) |
| Age 26-40 | -0.04*** (0.01) | | -0.04*** (0.01) | -0.06*** (0.01) | -0.05*** (0.01) | | -0.05*** (0.01) | -0.07*** (0.02) |
| Age 41-60 | -0.06*** (0.01) | | -0.06*** (0.01) | -0.07*** (0.01) | -0.04** (0.01) | | -0.04*** (0.01) | -0.08*** (0.02) |
| Age>60 | -0.07*** (0.01) | | -0.07*** (0.01) | -0.12*** (0.01) | 0.11*** (0.02) | | 0.09*** (0.02) | 0.07** (0.02) |
| Student | 0.09*** (0.01) | | 0.09*** (0.01) | 0.12*** (0.01) | 0.05*** (0.01) | | 0.05*** (0.01) | 0.07*** (0.01) |
| Full-time | 0.05*** (0.00) | | 0.04*** (0.00) | 0.07*** (0.01) | -0.01 (0.01) | | -0.01 (0.01) | -0.03* (0.01) |
| Self-employment | 0.02*** (0.00) | | 0.02*** (0.00) | 0.04*** (0.01) | 0.05*** (0.01) | | 0.04*** (0.01) | 0.03* (0.01) |
| 12-14 years | 0.06*** (0.00) | | 0.06*** (0.00) | 0.06*** (0.01) | 0.03*** (0.01) | | 0.04*** (0.01) | 0.05*** (0.01) |
| 16 years | 0.08*** (0.00) | | 0.08*** (0.00) | 0.08*** (0.01) | 0.09*** (0.01) | | 0.09*** (0.01) | 0.12*** (0.01) |
| >16 years | 0.07*** (0.01) | | 0.07*** (0.01) | 0.07*** (0.01) | 0.15*** (0.01) | | 0.15*** (0.01) | 0.19*** (0.01) |
| 1001-3000 Yuan | -0.01 (0.00) | | -0.01 (0.00) | 0.01 (0.00) | 0.00 (0.01) | | 0.00 (0.01) | 0.01 (0.01) |
| 3001-5000 Yuan | 0.03*** (0.00) | | 0.03*** (0.00) | 0.04*** (0.01) | 0.00 (0.01) | | 0.01 (0.01) | 0.01 (0.01) |
| >5000 Yuan | 0.03*** (0.01) | | 0.03*** (0.01) | 0.04*** (0.01) | 0.04*** (0.01) | | 0.04*** (0.01) | 0.06*** (0.01) |
| Shanghai | | 0.05*** (0.01) | 0.01* (0.01) | 0.06*** (0.01) | | -0.04*** (0.01) | -0.07*** (0.01) | -0.06* (0.03) |
| Hangzhou | | 0.04*** (0.01) | 0.02*** (0.01) | 0.07*** (0.01) | | 0.01 (0.01) | -0.01 (0.01) | -0.00 (0.03) |
| Beijing | | 0.01* (0.01) | -0.01* (0.01) | 0.03* (0.01) | | -0.03** (0.01) | -0.08*** (0.01) | -0.06* (0.03) |
| Guangzhou | | 0.02** (0.01) | 0.01 (0.01) | 0.05*** (0.01) | | -0.07*** (0.01) | -0.09*** (0.01) | -0.08** (0.03) |
| Nanjing | | 0.00 (0.01) | -0.01 (0.01) | 0.03* (0.01) | | -0.05*** (0.01) | -0.07*** (0.01) | -0.06* (0.03) |
| Changsha | | 0.02*** (0.01) | 0.01 (0.01) | 0.05*** (0.01) | | -0.06*** (0.01) | -0.06*** (0.01) | -0.05* (0.03) |
| Wuhan | | 0.03*** (0.01) | 0.01* (0.01) | 0.01 (0.01) | | -0.08*** (0.01) | -0.10*** (0.01) | -0.10*** (0.01) |
| Chengdu | | 0.02*** (0.01) | -0.00 (0.01) | -0.00 (0.01) | | -0.16*** (0.01) | -0.17*** (0.01) | -0.18*** (0.01) |
| Tianjin | | 0.03*** (0.01) | 0.02** (0.01) | 0.02** (0.01) | | -0.07*** (0.01) | -0.08*** (0.01) | -0.09*** (0.01) |
| Kunming | | 0.04*** (0.01) | 0.03*** (0.01) | 0.02*** (0.01) | | 0.01 (0.01) | -0.00 (0.01) | -0.01 (0.01) |
| Xian | | 0.00 (0.01) | -0.01 (0.01) | -0.01* (0.01) | | -0.08*** (0.01) | -0.11*** (0.01) | -0.11*** (0.01) |
| Hefei | | 0.05*** (0.01) | 0.03*** (0.01) | 0.03*** (0.01) | | 0.00 (0.01) | -0.02 (0.01) | -0.02 (0.01) |
| Male in richer area | | | | -0.01 (0.00) | | | | 0.02* (0.01) |
| Age 18-25 in richer area | | | | 0.02* (0.01) | | | | 0.06*** (0.02) |
| Age 26-40 in richer area | | | | 0.03** (0.01) | | | | 0.05* (0.02) |
| Age 41-60 in richer area | | | | 0.04** (0.01) | | | | 0.09*** (0.02) |
| Age>60 in richer area | | | | 0.10*** (0.02) | | | | 0.06 (0.03) |
| Student in richer area | | | | -0.06*** (0.01) | | | | -0.05* (0.02) |
| Full-time in richer area | | | | -0.06*** | | | | 0.03* |

