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Meat Demand In Urban Chinese Households

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Approved By:
Ralph Bean
Prepared By:
Junfei Bai, James Seale, Bryan Lohmar, Thomas Wahl

Report Highlights:
For many years, official meat demand in China is suspected to be underestimated. Yet, there is not enough empirical evidences for how much the disparity is. Also, as changes in Chinese meat demand may have significant effects on meat supply in both domestic and international markets, considering the nation's 1.3 billion population, factors influencing meat consumption remain unclear. Research jointly conducted by a top Chinese research institute and several land-grant universities in the US have made successful progress in response to these concerns. The major results indicate that the missing meat consumption utilization is mainly from the increasing dining-out meat consumption, which is, in essence, excluded from the National Bureau of Statistics of China. In addition to expected positive income effects, the results also show that family composition and household time constraint are two important factors affecting meat consumption in urban China although there are some variations by region and meat products.

Introduction

While it is commonly known that Chinese diets are shifting from one centered on staple foods to one that incorporates more high-protein foods such as meat, there is no clear picture about current consumption or its driving forces other than income growth. In particular, little is known about who consumes what kinds of meat products. Based on household survey data collected in Beijing in 2007, Nanjing in 2009 and Chengdu in 2010, this report summarizes some major findings on meat demand from our research conducted jointly by the Chinese Academy of Sciences, University of Florida, North Dakota State University, Washington State University, and Economic Research Service at USDA.

A. Meat Consumption Is Higher Than Officially Reported Level

Average monthly meat consumption per capita was about 6kg in the summer period when we conducted these surveys, with Chengdu leading at 7.28kg and followed by Beijing (5.98kg) and Nanjing (5.87kg) (Table 1). Pork, as a primary protein source for Chinese, is leading all kinds of meats in all three cities. Per capita consumption of pork is 3kg in Beijing and Nanjing, and 4.27kg in Chengdu. Per capita poultry consumption is approximately half of pork consumption in Beijing. It is slightly higher (60%) in Nanjing and lower in Chengdu (38%). Following poultry is beef. Beijing consumers also consume a significant amount of mutton but it is rarely on Nanjing and Chengdu household menus.

In all three cities, it is noted that meat consumption for food away from home (FAFH), which is essentially missed in the NBS data, accounts for a significant part of overall meat consumption. In Beijing, the percentage of meat consumed away from home is 34%, which leads Nanjing by 10% and Chengdu by12%. Also, the dining out proportion of consumed meat differs by meat categories, ranging approximately from 20% to 50% if we forget other meats such as rabbit meat and donkey meat.

Table 1 Per capita monthly meat consumption (kg)

	Beijing				Nanjing				Chengdu			
	FAH	FAFH	Total	% of FAFH	FAH	FAFH	Total	% of FAFH	FAH	FAFH	Total	% of FAFH
Pork	2.18	0.87	3.06	29%	2.26	0.70	2.96	23%	3.41	0.87	4.27	20%
Beef	0.54	0.28	0.82	34%	0.38	0.20	0.58	35%	0.44	0.20	0.64	31%
Mutton	0.22	0.09	0.30	28%	0.03	0.03	0.06	51%	0.04	0.03	0.06	42%
Poultry	0.85	0.61	1.46	42%	1.42	0.38	1.80	21%	1.13	0.48	1.61	30%
Edible Offal	0.17	0.15	0.32	46%	0.35	0.11	0.46	24%	0.45	0.05	0.50	10%
Others	0.01	0.01	0.02	49%	0.00	0.00	0.00	100%	0.19	0.01	0.20	3%

Total	3.97	2.01	5.98	34%	4.44	1.42	5.87	24%	5.65	1.62	7.28	22%

B. **Overall Positive Income Effect but Differs by Venue**

The income effect on per capita meat demand is positive even though we see pork demand peak at the middle-income group and slightly drop in the high 1/3 quantile. For beef and poultry, per capita consumption in the surveyed cities is still gradually and sustainably growing with income growth (Figure 1).

