**Completed Full Editing Service Example Paper
(*Some* *text has been deleted/altered*)**

**Local Brand Smoking Among Adult Smokers in China: Findings from the Wave 5 International Tobacco Control China Survey**

Author One #, Author Two2, Author Three,3

**Author affiliations:**

 Example Institution, Beijing, China.

2 Example University, San Francisco, USA.

3 Example Center, Beijing, China.

# Corresponding author: Author One, author.one@example.edu.

**Abstract**

**Introduction:** Smoking prevalence in China is exceptionally high, with over 300 million smokers consuming around 2.3 trillion cigarettes annually. Cultural norms and branding strategies, including the use of local symbols and landmarks on cigarette packaging, may influence smoking behaviors. This study aims to explore the impact of local brand (LB) cigarette consumption among adult smokers in China, examining demographic factors and smoking patterns associated with LB smoking.

**Methods:** Utilizing data from the Wave 5 International Tobacco Control (ITC) China Survey conducted between November 2013 and July 2015, this study analyzed the smoking behavior of 6,642 current smokers from ten locations across China. The primary outcome was LB smoking status, with covariates including demographic characteristics, urban/rural residence, and smoking behaviors. A multivariate logistic regression model adjusted for these covariates was employed to estimate the propensity of LB smoking.

**Results:** The study found that 47.67% of current smokers preferred LBs. Significant differences in LB smoking were observed across demographic groups, with higher odds of LB smoking among individuals aged 25-39 and 40-54, those with medium income, and residents of areas with local ventures (LVs). Conversely, those with higher education levels and urban residents were less likely to smoke LBs. The geographical distribution of LB smoking varied significantly, suggesting a potential influence of supply-side factors and targeted marketing strategies.

**Discussion:** The findings indicate that LB smoking is significantly influenced by local production, with implications for the effectiveness of tobacco control policies. The study suggests that smokers in provinces producing LB cigarettes are more likely to consume these brands, likely due to local government incentives and protectionist measures. Additionally, sociodemographic factors such as age, income, and education level, while significant, may have their associations with LB smoking mediated by price and affordability considerations. The study highlights the need for tobacco control policies that address local branding and marketing strategies to reduce smoking prevalence in China.

**Introduction**

Nearly one-third of all smokers in the world or over 300 million smokers reside in China, consuming an estimated 2.3 trillion cigarettes every year (1). According to the China Global Adult Tobacco Survey (GATS) in 2018, the prevalence of current smoking among Chinese aged 15 or older was 2.1% in women and 50.5% in men (2). The high prevalence of smoking in Chinese men might be due to the persistent normalization of smoking within Chinese culture, where cigarettes were commonly used as a form of sharing or gift-giving for interpersonal relationships and magnanimity during festivals and weddings, and as business favors (3).

Branding of cigarettes may play a unique role in affecting the smoking behaviors of Chinese smokers due to the abundance of Chinese cigarette brands and their varieties. This was largely due to a brand consolidation strategy by the China National Tobacco Corporation (CNTC), which has a monopoly over China’s cigarette market, accounting for 98% of domestic sales (4). From 1990 to 2013, the CNTC reduced the 2,000 cigarette brands to 90 brands (4). The CNTC includes several major local/regional subsidiaries that manufacture flagship cigarette brands. These local brands (LB) often are packaged and advertised through the use of symbols and pictures that represent regions and local landmarks. Smokers may use cigarette brands as symbols of their home regions, suggesting that they prefer their home region’s cigarettes over others (5).

To our knowledge, this study is the first to conduct an empirical analysis of local brands in China. The objective of this study was to assess the percentage of local brand (LB) smoking among adult smokers in a diversity of cities in China, and to identify factors associated with LB smoking including demographic characteristics and patterns of smoking such as cigarettes per day.

**Methods**

This project analyzed data from the Wave 5 International Tobacco Control (ITC) China Survey that was conducted between November 2013 and July 2015 (6,7). The ITC China Survey is a longitudinal cohort survey of smoking behavior and knowledge, beliefs, opinions, and attitudes about cigarette smoking and tobacco use among adults aged 18 and older in China. The Wave 5 Survey was conducted in 10 locations, including urban residents in 5 large cities (Beijing, Guangzhou, Kunming, Shanghai, and Shenyang) and residents in 5 rural areas (Changzhi, Huzhou, Tongren, Yichun, and Xining). The 10 locations were selected based on size, geographical representations, and levels of economic development (8,9).