| | | | | | | | | |
|--------------------------------|---------|---------|---------|----------|---------|---------|---------|----------|
| | | | | (0.01) | | | | (0.02) |
| Self-employment in richer area | | | | -0.05*** | | | | 0.01 |
| | | | | (0.01) | | | | (0.02) |
| 12-14 years in richer area | | | | -0.01 | | | | -0.04* |
| | | | | (0.01) | | | | (0.02) |
| 16 years in richer area | | | | -0.00 | | | | -0.08*** |
| | | | | (0.01) | | | | (0.02) |
| >16 years in richer area | | | | 0.00 | | | | -0.09*** |
| | | | | (0.01) | | | | (0.02) |
| 1001-3000 Yuan in richer area | | | | -0.04*** | | | | -0.01 |
| | | | | (0.01) | | | | (0.02) |
| 3001-5000 Yuan in richer area | | | | -0.03*** | | | | -0.02 |
| | | | | (0.01) | | | | (0.02) |
| >5000 Yuan in richer area | | | | -0.03** | | | | -0.04* |
| | | | | (0.01) | | | | (0.02) |
| Constant | 0.87*** | 0.92*** | 0.87*** | 0.84*** | 0.17*** | 0.29*** | 0.23*** | 0.23*** |
| | (0.01) | (0.00) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.02) |
| Observations | 41794 | 43903 | 41794 | 41794 | 39375 | 41329 | 39375 | 39375 |

