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## China - Peoples Republic of

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### Food Expenditures in Chengdu

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**Report Highlights:**

For many years, official food consumption in China was likely underestimated due to undercounting of food consumed away from home. Research jointly conducted by a top Chinese research institute and several land-grant universities in the United States have made successful progress in response to this concern. This report summarizes some of the main survey results conducted in Chengdu, China, in 2010. Food expenditures per capita are reported for nine food categories and for disaggregated meat, drink, and fruit items. The food expenditures in Chengdu are reported for both food consumed at home and food consumed away from home. Food expenditures at home are reported by place of purchase and food away from home is reported by outlet. Additionally, food expenditures by meals and by income quintiles are reported for both categories of food. Results indicate that food away from home is a significant part of total food consumption. Expenditures for food at home are largest in supermarkets for grain, eggs, dairy, and drinks, but are largest in wet markets for meat, seafood, vegetables, fruit, and bean products. Expenditures are largest in restaurants among outlets for food away from home for all nine food groups. Expenditures for lunch and dinner are larger in Chengdu than for breakfast but not

for all food groups. Finally, income is an important determinant for food consumption with rich households spending much more on food away from home than poorer households.

## **Introduction**

Chengdu, located in southwest China, is the capital of Sichuan Province and a sub-provincial city. The city has 12,121 square kilometers, 40.1 percent in plains, 27.6 percent in hills and 32.3 percent in mountains. Chengdu has 425,863 hectares of arable land (Chengdu Bureau of Statistics). It has direct jurisdiction over nine districts (five city core districts and four suburban districts within the city limits), four county-level cities, and six counties.

Chengdu had 14 million permanent residents in 2010, accounting for nearly 17.5 percent of the population of Sichuan province and 1 percent of China's national total (Chengdu Bureau of Statistics). In 2010 Chengdu's main urban areas had 5.3 million permanent residents, up 1.8 million over the 3.4 million in 2000. They accounted for 37.7 percent of Chengdu's gross population, compared with 31.2 percent in 2000 (China Daily, 2011-07-07). Chengdu's overall population density in year 2010 was 944 persons per square kilometer, but the core city areas reached 7,088 persons per square kilometer.

Chengdu had 4.3 million households in 2010, averaging 2.7 persons per household (Chengdu Bureau of Statistics). It was lower than the 2.9 persons for Sichuan province and 3.1 persons for the country (National Bureau of Statistics of China, 2011).

Chengdu's regional GDP was 555.133 billion RMB in 2010, 3.7 times the GDP in 2000. Retail sales and wholesalers, along with the hotel and catering industry, contributed 12.64 percent to the total.

Specifically, total retail sales and wholesale sales increased to 49.4 billion RMB, and the hotel and catering industry increased to 20.754 billion RMB, both of which were 3.1 times the value in 2000 (Chengdu Bureau of Statistics).

Average per capita disposable income for Chengdu's urban households in 2010 was 20,835 RMB, compared to only 7,649 RMB in 2000. The growth in urban citizens' per capita consumption expenditure is comparable, from 6,423 RMB in 2000 to 15,511 RMB in 2010, a 2.4 times increase (Chengdu Bureau of Statistics).

Chengdu has been recognized as the birthplace of many culinary traditions. In 2010, Chengdu was named a UNESCO City of Gastronomy, making it the first city in Asia to be awarded such an accolade (Jackson 2012). Chengdu residents also spend the highest percentage of their disposable income on dining out expenditures than any other city in China. Chengdu is known for its spicy food, particularly hotpot, that includes both numbing Sichuan peppers and chili peppers. Pork, beef, and lamb as well as mushrooms, tofu, potatoes, green vegetables, and carrots are popular ingredients in hotpot dishes.

Note: Throughout the report, "FAH" is Food at Home, "FAFH" is Food away from Home, and "Yuan" is Chinese RMB at the 2010 average exchange rate of 1 USD=6.76 RMB

## **Our Survey**

To better understand food consumption in Chengdu, we surveyed 208 households in 2010. The survey includes two parts. The first part collected detailed information on demographics and socioeconomics of the household. The second part recorded food consumption for one week where for each meal households recorded consumption of and expenditures on food consumed at home and away from home

as well as related information, such as purchase venues, who paid for each meal, and types of food facility. Food at home is defined as all meals prepared or consumed at home and includes all food and food products that are purchased raw, semi-processed, and ready-to-eat from food stores, including supermarkets, wet markets, convenience stores, corner markets, and other specialty food stores. Food away from home in our survey is defined to include almost all meals that are not prepared at home including all meals served in general restaurants, fast food outlets, cafeterias, and small vendor or stands. In our survey we categorized food purchases into 79 commodities. For food purchases that were recorded as dishes we converted these into their commodity equivalents according to local recipes and chef’s surveys. We then aggregated the commodities into groups of 35 commodities as well as groups of nine commodities for ease of presentation.