A total of 9,880 adults participated in the survey, including 7,583 current smokers, 234 former smokers, and 2,063 never smokers. This study focused on current smokers, defined as those who have smoked at least 100 cigarettes in their lifetime and currently smoking cigarettes at least once a week (8). After excluding those with missing data on LB smoking status, the sample size for analyzing the percentage of the LB smoking included 6,642 current smokers. For the multiple logistic regression described below, participants that had missing values for age, ethnicity, education, marital status, and smoking intensity were excluded and resulted in a final study sample of 6,419 participants.

**Results**

Table 1 shows that among 6,642 current smokers, most participants were men (96.2%), aged 40-54 (41.9%), of Han ethnicity (87.4%), had high income (59.7%), had medium education (62.7%), were married or living with a partner (86.6%), resided in an urban area (51.4%), resided in areas with a LV (56.5%), were daily (92.4%) or heavy smokers (60.0%), and smoked their first cigarette 0-30 min after waking (58.2%).

Table 1 also shows that the percentage of LB smoking was 47.6% among all current smokers. The bivariate analysis results indicated that the percentage of LB smoking was significantly different by sex (34.8% for female and 48.1% for male), age, ethnicity (75.2% for non-Han ethnicity and 43.7% for Han), income, education, marital status, area type (44.8% for rural area and 50.4% for urban area), NLVs (10.5%) vs. LVs (76.2%), smoking frequency (48.3% for daily smokers and 40.1% for non-daily smokers), and smoking intensity (49.9% for heavy smokers and 44.4% for light smokers), but was not statistically different by time to smoke the first cigarette after waking.

**Discussion**

This study showed evidence that smokers residing in provinces that produced LB cigarettes were significantly more likely to smoke LB cigarettes than those residing in provinces that relied on NLVs. This is likely due to the current tobacco excise tax system that rewards local governments relying on tobacco finance to enact protectionist measures to protect production and sales of local brands (10). This study found that among the nine cities/rural areas, Kunming and Tongren have the highest LB percentages and they both are famous for their provincially-produced cigarette brands, such as Hong Ta Shan from Yunnan and Yun Yan from Guizhou, respectively.

This study was subject to some limitations. First, this study lacked analysis on particular brands of cigarettes and their characteristics, such as brand names and packaging. Some brands of cigarettes may have clear direct marketing that targeted local sentiments, i.e., being named after a local landmark or icon. Second, cigarette pricing and associated taxes are also an important predictor for cigarette consumption behavior as many Chinese smokers tend to switch to cheaper brands in response to increased taxes. Third, the cities and rural areas included in this analysis were likely differentially impacted by the availability of LB cigarettes. Inclusion of other areas may help to provide a more complete understanding of LB smoking in China.

In summary, our study found that LB smoking significantly varied in smokers by several sociodemographic characteristics and by smoking intensity. There was a wide variation in the percentage of LB smoking across cities and rural areas, which may suggest external factors such as supply-side policies to ensure LB sales or targeted cultural marketing that appeals more to certain demographics. Tobacco control policies that restrict marketing strategies using LB-related names and icons could have the potential to reduce cigarette smoking and ultimately the health burden of smoking in China.

**References**

1. Tobacco in China. WPRO [Internet]. 2017 [cited 2018 Nov 19]; Available from: http://www.wpro.who.int/china/mediacentre/factsheets/tobacco/en/

2. Centers for Disease Control and Prevention. GLOBAL ADULT TOBACCO SURVEY GATS| Fact Sheet China 2018 GATS Objectives. 2018;

3. Huang L-L, Thrasher JF, Jiang Y, Li Q, Fong GT, Quah AC. Incidence and correlates of receiving cigarettes as gifts and selecting preferred brand because it was gifted: Findings from the ITC China Survey. BMC Public Health [Internet]. 2012 Dec 17 [cited 2018 Nov 18];12(1):996. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23157697

4. Xu SS, Gravely S, Meng G, Elton-Marshall T, O’Connor RJ, Quah ACK, et al. Impact of China National Tobacco Company’s “Premiumization” Strategy: longitudinal findings from the ITC China Surveys (2006-2015). Tob Control [Internet]. 2019 [cited 2019 Jul 17];28(Suppl 1):s68–76. Available from: http://www.ncbi.nlm.nih.gov/pubmed/30158207

5. Kohrman M. Depoliticizing Tobacco’s Exceptionality: Male Sociality, Death and Memory-Making Among Chinese Cigarette Smokers [Internet]. THE CHINA JOURNAL. University of California Press; 2006 [cited 2019 Mar 6]. Available from: https://anthropology.stanford.edu/sites/g/files/sbiybj9346/f/kohrman\_depoliticizing.pdf