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12: LPM for Time and Media

| | Time | | | | Media | | | |
|--------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| Male | -0.01* | | -0.02*** | -0.01 | -0.03*** | | -0.04*** | -0.03*** |
| | (0.00) | | (0.00) | (0.01) | (0.00) | | (0.00) | (0.01) |
| Age 18-25 | -0.04** | | -0.03** | -0.09*** | -0.01 | | -0.02* | -0.06*** |
| | (0.01) | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) |
| Age 26-40 | -0.02 | | -0.02 | -0.07*** | 0.05*** | | 0.03* | 0.03 |
| | (0.01) | | (0.01) | (0.02) | (0.01) | | (0.01) | (0.02) |
| Age 41-60 | -0.02 | | -0.01 | -0.07*** | 0.07*** | | 0.07*** | 0.08*** |
| | (0.01) | | (0.01) | (0.02) | (0.01) | | (0.01) | (0.02) |
| Age>60 | 0.00 | | 0.01 | -0.01 | 0.06*** | | 0.06*** | 0.08*** |
| | (0.02) | | (0.02) | (0.02) | (0.02) | | (0.02) | (0.02) |
| Student | 0.06*** | | 0.06*** | 0.08*** | 0.09*** | | 0.08*** | 0.17*** |
| | (0.01) | | (0.01) | (0.02) | (0.01) | | (0.01) | (0.02) |
| Full-time | -0.04*** | | -0.04*** | -0.03* | 0.06*** | | 0.05*** | 0.10*** |
| | (0.01) | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) |
| Self-employment | -0.04*** | | -0.05*** | -0.04* | -0.00 | | -0.02 | 0.03* |
| | (0.01) | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) |
| 12-14 years | 0.02* | | 0.02* | 0.05*** | -0.04*** | | -0.04*** | 0.01 |
| | (0.01) | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) |
| 16 years | 0.10*** | | 0.10*** | 0.15*** | 0.03** | | 0.03*** | 0.05*** |
| | (0.01) | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) |
| >16 years | 0.16*** | | 0.15*** | 0.22*** | 0.03** | | 0.03** | 0.03 |
| | (0.01) | | (0.01) | (0.02) | (0.01) | | (0.01) | (0.02) |
| 1001-3000 Yuan | -0.00 | | -0.01 | 0.02 | -0.03*** | | -0.04*** | -0.00 |
| | (0.01) | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) |
| 3001-5000 Yuan | 0.05*** | | 0.05*** | 0.05*** | -0.07*** | | -0.07*** | -0.02 |
| | (0.01) | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) |
| >5000 Yuan | 0.08*** | | 0.07*** | 0.09*** | -0.07*** | | -0.06*** | -0.03* |
| | (0.01) | | (0.01) | (0.02) | (0.01) | | (0.01) | (0.01) |
| Shanghai | | 0.11*** | 0.04*** | 0.09** | | -0.05*** | -0.05*** | 0.15*** |
| | | (0.01) | (0.01) | (0.03) | | (0.01) | (0.01) | (0.03) |
| Hangzhou | | -0.05*** | -0.08*** | -0.04 | | 0.01 | 0.01 | 0.21*** |
| | | (0.01) | (0.01) | (0.03) | | (0.01) | (0.01) | (0.03) |
| Beijing | | 0.05*** | -0.01 | 0.04 | | -0.08*** | -0.07*** | 0.13*** |
| | | (0.01) | (0.01) | (0.03) | | (0.01) | (0.01) | (0.03) |
| Guangzhou | | -0.01 | -0.06*** | -0.02 | | -0.03** | -0.04** | 0.17*** |
| | | (0.01) | (0.01) | (0.03) | | (0.01) | (0.01) | (0.03) |
| Nanjing | | -0.08*** | -0.11*** | -0.07* | | -0.19*** | -0.20*** | 0.01 |
| | | (0.01) | (0.01) | (0.03) | | (0.01) | (0.01) | (0.03) |
| Changsha | | -0.08*** | -0.10*** | -0.06 | | -0.05*** | -0.04*** | 0.16*** |
| | | (0.01) | (0.01) | (0.03) | | (0.01) | (0.01) | (0.03) |
| Wuhan | | 0.03** | 0.00 | -0.00 | | 0.03** | 0.03** | 0.03* |
| | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) | (0.01) |
| Chengdu | | -0.09*** | -0.12*** | -0.12*** | | -0.05*** | -0.06*** | -0.06*** |
| | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) | (0.01) |
| Tianjin | | 0.02 | -0.01 | -0.01 | | -0.10*** | -0.11*** | -0.11*** |
| | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) | (0.01) |
| Kunming | | -0.05*** | -0.07*** | -0.08*** | | -0.05*** | -0.05*** | -0.05*** |
| | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) | (0.01) |
| Xian | | -0.08*** | -0.12*** | -0.12*** | | -0.06*** | -0.07*** | -0.07*** |
| | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) | (0.01) |
| Hefei | | 0.09*** | 0.07*** | 0.07*** | | 0.04*** | 0.04*** | 0.04*** |
| | | (0.01) | (0.01) | (0.01) | | (0.01) | (0.01) | (0.01) |
| Male in richer area | | | | -0.01 | | | | -0.01 |
| | | | | (0.01) | | | | (0.01) |
| Age 18-25 in richer area | | | | 0.13*** | | | | 0.08*** |
| | | | | (0.02) | | | | (0.02) |
| Age 26-40 in richer area | | | | 0.11*** | | | | 0.00 |
| | | | | (0.03) | | | | (0.02) |
| Age 41-60 in richer area | | | | 0.13*** | | | | -0.02 |
| | | | | (0.03) | | | | (0.03) |
| Age>60 in richer area | | | | 0.06 | | | | -0.03 |
| | | | | (0.04) | | | | (0.03) |
| Student in richer area | | | | -0.04 | | | | -0.18*** |
| | | | | (0.02) | | | | (0.02) |
| Full-time in richer area | | | | -0.01 | | | | -0.10*** |
| | | | | (0.02) | | | | (0.02) |
| Self-employment in richer area | | | | -0.02 | | | | -0.10*** |