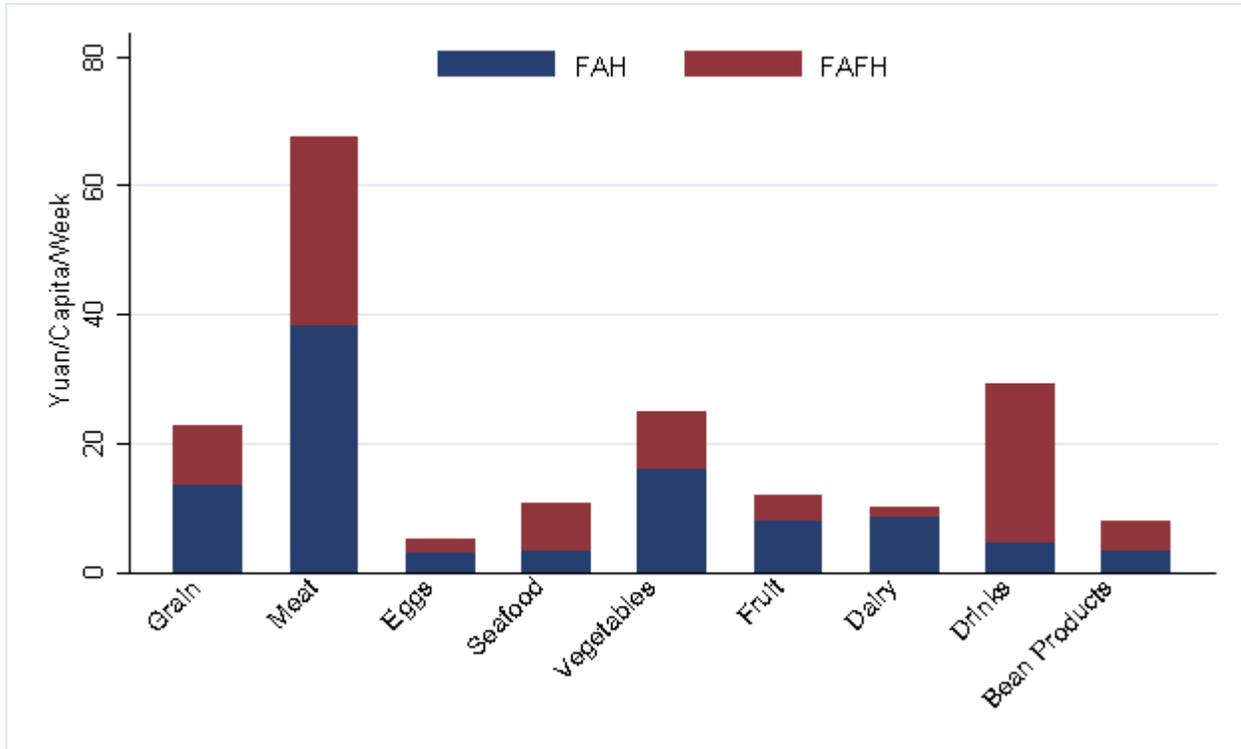
### Food Expenditures

The average food expenditures per capita for the week in our survey was just over 190 RMB with about 98 RMB spent on food at home and nearly 93 RMB spent on food away from home (Table 1 and Figure 1). Over 30 percent of expenditures in the two categories were spent on meat. Vegetables were the next highest category of expenditures at home followed, in descending order, by grain, dairy, fruit, drinks, bean products, seafood, and eggs. The ordering of food-group expenditures was quite different for food away from home. For food away from home the second highest expenditure category was drinks followed in descending order by grain, vegetables, seafood, bean products, fruit, eggs, and dairy. In terms of total food expenditures the largest percent was spent on meat followed in descending order by drinks, vegetables, grain, fruit, seafood, dairy, bean products, and eggs.