6. Wu C, Thompson ME, Fong GT, Jiang Y, Yang Y, Feng G, et al. Methods of the International Tobacco Control (ITC) China Survey: Waves 1, 2 and 3. Tob Control [Internet]. 2015 Nov 1 [cited 2018 Nov 18];24(Supplement 4):iv1–5. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25550421

7. ITC Project. ITC China Wave 5 (2013-2015) Technical Report. 2017;(January):1–121. Available from: http://www.itcproject.org/files/ITC\_China\_Wave\_5\_Tech\_Report\_April\_5\_2017\_Final.pdf

8. The International Tobacco Control Policy Evaluation Project China Project Report [Internet]. 2017 [cited 2019 Feb 12]. Available from: https://itcproject.s3.amazonaws.com/uploads/documents/ITC\_China\_Project\_Report\_Waves\_1\_to\_5\_2006-2015\_Octo.pdf

9. ITC Project. ITC China Wave 5 (2013-2015) Technical Report. 2017;(January):1–121.

10. Cheng Y-W. State Monopoly, Chinese Style: A Case Study of the Tobacco Industry. 2015;

**Table 1. Distribution of the study sample and the percentage of local brand (LB) smoking by sociodemographic characteristics and smoking behaviors among current smokers in Wave 5 of the ITC China Survey (n=6,642).**

| **Characteristic** | **Number-Total** | **Percentage-subgroup (%)** | **Number-LB smokers** | **Percentage-****LB smokers (%)** | **Chi-square** | **P-Value**  |
| --- | --- | --- | --- | --- | --- | --- |
| **Total** | 6,642 |   | 3,173 | 47.6 |  |  |
| **Sex** |   |   |   |   | 17.07 | **<0.001** |
| Female | 288 | 3.8 | 100 | 34.8 |  |  |
| Male | 6,354 | 96.2 | 3,073 | 48.1 |  |  |
|   |   |   |   |   |  |  |
| **Age group** |   |   |   |   | 47.09 | **<0.001** |
| 18-24 | 148 | 2.7 | 83 | 56.9 |  |  |
| 25-39 | 1,165 | 18.8 | 631 | 55.3 |  |  |
| 40-54 | 2,885 | 41.9 | 1,359 | 46.4 |  |  |
| 55+ | 2,439 | 36.5 | 1,099 | 44.4 |  |  |
| NA | 5 |   | 1 |   |  |  |
|   |   |   |   |   |  |  |
| **Ethnicity** |   |   |   |   | 290.34 | **<0.001** |
| Non-Han | 852 | 12.6 | 658 | 75.2 |  |  |
| Han | 5,775 | 87.4 | 2,510 | 43.7 |  |  |
| NA | 15 |   | 5 |   |  |  |
|  |  |  |  |  |  |  |
| **Marital Status** |   |   |   |   | 30.28 | **<0.001** |
| Married or living with a partner | 5,813 | 86.6 | 2,758 | 47.3 |  |  |
| Divorced or separated | 315 | 5.0 | 146 | 42.2 |  |  |
| Widowed | 161 | 2.6 | 67 | 42.2 |  |  |
| Single | 338 | 5.8 | 195 | 60.1 |  |  |
| NA | 15 |   | 7 |   |  |  |
|   |   |   |   |   |  |  |
| **Rural/Urban Area Type**¶ |   |   |   |   | 21.01 | **<0.001** |
| Rural area | 3,207 | 48.6 | 1,438 | 44.8 |  |  |
| Urban area | 3,435 | 51.4 | 1,735 | 50.4 |  |  |

Note: P-values are calculated from the weighted bivariate analysis chi-square tests.

**†**: Education was categorized as high education (more than senior high school), medium education (senior high school), and low education (less than senior high school).

¶: Rural areas consisted of Changzhi, Yichun, Tongren, and Huzhou. Urban areas consisted of Beijing, Shenyang, Guangzhou, Shanghai, and Kunming.

§: This indicator variable consisted of areas with non-local ventures (NLVs; non-local brands using local cigarette factories including Beijing, Shenyang, Changzhi, and Yichun) or local ventures (LVs; local brands using local cigarette factories including Kunming Guangzhou, Shanghai, Huzhou, and Tongren).

‡: These are cities.

§§: These are rural areas.

**Figure 1. Percentage of local brand (LB) smoking in each of the 9 study areas (city/rural areas) included in Wave 5 of the ITC China Survey.**

Note: \* designated urban cities. Unmarked locations were rural areas.§ designated areas with local ventures (LVs; local brands using local cigarette factories). Unmarked locations did not have local ventures.