| | | | | | | | | |
|-------------------------------|---------|---------|---------|----------|---------|---------|---------|----------|
| | | | | (0.02) | | | | (0.02) |
| 12-14 years in richer area | | | | -0.07*** | | | | -0.10*** |
| | | | | (0.02) | | | | (0.02) |
| 16 years in richer area | | | | -0.13*** | | | | -0.05** |
| | | | | (0.02) | | | | (0.02) |
| >16 years in richer area | | | | -0.14*** | | | | 0.00 |
| | | | | (0.02) | | | | (0.02) |
| 1001-3000 Yuan in richer area | | | | -0.06*** | | | | -0.08*** |
| | | | | (0.02) | | | | (0.02) |
| 3001-5000 Yuan in richer area | | | | -0.01 | | | | -0.11*** |
| | | | | (0.02) | | | | (0.02) |
| >5000 Yuan in richer area | | | | -0.04 | | | | -0.07*** |
| | | | | (0.02) | | | | (0.02) |
| Constant | 0.54*** | 0.63*** | 0.59*** | 0.57*** | 0.64*** | 0.71*** | 0.71*** | 0.61*** |
| | (0.01) | (0.01) | (0.02) | (0.02) | (0.01) | (0.01) | (0.01) | (0.02) |
| Observations | 39279 | 41216 | 39279 | 39279 | 41713 | 43804 | 41713 | 41713 |

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13: LPM for Performace and Movie

| | Performace | | | | Movie | | | |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| Male | -0.02*** (0.00) | | -0.03*** (0.00) | -0.03*** (0.01) | -0.02*** (0.00) | | -0.02*** (0.00) | -0.03*** (0.01) |
| Age 18-25 | -0.03** (0.01) | | -0.02** (0.01) | 0.00 (0.01) | -0.04*** (0.01) | | -0.04*** (0.01) | -0.04*** (0.01) |
| Age 26-40 | -0.02* (0.01) | | -0.03* (0.01) | -0.02 (0.01) | -0.05*** (0.01) | | -0.05*** (0.01) | -0.06*** (0.01) |
| Age 41-60 | -0.01 (0.01) | | -0.00 (0.01) | -0.01 (0.01) | -0.04*** (0.01) | | -0.04*** (0.01) | -0.06*** (0.01) |
| Age>60 | 0.07*** (0.01) | | 0.07*** (0.01) | 0.06*** (0.02) | -0.00 (0.01) | | -0.01 (0.01) | -0.02 (0.02) |
| Student | -0.01 (0.01) | | -0.01 (0.01) | 0.01 (0.01) | 0.00 (0.01) | | 0.00 (0.01) | -0.00 (0.01) |
| Full-time | -0.01 (0.01) | | 0.00 (0.01) | 0.04*** (0.01) | -0.00 (0.01) | | 0.00 (0.01) | 0.01 (0.01) |
| Self-employment | 0.03** (0.01) | | 0.03*** (0.01) | 0.08*** (0.01) | -0.00 (0.01) | | 0.00 (0.01) | 0.02* (0.01) |
| 12-14 years | 0.03*** (0.01) | | 0.03*** (0.01) | 0.01 (0.01) | 0.02** (0.01) | | 0.02** (0.01) | 0.01 (0.01) |
| 16 years | 0.07*** (0.01) | | 0.07*** (0.01) | 0.05*** (0.01) | 0.05*** (0.01) | | 0.05*** (0.01) | 0.04*** (0.01) |
| >16 years | 0.14*** (0.01) | | 0.12*** (0.01) | 0.10*** (0.01) | 0.08*** (0.01) | | 0.07*** (0.01) | 0.09*** (0.01) |
| 1001-3000 Yuan | 0.02** (0.01) | | 0.02* (0.01) | -0.00 (0.01) | 0.01* (0.01) | | 0.01* (0.01) | 0.01 (0.01) |
| 3001-5000 Yuan | 0.04*** (0.01) | | 0.04*** (0.01) | 0.02 (0.01) | 0.04*** (0.01) | | 0.03*** (0.01) | 0.02* (0.01) |
| >5000 Yuan | 0.11*** (0.01) | | 0.09*** (0.01) | 0.11*** (0.01) | 0.11*** (0.01) | | 0.10*** (0.01) | 0.10*** (0.01) |
| Shanghai | | 0.04*** (0.01) | 0.00 (0.01) | 0.04 (0.02) | | 0.08*** (0.01) | 0.05*** (0.01) | 0.02 (0.02) |
| Hangzhou | | 0.01 (0.01) | -0.02* (0.01) | 0.01 (0.02) | | 0.06*** (0.01) | 0.05*** (0.01) | 0.01 (0.02) |
| Beijing | | 0.17*** (0.01) | 0.13*** (0.01) | 0.16*** (0.02) | | 0.08*** (0.01) | 0.05*** (0.01) | 0.02 (0.02) |
| Guangzhou | | -0.02 (0.01) | -0.03** (0.01) | -0.00 (0.02) | | 0.08*** (0.01) | 0.07*** (0.01) | 0.04 (0.02) |
| Nanjing | | -0.02 (0.01) | -0.04*** (0.01) | -0.01 (0.02) | | 0.14*** (0.01) | 0.12*** (0.01) | 0.09*** (0.02) |
| Changsha | | -0.04*** (0.01) | -0.05*** (0.01) | -0.02 (0.02) | | 0.06*** (0.01) | 0.05*** (0.01) | 0.02 (0.02) |
| Wuhan | | -0.07*** (0.01) | -0.08*** (0.01) | -0.09*** (0.01) | | 0.01 (0.01) | -0.00 (0.01) | -0.00 (0.01) |
| Chengdu | | -0.10*** (0.01) | -0.10*** (0.01) | -0.11*** (0.01) | | 0.01 (0.01) | -0.00 (0.01) | -0.00 (0.01) |
| Tianjin | | -0.04*** (0.01) | -0.04*** (0.01) | -0.04*** (0.01) | | 0.05*** (0.01) | 0.05*** (0.01) | 0.05*** (0.01) |
| Kunming | | -0.02 (0.01) | -0.03** (0.01) | -0.03*** (0.01) | | 0.05*** (0.01) | 0.04*** (0.01) | 0.04*** (0.01) |
| Xian | | -0.01 (0.01) | -0.01 (0.01) | -0.02 (0.01) | | 0.04*** (0.01) | 0.04*** (0.01) | 0.04*** (0.01) |
| Hefei | | -0.06*** (0.01) | -0.07*** (0.01) | -0.07*** (0.01) | | 0.02* (0.01) | 0.01 (0.01) | 0.01 (0.01) |
| Male in richer area | | | | 0.01 (0.01) | | | | 0.02** (0.01) |
| Age 18-25 in richer area | | | | -0.05** (0.02) | | | | 0.01 (0.02) |
| Age 26-40 in richer area | | | | -0.02 (0.02) | | | | 0.04* (0.02) |
| Age 41-60 in richer area | | | | 0.02 (0.02) | | | | 0.04 (0.02) |
| Age>60 in richer area | | | | -0.00 (0.03) | | | | 0.02 (0.03) |
| Student in richer area | | | | -0.05* (0.02) | | | | 0.01 (0.02) |
| Full-time in richer area | | | | -0.08*** (0.02) | | | | -0.02 (0.01) |
| Self-employment in richer area | | | | -0.09*** | | | | -0.04** |