Table 1. Food Expenditures by Commodity Group

Commodity	Food At Home			Food Away From Home			Total Food		
	USD	RMB	percent	USD	RMB	percent	USD	RMB	percent
Grain	1.98	13.39	13.68	1.39	9.38	10.11	3.37	22.77	11.94
Meat	5.64	38.16	38.96	4.36	29.46	31.77	10.00	67.61	35.46
Eggs	0.46	3.08	3.14	0.32	2.16	2.33	0.77	5.23	2.74
Seafood	0.48	3.27	3.34	1.08	7.31	7.88	1.57	10.58	5.55
Vegetables	2.35	15.89	16.22	1.36	9.17	9.89	3.71	25.06	13.14
Fruit	1.17	7.93	8.1	0.59	4.01	4.33	1.77	11.94	6.26
Dairy	1.27	8.59	8.77	0.23	1.56	1.68	1.50	10.15	5.32
Drinks	0.64	4.35	4.44	3.69	24.92	26.87	4.33	29.26	15.35
Bean Products	0.49	3.28	3.35	0.71	4.77	5.14	1.19	8.05	4.22
<b>Totals</b>	<b>14.49</b>	<b>97.93</b>		<b>13.72</b>	<b>92.73</b>		<b>28.20</b>	<b>190.66</b>	

Figure 1. Food Expenditures



The majority of seafood and drinks expenditures occurred away from home (Figure 1). Of the 67.61 RMB spent on meat during the week, more than 30 RMB was spent on pork with nearly a third of those expenditures spent on pork away from home (Figure 2). About half of beef expenditures occurred away from home. More than half of poultry and other meat expenditures occurred at home. Most drink expenditures were away from home (Figure 3). Liquor expenditures were the highest followed closely by beer expenditures. Wine expenditures in Chengdu during the survey week were less than 1 RMB per person.

For the fruit category, apples was the highest expenditure item followed in descending order by other fruits, melons, pears, grapes, and oranges (Figure 4). The majority of expenditures on apples, pears, grapes, and oranges occurred at home. In contrast, the majority of melon expenditures was away from home and likely reflects a Chinese food culture that includes fruit, usually watermelon, as the concluding dish of the meal.

