



Household composition, income, and food-away-from-home expenditure in urban China



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ABSTRACT

China has experienced dramatic economic growth and socio-demographic changes in the last three decades including rapid urbanization and an aging society in the coming decades. This paper analyses food-away-from-home (FAFH) consumption in urban China with respect to household composition, income, and other socio-economic variables. The data are from household surveys in six Chinese cities (i.e. Beijing; Nanjing; Chengdu; Xi'an; Shenyang; and Xiamen) collected by the authors. Findings indicate that both household composition and income have significant effects on FAFH participation and expenditures. Projections based upon our results suggest that FAFH expenditures in urban China will continue to increase through 2050. The leading contributor to increased FAFH expenditure is China's strong income growth, followed by the expected rapid urbanization. The aging society, however, will have a negative influence on FAFH consumption.

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Introduction

China, the world's most populous country, is experiencing rapid urbanization, economic growth, and aging of the population. In 2011, for the first time more people in China live in urban areas than in rural ones according to National Bureau of Statistics of China (NBSC, 2012), and urbanization is expected to continue at a fast pace with over 75% of the population living in urban areas by 2050 (United Nations, 2014). The age structure of the country is also changing with fewer births due to the "one child policy" and longer life expectancy. Currently, the population 60 years old and above accounts for 12% of the total population, and the proportion of this group is expected to grow to 17% by 2020 and to 34% by 2050 while the percent of the population under ten years old is expected to decrease from 12% to 8% by 2050 (UN, 2013). At the same time, China's multi-generational families are disappearing with the average urban household size shrinking to 3.1 persons in 2010 from 4.0 in 1995. China's economy, the world's second largest, is also predicted to continue growing at an annual rate of 7.8% over the next 10 years, much higher than the expected growth rate of 2.8% in the United States (US) and 1.7% in Germany (Atsmon et al., 2012), and the economy's structure is expected to change as

consumption rather than investment drives China's future growth. By 2020, its gross domestic product (GDP) is expected to account for 19% of the world's economy compared with 9% in 2010 (Atsmon et al., 2012).

While there is much evidence internationally that rising income increases the demand for food away from home (FAFH) (e.g. Prochaska and Schrimper, 1973; Kinsey, 1983; Jensen and Yen, 1996; Nayga, 1996), few studies investigate the effects of household composition and population structure on FAFH consumption. Redman (1980) finds that US families with preschool children and an older woman dine away from home less than other families. Lee and Brown (1986) find US households with members between age four and 14 tend to consume more FAFH than those with people 26–50 years. Byrne et al. (1996) find that US per capita FAFH expenditure on younger members is less than that on adults, but that expenditures on youth are increasing over time. Household composition also has varying effects on consumption of particular foods such as cheese (Yen and Jones, 1997) and pork (Su and Yen, 1996). Mutlu and Gracia (2006) investigate Spanish household FAFH expenditure by type of meal and find that household size significantly increases the probability and expenditure of breakfast consumption away from home but negatively affects lunch consumption while the percentage of children aged 0–6 in a household has no significant influence on FAFH consumption for any type of meals. In rural Ghana, however, an additional child three-years old or younger increases fresh vegetable expenditures, but an

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additional family member above 61 years of age has the opposite effect (Meng et al., 2012). Additional studies also indicate that household composition significantly affects FAFH consumption in other countries (Hossain and Jensen, 1994; Meenakshi and Ray, 1999; Mihalopoulos and Demoussis, 2001).

Studies on China's FAFH, however, either use old data or do not address family composition effects on FAFH. For example, Min et al. (2004) using Urban Household Income and Expenditure (UHIE) survey data for 1992 and 1998 study the determinants of FAFH expenditure but do not address household composition effects. The only study to do so is by Gould and Villarreal (2006) who find that household composition affects the share of FAFH in total food expenditure. The data used in their study, however, are from 2001. A few other studies collect their own household survey data to study FAFH expenditure in China. Ma et al. (2006) using their own 1998 household survey data find that young people consume more FAFH, particularly meat, but their study does not address household composition effects on FAFH consumption. Bai et al. (2010) using household survey data collected in Beijing find that income and time opportunity cost are primary factors influencing household dining out participation and expenditure decisions, but household composition effects on FAFH are not addressed.