| | | | | | | | | |
|-------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | | | (0.02) | | | | (0.01) |
| 12-14 years in richer area | | | | 0.05*** | | | | 0.03 |
| | | | | (0.02) | | | | (0.01) |
| 16 years in richer area | | | | 0.03* | | | | 0.02 |
| | | | | (0.01) | | | | (0.01) |
| >16 years in richer area | | | | 0.04* | | | | -0.03 |
| | | | | (0.02) | | | | (0.02) |
| 1001-3000 Yuan in richer area | | | | 0.05*** | | | | 0.01 |
| | | | | (0.01) | | | | (0.01) |
| 3001-5000 Yuan in richer area | | | | 0.03 | | | | 0.01 |
| | | | | (0.02) | | | | (0.02) |
| >5000 Yuan in richer area | | | | -0.03 | | | | -0.02 |
| | | | | (0.02) | | | | (0.02) |
| Constant | 0.15*** | 0.22*** | 0.18*** | 0.17*** | 0.15*** | 0.12*** | 0.11*** | 0.12*** |
| | (0.01) | (0.01) | (0.01) | (0.02) | (0.01) | (0.01) | (0.01) | (0.02) |
| Observations | 41758 | 43850 | 41758 | 41758 | 41739 | 43832 | 41739 | 41739 |

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14: LPM for Craft and Karaoke