Figure 2. Meat Expenditures

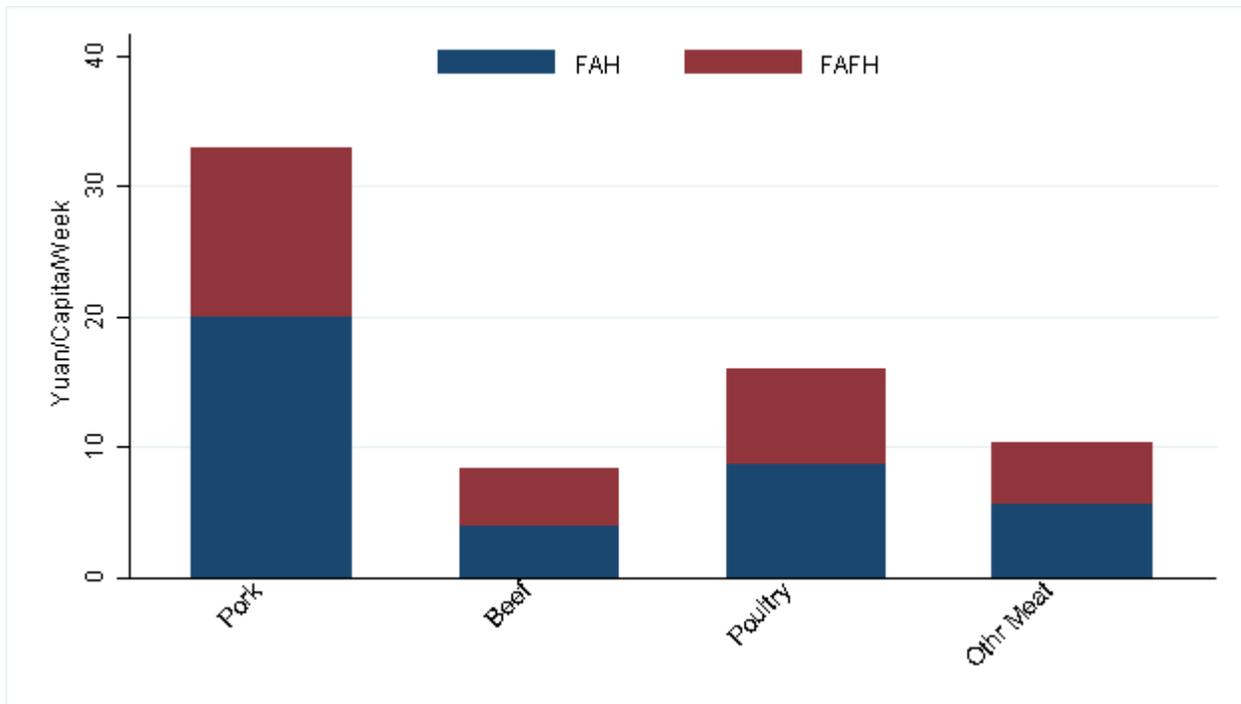


Figure 3. Drinks Expenditures

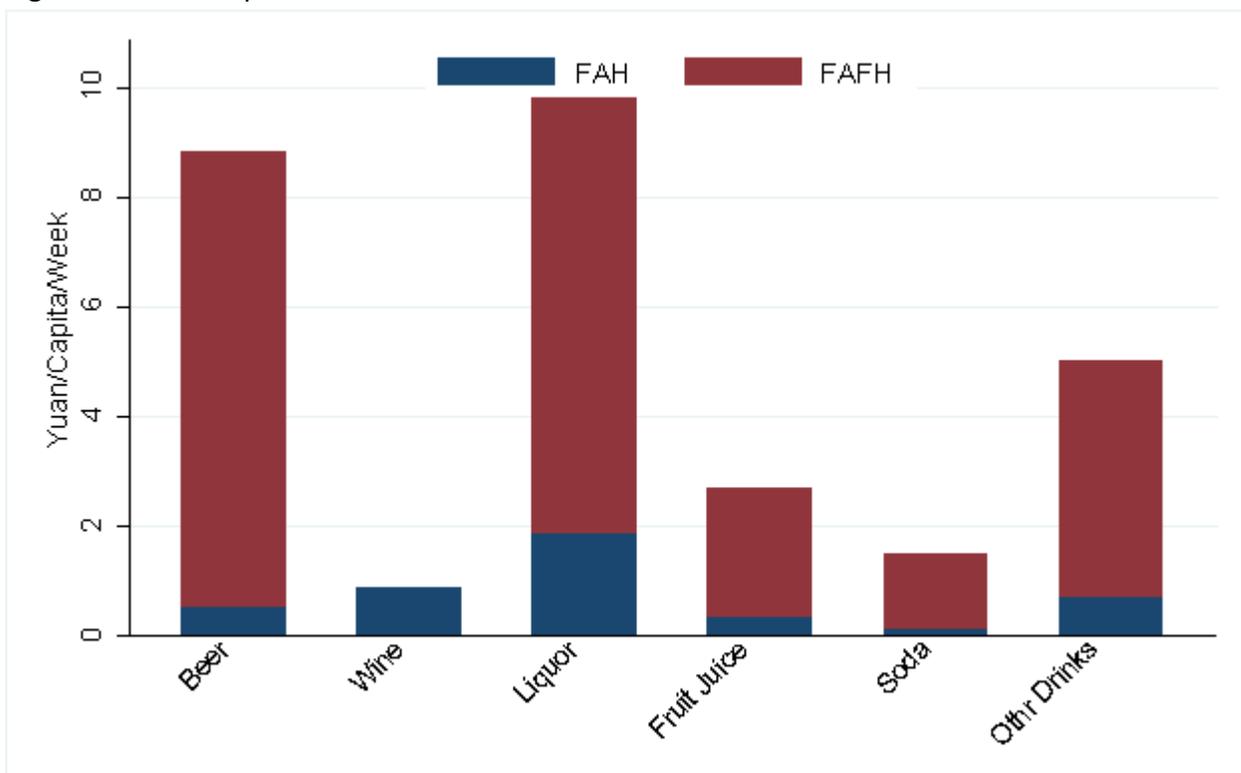
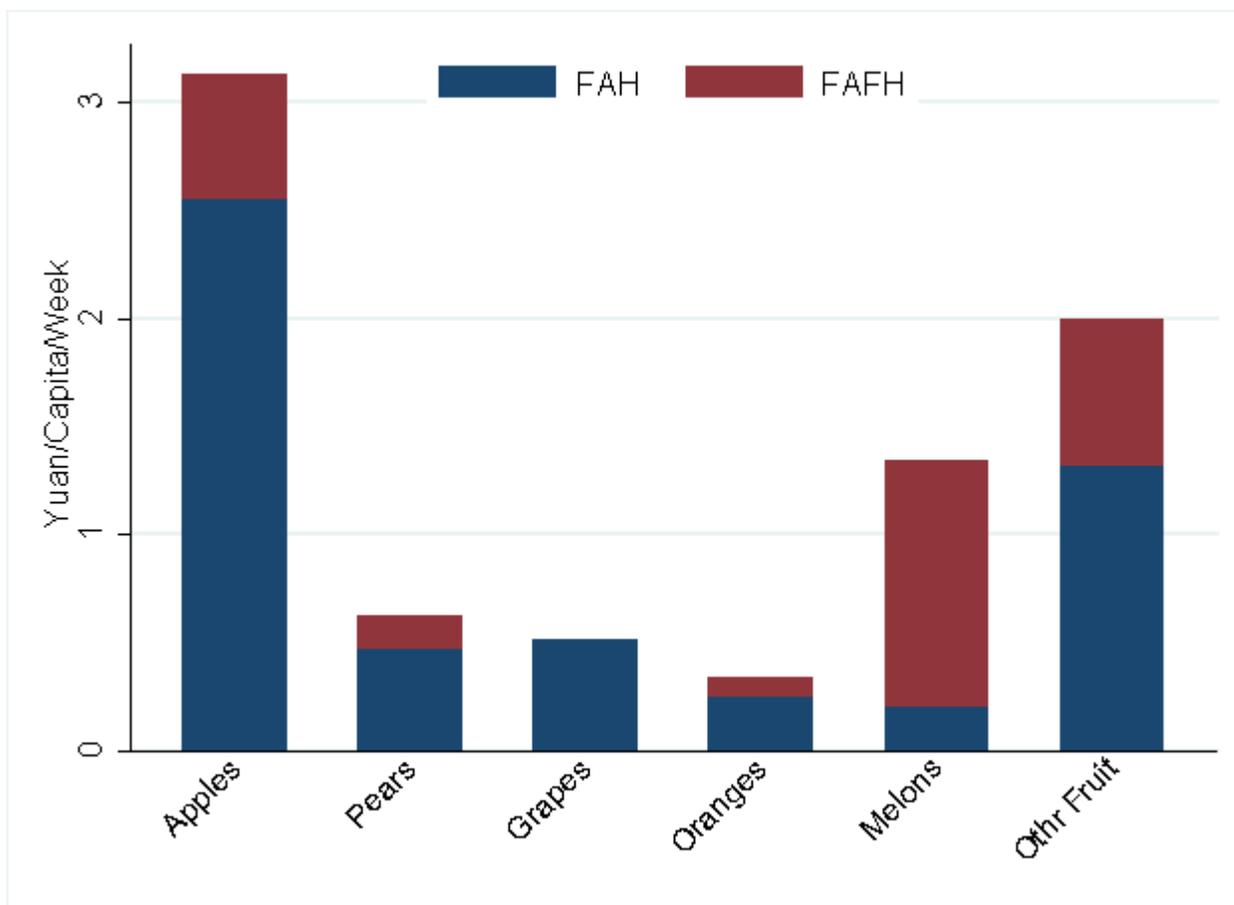