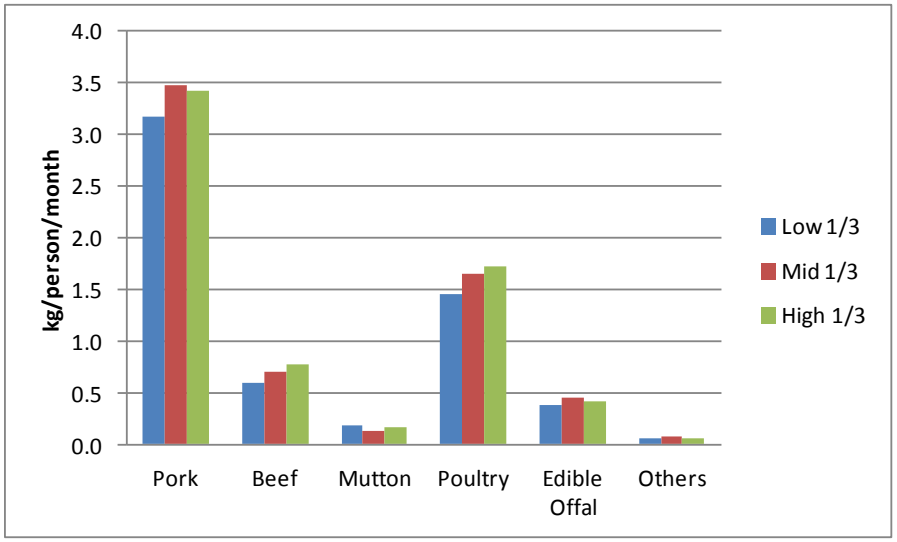

Figure 1: Per Capita Meat Consumption Rises with Income

However, income increases did not cause urban households to eat more meats at home, but encouraged them to dining out more for meat. From Figure 2, we can see that per capita meat consumption at home presents an inverted-U shape as income increases, with the only exception of mutton which shows a decreasing trend.

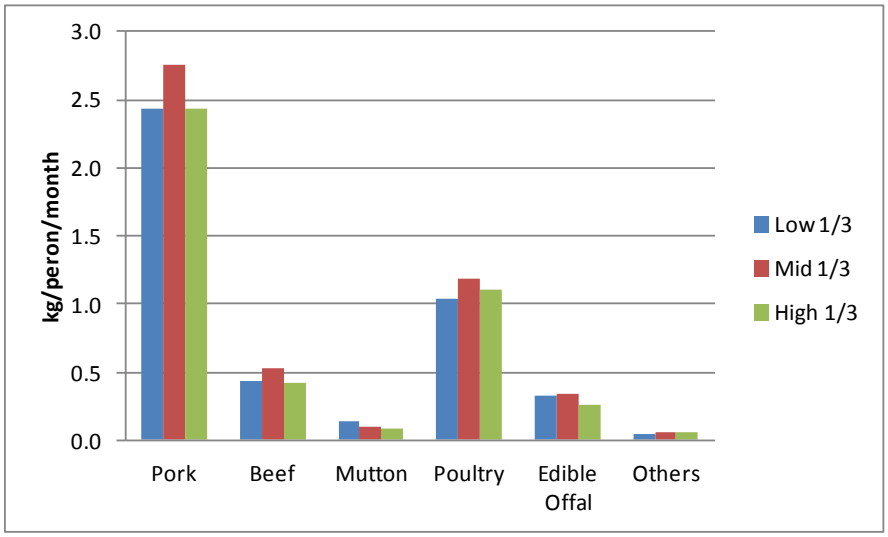

Figure 2: An Inverted-U Shape of Meat Consumption At Home As Income Grows

In contrast, income growth has significantly raised meat consumption away from home. In particular, we can see a sudden jump for dining out for pork, beef and poultry in the highest income group. With higher income, both the increasing time opportunity cost to prepare meat-based foods at home and the rising demand for luxuries force urban consumers to dine out more frequently and provide a likely explanation for the shift.