| | Craft | | | | Karaoke | | | |
|--------------------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| Male | 0.00 (0.00) | | 0.00 (0.00) | -0.01* (0.01) | 0.01* (0.00) | | 0.01* (0.00) | 0.02*** (0.01) |
| Age 18-25 | 0.02 (0.01) | | 0.01 (0.01) | 0.00 (0.01) | 0.09*** (0.01) | | 0.08*** (0.01) | 0.08*** (0.01) |
| Age 26-40 | 0.01 (0.01) | | -0.00 (0.01) | -0.05** (0.02) | 0.05*** (0.01) | | 0.03** (0.01) | -0.00 (0.02) |
| Age 41-60 | -0.16*** (0.01) | | -0.16*** (0.01) | -0.21*** (0.02) | -0.02 (0.01) | | -0.04** (0.01) | -0.11*** (0.02) |
| Age>60 | -0.26*** (0.02) | | -0.25*** (0.02) | -0.32*** (0.02) | -0.11*** (0.02) | | -0.12*** (0.02) | -0.19*** (0.02) |
| Student | 0.15*** (0.01) | | 0.15*** (0.01) | 0.10*** (0.02) | 0.04** (0.01) | | 0.03** (0.01) | 0.02 (0.02) |
| Full-time | 0.07*** (0.01) | | 0.07*** (0.01) | 0.05*** (0.01) | 0.00 (0.01) | | -0.00 (0.01) | -0.01 (0.01) |
| Self-employment | 0.08*** (0.01) | | 0.07*** (0.01) | 0.08*** (0.01) | 0.02 (0.01) | | 0.01 (0.01) | 0.03* (0.01) |
| 12-14 years | 0.07*** (0.01) | | 0.07*** (0.01) | 0.06*** (0.01) | 0.05*** (0.01) | | 0.05*** (0.01) | 0.04*** (0.01) |
| 16 years | 0.10*** (0.01) | | 0.10*** (0.01) | 0.09*** (0.01) | 0.06*** (0.01) | | 0.06*** (0.01) | 0.04*** (0.01) |
| >16 years | 0.08*** (0.01) | | 0.08*** (0.01) | 0.08*** (0.02) | 0.03** (0.01) | | 0.04*** (0.01) | -0.00 (0.02) |
| 1001-3000 Yuan | 0.03** (0.01) | | 0.03*** (0.01) | 0.02* (0.01) | 0.01 (0.01) | | 0.00 (0.01) | 0.02 (0.01) |
| 3001-5000 Yuan | 0.04*** (0.01) | | 0.05*** (0.01) | 0.05*** (0.01) | 0.02* (0.01) | | 0.03** (0.01) | 0.06*** (0.01) |
| >5000 Yuan | 0.08*** (0.01) | | 0.08*** (0.01) | 0.08*** (0.01) | 0.04*** (0.01) | | 0.05*** (0.01) | 0.09*** (0.01) |
| Shanghai | | 0.11*** (0.01) | 0.03** (0.01) | -0.09** (0.03) | | -0.02* (0.01) | -0.08*** (0.01) | -0.12*** (0.03) |
| Hangzhou | | 0.06*** (0.01) | 0.03** (0.01) | -0.09** (0.03) | | 0.07*** (0.01) | 0.04** (0.01) | -0.01 (0.03) |
| Beijing | | 0.17*** (0.01) | 0.10*** (0.01) | -0.03 (0.03) | | -0.03* (0.01) | -0.08*** (0.01) | -0.12*** (0.03) |
| Guangzhou | | -0.00 (0.01) | -0.04** (0.01) | -0.16*** (0.03) | | -0.01 (0.01) | -0.03* (0.01) | -0.07* (0.03) |
| Nanjing | | -0.02 (0.01) | -0.02 (0.01) | -0.14*** (0.03) | | -0.06*** (0.01) | -0.07*** (0.01) | -0.11*** (0.03) |
| Changsha | | 0.06*** (0.01) | 0.01 (0.01) | -0.11*** (0.03) | | -0.02 (0.01) | -0.05*** (0.01) | -0.09** (0.03) |
| Wuhan | | 0.05*** (0.01) | -0.01 (0.01) | -0.01 (0.01) | | -0.03* (0.01) | -0.08*** (0.01) | -0.08*** (0.01) |
| Chengdu | | 0.16*** (0.01) | 0.09*** (0.01) | 0.08*** (0.01) | | 0.01 (0.01) | -0.04*** (0.01) | -0.05*** (0.01) |
| Tianjin | | 0.02 (0.01) | -0.01 (0.01) | -0.01 (0.01) | | -0.06*** (0.01) | -0.08*** (0.01) | -0.09*** (0.01) |
| Kunming | | 0.08*** (0.01) | 0.03** (0.01) | 0.03** (0.01) | | 0.02 (0.01) | -0.02 (0.01) | -0.02 (0.01) |
| Xian | | 0.11*** (0.01) | 0.06*** (0.01) | 0.06*** (0.01) | | 0.07*** (0.01) | 0.04*** (0.01) | 0.04*** (0.01) |
| Hefei | | 0.15*** (0.01) | 0.09*** (0.01) | 0.09*** (0.01) | | 0.07*** (0.01) | 0.02* (0.01) | 0.02 (0.01) |
| Male in richer area | | | | 0.03*** (0.01) | | | | -0.03*** (0.01) |
| Age 18-25 in richer area | | | | 0.01 (0.02) | | | | 0.03 (0.02) |
| Age 26-40 in richer area | | | | 0.11*** (0.02) | | | | 0.09*** (0.02) |
| Age 41-60 in richer area | | | | 0.10*** (0.03) | | | | 0.16*** (0.03) |
| Age>60 in richer area | | | | 0.15*** (0.03) | | | | 0.15*** (0.03) |
| Student in richer area | | | | 0.10*** (0.02) | | | | 0.02 (0.02) |
| Full-time in richer area | | | | 0.03 (0.02) | | | | 0.01 (0.02) |
| Self-employment in richer area | | | | -0.01 | | | | -0.05** |