Figure 4. Fruit Expenditures



### Food Expenditures at Home by Place of Purchase

In this section, food expenditures for the nine food groups and for meats, drinks, and fruits are reported by place of purchase (i.e., supermarket, wet market, convenience store, corner store, and other) for food consumed at home. In Chengdu, wet markets are the primary place of purchase for food products consumed at home followed by supermarkets (Table 2 and Figure 5). Supermarkets may reflect consumer confidence as a provider of safer products in light of food safety scandals in recent years. However, wet markets are the traditional place of purchase and remain so for products where quality is more easily judged by its appearance. Supermarkets are the primary place of purchase for grain, eggs, dairy products, and drinks consumed at home (Table 2). Wet markets were the primary place purchase for meat, seafood, vegetables, fruit, and beans (Table 2). Meat expenditures at convenience stores, corner stores, and other stores are limited (Table 2).

Table 2. Food Expenditures at Home by Place of Purchase

	Supermarket	Wet Market	Convenience Store	Corner Store	Other
Grain	42.3%	21.0%	13.2%	13.8%	9.7%
Meat	16.9%	56.1%	11.6%	7.2%	8.3%
Eggs	45.0%	39.6%	6.1%	4.0%	5.2%
Seafood	23.3%	73.2%	0.6%	0.9%	2.0%
Vegetables	12.8%	78.2%	5.1%	1.0%	3.0%
Fruit	23.4%	56.5%	8.8%	0.9%	10.4%
Dairy	82.2%	6.3%	8.5%	0.3%	2.7%