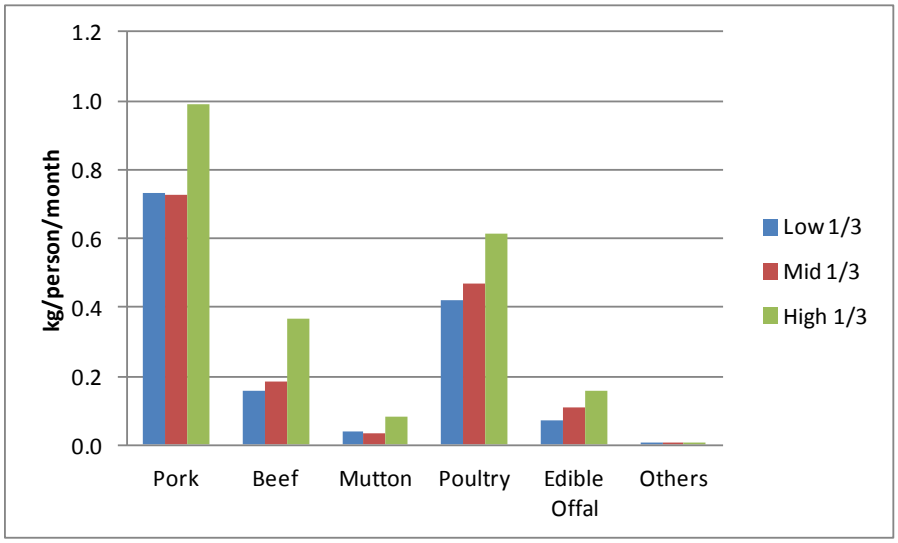

Figure 3: Meat Consumption Away from Home Rises with Income

C. Family Composition Effects on Meat Consumption

To find out how family composition affects meat consumption in China's urban households, we grouped the surveyed families into seven types based on members' age (Table 1).

Table 2 Description of Family Types

Family Type	Description	Age Range
Yhh	family with only young members	Age<=30 years old
Mhh	family with only middle age members	31<Age<=55 years old
Ehh	family with only elder members	Age>55 years old
Ymhh	family mixed by young and middle age members	
Yehh	family mixed by young and elder members	
Mehh	family mixed by middle age and elder members	
Ymehh	family mixed by young, middle age and elder members	

We find that families consisting of only middle age members (31~55 years old) have the highest per capita meat consumption (7.5kg), while families with only elders have the lowest (5.4kg). Young families are in between (6kg). As expected, other families mixed with two or three generations are consuming an amount that is between the highest by the middle aged families and the lowest by the elder families. Although we cannot directly say which generation's preferences are affecting which generation meat consumption in a household, the results in Figure 4 surely show that meat consumption differs significantly by family composition. In particular, we can see both elder and younger members in urban China are consuming much less meat than young adults (or middle age persons).

Figure 4: Family Composition Affects Meat Consumption

Families with only youths, however, consumed more meat away from home than all other types of families. In Figure 4, we see that nearly half of meat consumption for these families occurs away from home. For families with only elders, dining-out meat consumption accounts for only 15% or so, which is at the bottom among these seven types of families.

To further investigate how children and seniors are affecting household meat consumption, we grouped all surveyed families by whether they have children below 12 years old and elders above 55 years old (Table 3).

Clearly, the presence of children or elders in a family pulls down per capita consumption of meat. Families having child(ren) consume 0.99kg of meat a month, which is below that of families without children by 0.44kg. The difference between families with and without elders nearly doubled (0.90kg). By looking closer, we find that elders consistently have more negative effects on family meat consumption than children. It is specifically true for pork, beef and poultry, three primary meats in China. It is still not clear whether people are going to eat less meat when they become elderly or these elders we observed in the surveys are consuming less than youths did but is already higher than that they consumed when they were young. If it is the former, our findings indeed suggest that the effect on meat demand is negative when the society in China is aging, holding other effects unchanged. But if it is the latter, the effect could be positive or at least not negative. On this point, further investigations are needed.

Table 3 Children and Seniors Effects on Meat Consumption

	Child(ren)			Senior(s)		
	No	Yes	Diff	No	Yes	Diff
Pork	3.38	3.28	-0.10	3.50	3.20	-0.30

Beef	0.72	0.62	-0.10	0.81	0.57	-0.24
Mutton	0.17	0.11	-0.07	0.19	0.13	-0.06
Poultry	1.64	1.51	-0.12	1.74	1.47	-0.27
Edible Offal	0.42	0.39	-0.04	0.44	0.39	-0.05
Others	0.07	0.05	-0.02	0.05	0.07	0.02
Total	6.39	5.95	-0.44	6.73	5.83	-0.90

D. **Conclusion**

Results from urban household surveys in Beijing, Chengdu and Nanjing indicate that more meat is consumed than that reported by the NBS. The reason is the importance of meat consumption consumed away from home that is not included in the NBS data. Results also indicate that income effects significantly affect consumption of meat, particularly for meat consumed away from home. The demographic composition of households also matters in terms of meat consumption. For example, families consisting of elders only consume the smallest quantity of meat, particularly for meat consumed away from home. Families consisting of members 30 years old or younger consume less meat overall than families consisting of only middle age persons. Differences in meat consumption among households consisting of the combination of different generations also exist. For example, households consisting of young and elder members consume less meat than households consisting of middle age and young and middle age and elder. Finally, the presence of either children or elders in families lowers per capita consumption of meat in those families when compared to families having no children or elders.