| | | | | | | | | |
|-------------------------------|---------|---------|---------|---------|---------|---------|---------|----------|
| | | | | (0.02) | | | | (0.02) |
| 12-14 years in richer area | | | | 0.01 | | | | 0.02 |
| | | | | (0.02) | | | | (0.02) |
| 16 years in richer area | | | | 0.00 | | | | 0.04* |
| | | | | (0.02) | | | | (0.02) |
| >16 years in richer area | | | | 0.00 | | | | 0.07** |
| | | | | (0.02) | | | | (0.02) |
| 1001-3000 Yuan in richer area | | | | 0.00 | | | | -0.04* |
| | | | | (0.02) | | | | (0.02) |
| 3001-5000 Yuan in richer area | | | | 0.00 | | | | -0.07*** |
| | | | | (0.02) | | | | (0.02) |
| >5000 Yuan in richer area | | | | -0.01 | | | | -0.09*** |
| | | | | (0.02) | | | | (0.02) |
| Constant | 0.47*** | 0.57*** | 0.45*** | 0.51*** | 0.21*** | 0.33*** | 0.25*** | 0.26*** |
| | (0.01) | (0.01) | (0.01) | (0.02) | (0.01) | (0.01) | (0.01) | (0.02) |
| Observations | 41762 | 43852 | 41762 | 41762 | 41758 | 43849 | 41758 | 41758 |

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 15: LPM for Online

| | Online | | | |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|
| | (1) | (2) | (3) | (4) |
| Male | 0.04*** (0.00) | | 0.03*** (0.00) | 0.05*** (0.01) |
| Age 18-25 | -0.03** (0.01) | | -0.03** (0.01) | -0.05*** (0.01) |
| Age 26-40 | -0.04*** (0.01) | | -0.05*** (0.01) | -0.06*** (0.02) |
| Age 41-60 | -0.12*** (0.01) | | -0.12*** (0.01) | -0.10*** (0.02) |
| Age>60 | -0.23*** (0.02) | | -0.23*** (0.02) | -0.29*** (0.02) |
| Student | 0.06*** (0.01) | | 0.06*** (0.01) | 0.10*** (0.02) |
| Full-time | 0.04*** (0.01) | | 0.04*** (0.01) | 0.05*** (0.01) |
| Self-employment | 0.02 (0.01) | | 0.01 (0.01) | 0.03* (0.01) |
| 12-14 years | 0.03** (0.01) | | 0.03** (0.01) | 0.04*** (0.01) |
| 16 years | 0.06*** (0.01) | | 0.06*** (0.01) | 0.08*** (0.01) |
| >16 years | 0.05*** (0.01) | | 0.05*** (0.01) | 0.07*** (0.02) |
| 1001-3000 Yuan | 0.01 (0.01) | | -0.00 (0.01) | 0.01 (0.01) |
| 3001-5000 Yuan | -0.02* (0.01) | | -0.02* (0.01) | -0.00 (0.01) |
| >5000 Yuan | -0.01 (0.01) | | -0.01 (0.01) | -0.01 (0.01) |
| Shanghai | | -0.01 (0.01) | -0.06*** (0.01) | 0.05 (0.03) |
| Hangzhou | | -0.07*** (0.01) | -0.08*** (0.01) | 0.02 (0.03) |
| Beijing | | -0.01 (0.01) | -0.04*** (0.01) | 0.06* (0.03) |
| Guangzhou | | -0.03** (0.01) | -0.03* (0.01) | 0.08** (0.03) |
| Nanjing | | -0.08*** (0.01) | -0.08*** (0.01) | 0.02 (0.03) |
| Changsha | | -0.02 (0.01) | -0.04** (0.01) | 0.07* (0.03) |
| Wuhan | | 0.02 (0.01) | -0.01 (0.01) | -0.02 (0.01) |
| Chengdu | | -0.00 (0.01) | -0.05*** (0.01) | -0.06*** (0.01) |
| Tianjin | | -0.11*** (0.01) | -0.13*** (0.01) | -0.13*** (0.01) |
| Kunming | | -0.01 (0.01) | -0.03* (0.01) | -0.03** (0.01) |
| Xian | | -0.06*** (0.01) | -0.10*** (0.01) | -0.11*** (0.01) |
| Hefei | | 0.09*** (0.01) | 0.06*** (0.01) | 0.05*** (0.01) |
| Male in richer area | | | | -0.04*** (0.01) |
| Age 18-25 in richer area | | | | 0.03 (0.02) |
| Age 26-40 in richer area | | | | 0.02 (0.02) |
| Age 41-60 in richer area | | | | -0.03 (0.03) |
| Age>60 in richer area | | | | 0.11*** (0.03) |
| Student in richer area | | | | -0.10*** (0.02) |
| Full-time in richer area | | | | -0.04 (0.02) |
| Self-employment in richer area | | | | -0.04 |