Drinks	51.7%	1.3%	11.6%	0.5%	34.9%
Bean Products	25.1%	48.3%	10.9%	9.7%	6.1%

Figure 5. Food Expenditures at Home by Place of Purchase

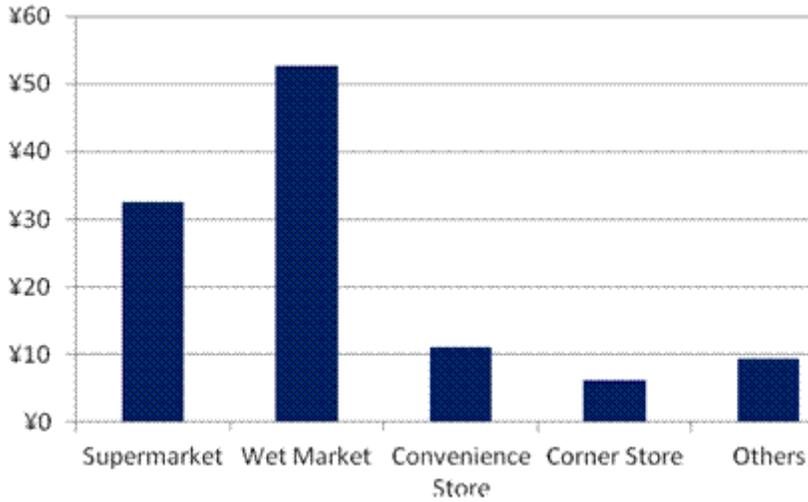


Figure 6. Meat Expenditures at Home by Place of Purchase