To fill this research gap, we apply a newly surveyed household data in this paper to analyze FAFH expenditure. Particular interests are given to household composition and income effects on FAFH expenditures. To address limitations in available data for the study of FAFH expenditure in urban China, the authors conduct household surveys in six urban Chinese cities over the years 2007–2011. The household surveys are conducted in two parts, the first to collect household-specific information on socio-economic variables and demographics, and the second to collect detailed information on food consumption, both at home and away from home, for an entire week by a diary recording method. The resulting data allow for a much richer and more detailed analysis of FAFH in urban China than previously possible, especially for income and household composition effects. Specifically, we project FAFH expenditures in urban China over the next four decades based upon projected demographic changes, income growth, urbanization, and the estimated elasticities from a double-hurdle model.

Family composition and income effects on FAFH have several important implications. If household composition has significant effects on FAFH expenditure, it is particularly important in China to quantify these effects in order to determine how China's changing population structure will influence demand for FAFH. With future rising income, it is also important to quantify how this will affect future demand for FAFH particularly if FAFH expenditure increases faster than FAH expenditure. The structure of firms servicing FAFH differs considerably from those catering to FAH consumption and will affect resource usage in China. Also, increased dining out has important implications for health. Evidence of a significant association between out of home eating and overweight and obesity are found worldwide, such as among Brazilian (Bezerra and Sichieri, 2009) and European (Naska et al., 2011) populations.

Increases in urban FAFH expenditure have important implications. First, the number and size of FAFH establishments will need to grow to meet the increasing demand, creating opportunities for food service industries. Second, China's food supply chain infrastructure, including its cold chain, transportation, procurement, and distribution systems, will need to expand accordingly to meet the growing demand from the expansion of establishments. Third, there may be food security and import demand implications if domestic food production does not respond in both quantity and quality.

The structure of the paper is as follows. First, the data collection method is presented along with descriptive analyses of the data. This is followed by a brief discussion of the method of analysis of the paper. Empirical results are presented followed by a discussion of household composition and income effects on future FAFH expenditures that includes a projection of FAFH expenditure through 2050. Finally, we conclude with our major findings.

Data

The household data used in this study are collected by surveying 1,340 households in six Chinese cities (Beijing, Nanjing, Chengdu, Xi'an, Shenyang and Xiamen). The survey year and number of households are 2007 and 315 households for Beijing, 2009 and 246 households for Nanjing, 2010 and 208 households for Chengdu, 2011 and 215 for Xi'an, 2011 and 207 for Shenyang, and 2011 and 149 for Xiamen. These cities are geographically dispersed in China, are relatively high income centers in their region, and have populations ranging from 2.52 million for Xiamen to 19.61 million for Beijing in 2010 (NBSC, 2011; Xiamen Economic and Social Development Reports, 2010). The households in our survey are selected by a stratified and random sampling approach from households participating in the UHIE survey in each city.¹ In our survey, selected households record household expenditure on each meal that is consumed away from home for an entire week.²

FAFH in our survey is defined to include expenditures on all meals that are purchased at restaurants, fast food outlets, cafeterias and other venues such as street vendors. It also includes FAFH meals that are free, hosted by friends or relatives, or are provided by work units. The value of these meals is estimated by the respondents as if they paid. Detailed information on demographics and socio-economics of the household are also collected in the survey.

Not all households participate in FAFH consumption during the sample period, but the majority does, with 83% of the households participating in the FAFH market. Beijing, the capital of China, has the highest participation rate at 88% while the participation rate in the other cities ranges from 78% (Shenyang) to 84% (Xi'an) (Table 1). The average weekly expenditure for households that participate in the survey is 177 Yuan in 2010 value. Beijing is leading with an average expenditure of 201 Yuan while Xiamen is the lowest at 144 Yuan.

The average household size of our sample is 2.91 persons and may be calculated by summing the means of age groupings reported in column 2 of Table 2 for the full sample. The average number of persons less than or equal to 14 years old is 0.31 while the average number of persons per household age 65 or greater is 0.29. The group with the largest average number of persons is the 50–64 group followed by the 40–49 group.

Dependency ratios may be calculated from our urban sample. The old-age (child) dependency ratio is the number of people 65 years or older (0–14) divided by the number of people that are between 15 and 64. The old-age dependency ratio is 12.8 in our sample, and the child dependency ratio is 13.4. The former is larger than the officially-reported ratio of 11.4 in 2010 for China as a whole, but the latter is smaller than the reported child dependency ratio of 24.7 (World Bank, 2014a,b). These results are not surprising given that our sampled households are from urban areas only.

¹ The UHIE is a national survey, which provides the primary official information on urban consumers' income and expenditures. The data from the UHIE survey have been widely used by scholars for food consumption and expenditure research, including studies on FAFH (e.g. Min et al., 2004; Gale and Huang, 2007). The household number in the UHIE survey in each city ranges from 300 to 1000 households, largely depending on the population of the city.

² For further details, see Bai et al. (2010).

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