| | | | | |
|-------------------------------|---------|---------|---------|---------|
| | | | | (0.02) |
| 12-14 years in richer area | | | | -0.03 |
| | | | | (0.02) |
| 16 years in richer area | | | | -0.04* |
| | | | | (0.02) |
| >16 years in richer area | | | | -0.05* |
| | | | | (0.02) |
| 1001-3000 Yuan in richer area | | | | -0.03 |
| | | | | (0.02) |
| 3001-5000 Yuan in richer area | | | | -0.05* |
| | | | | (0.02) |
| >5000 Yuan in richer area | | | | -0.01 |
| | | | | (0.02) |
| Constant | 0.35*** | 0.42*** | 0.41*** | 0.36*** |
| | (0.01) | (0.01) | (0.02) | (0.02) |
| Observations | 41770 | 43863 | 41770 | 41770 |

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7.4 SEM Results

| Latent Var. | | Frequency | |
|-----------------|-----------------------|--------------------------------|----------------------|
| Male | 0.00179** (0.00) | attd | 1 (.) |
| Age 18-25 | 0.00456** (0.00) | Time attd | 1.564*** (0.15) |
| Age 26-40 | -0.00183 (0.00) | Media attd | 0.111 (0.14) |
| Age 41-60 | -0.0260*** (0.00) | Movie attd | 4.833*** (0.69) |
| Age>60 | -0.0435*** (0.01) | Performance attd | 0.575*** (0.11) |
| Student | 0.0229*** (0.00) | Karaoke attd | 3.710*** (0.51) |
| Full-time | 0.00633*** (0.00) | Craft attd | -0.00461 (0.09) |
| Self-employment | 0.00804*** (0.00) | Online attd | 2.808*** (0.35) |
| 12-14 years | 0.0132*** (0.00) | var(e.frequency) Constant | 0.183*** (0.00) |
| 16 years | 0.0221*** (0.00) | var(e.time) Constant | 0.233*** (0.00) |
| >16 years | 0.0212*** (0.00) | var(e.media) Constant | 0.216*** (0.00) |
| 1001-3000 Yuna | 0.00320* (0.00) | var(e.movie) Constant | 0.189*** (0.00) |
| 3001-5000 Yuan | 0.00840*** (0.00) | var(e.performance) Constant | 0.168*** (0.00) |
| >5000 Yuan | 0.0163*** (0.00) | var(e.karaoke) Constant | 0.201*** (0.00) |
| Shanghai | -0.00653** (0.00) | var(e.craft) Constant | 0.144*** (0.00) |
| Hangzhou | -0.00137 (0.00) | var(e.online) Constant | 0.228*** (0.00) |
| Beijing | 0.00324 (0.00) | var(e.attd) Constant | 0.00113*** (0.00) |
| Guangzhou | -0.0135*** (0.00) | Observations | 39052 |
| Nanjing | -0.0174*** (0.00) | | |
| Changsha | -0.00995*** (0.00) | | |
| Wuhan | -0.0120*** (0.00) | | |
| Chengdu | -0.00682* (0.00) | | |
| Tianjin | -0.0173*** (0.00) | | |
| Kunming | -0.00325 (0.00) | | |
| Xian | -0.00178 (0.00) | | |
| Hefei | 0.0138*** (0.00) | | |

Note: standard errors in parentheses;
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$