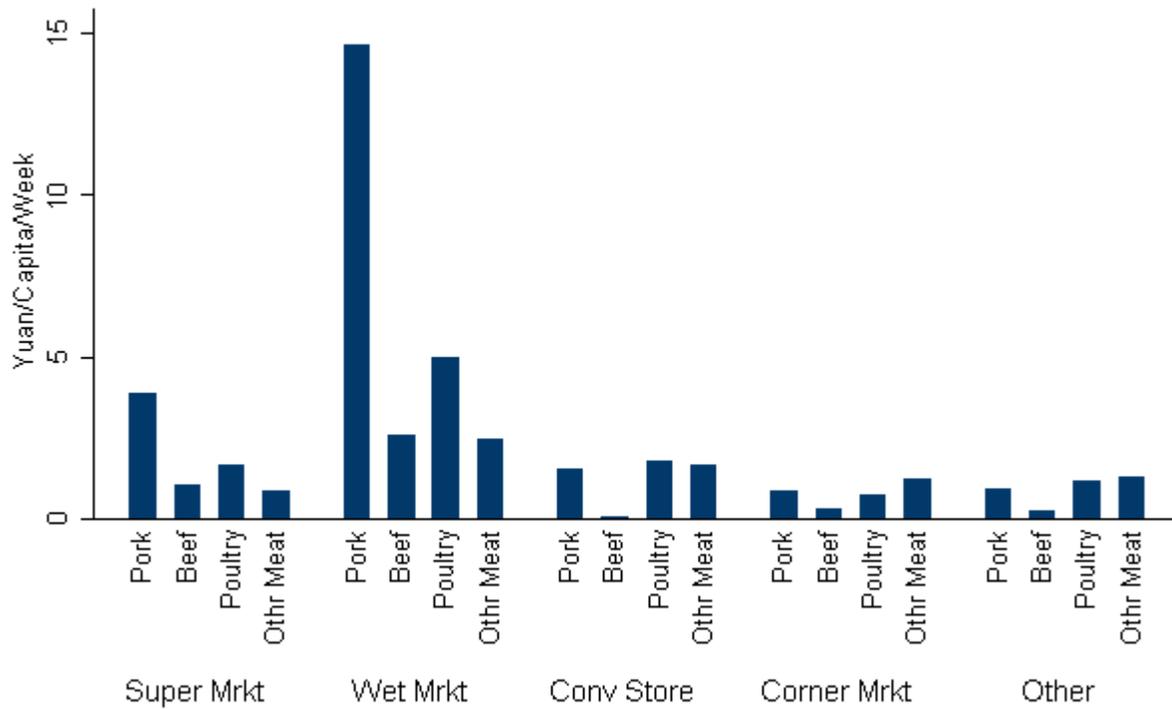


Figure 7. Drink Expenditures at Home by Place of Purchase

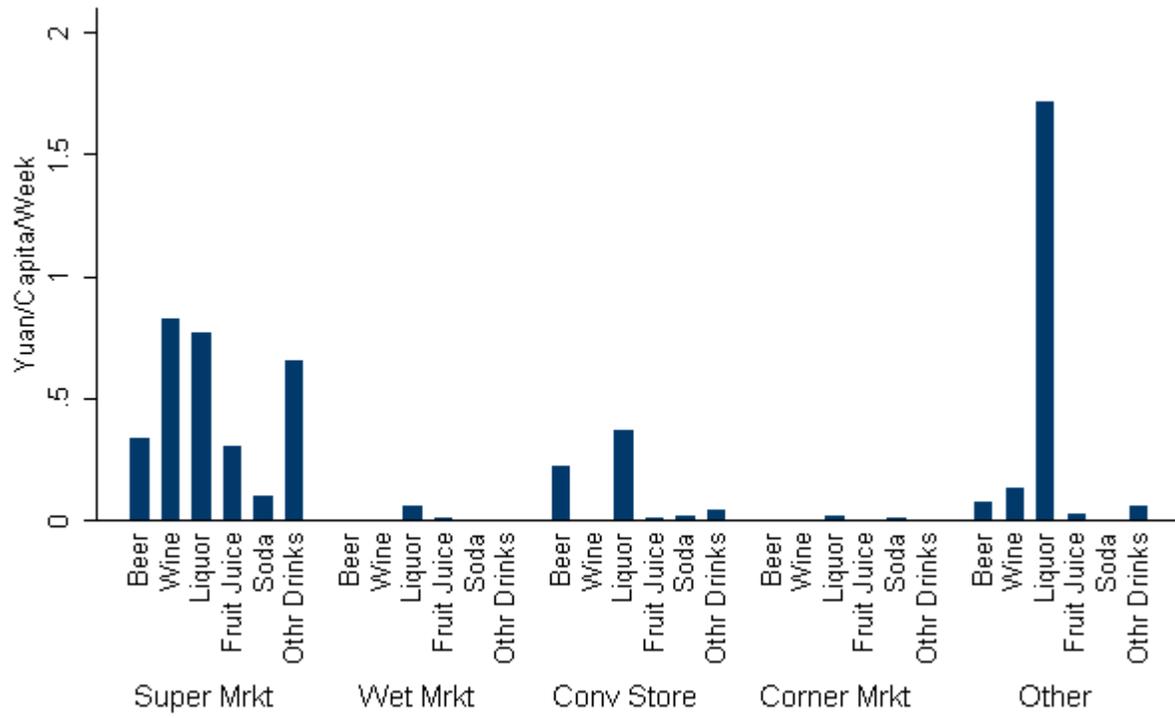
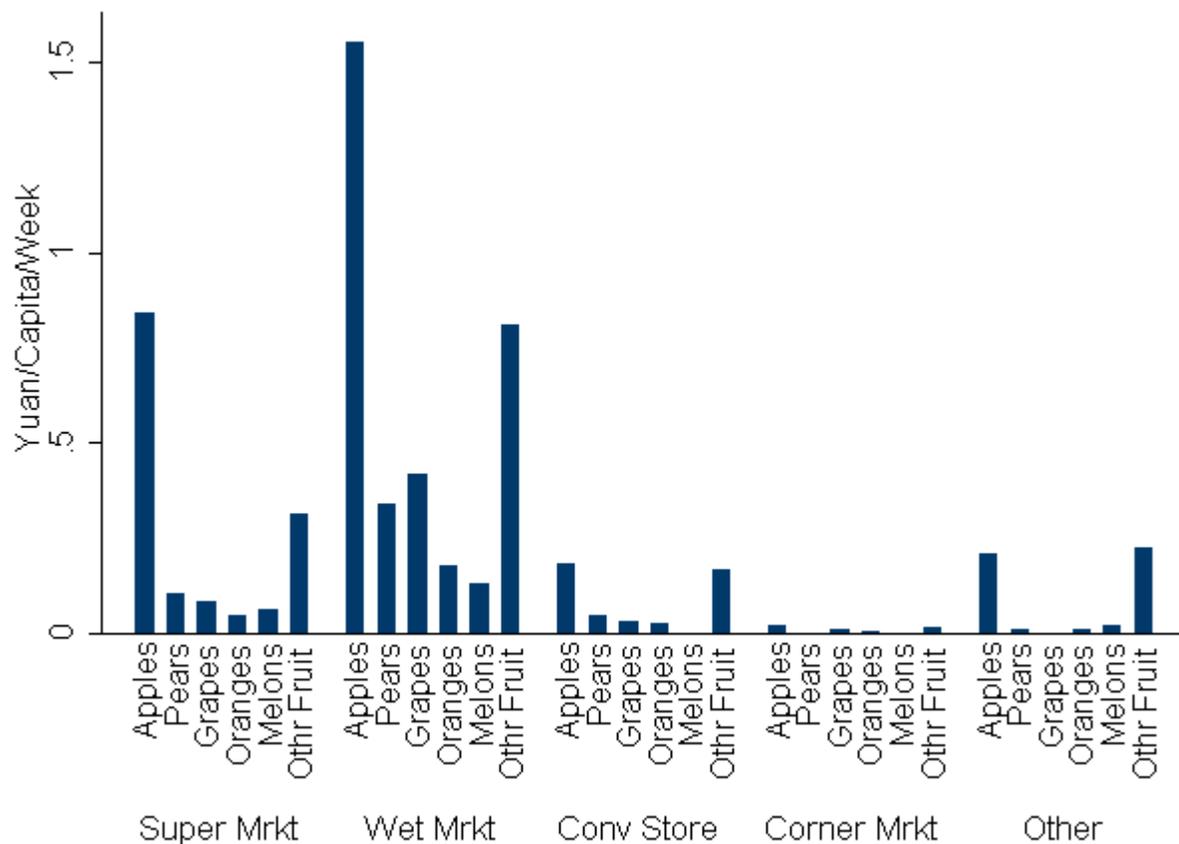


Figure 8. Fruit Expenditures at Home by Place of Purchase



In terms of meat products, the vast majority of pork is purchased in Chengdu in wet markets (Figure 6). The same is true for beef, poultry, and other meats. Perhaps surprising is the small amount of meat products purchased at super markets in Chengdu. Much of the beer, wine, fruit juice, and other drinks is purchased at supermarkets (Figure 7). What stands out is that most liquor purchases for consumption at home occur in specialty stores which is included in the “other” stores category. However, a significant amount of beer and liquor for consumption at home is also purchased at convenience stores. In terms of fruits, most apples, pears, grapes, oranges, melons, and other fruits are purchased at wet markets although a significant amount of apple expenditures for consumption at home take place in super markets. Some apple and other fruit expenditures occur at convenience and other specialty stores.

### Food away from Home by Outlet

In this section, expenditures for food consumed away from home is reported by the outlet where the purchases were made. These are reported for the nine food categories and for meats, drinks, and fruits. The number one outlet for the purchase of food consumed away from home for all of the nine food categories is restaurants (Table 3). In fact, over half of meat, seafood, fruit, dairy, drinks, and bean products for consumption away from home is purchased in restaurants. Nearly 90 percent of away from home drink expenditures occurs in restaurants and nearly 70 percent of away from home expenditures for seafood and bean products takes place in restaurants. Expenditures at fast-food establishments comes in second behind restaurants for grain, meat, seafood, and drinks while cafeteria comes in second behind restaurants for vegetable expenditures. The “other” category comes in second behind restaurants in terms of expenditure for consumption away from home for eggs, fruit, dairy, and bean products.

Table 3. Food Expenditures Away From Home by Outlet (on weekly basis)

Commodity	Restaurant	Fast-food	Cafeteria	Other
Grain	38.3percent	26.7percent	16.6percent	18.4percent
Meat	56.6percent	18.3percent	17.0percent	8.2percent
Eggs	41.7percent	17.7percent	17.9percent	22.7percent
Seafood	69.3percent	14.5percent	6.7percent	9.5percent
Vegetables	43.9percent	15.5percent	24.6percent	16.1percent
Fruit	61.2percent	5.3percent	4.9percent	28.5percent
Dairy	55.4percent	8.3percent	15.2percent	21.1percent
Drinks	89.8percent	5.0percent	0.8percent	4.4percent
Bean Products	70.1percent	5.2percent	6.8percent	17.8percent

The majority of pork expenditures away from home occur in restaurants followed by cafeterias and fast food outlets (Figure 9). Most beef, poultry, and other meat expenditures are also in restaurants followed by fast-food outlets and cafeterias. In terms of all the drink types, the vast majority of expenditures for consumption away from home occur in restaurants (Figure 10). The pattern for fruit expenditures is somewhat different. More apples and oranges for consumption away from home are purchased at other outlets although apple expenditures at restaurants is a close second followed by fast-food outlets (Figure 11). The vast majority of melons for away from home consumption is purchased at restaurants while restaurants are also the number one outlet for pear and other fruit expenditures.

Figure 9. Meat Expenditures away from Home by Outlet

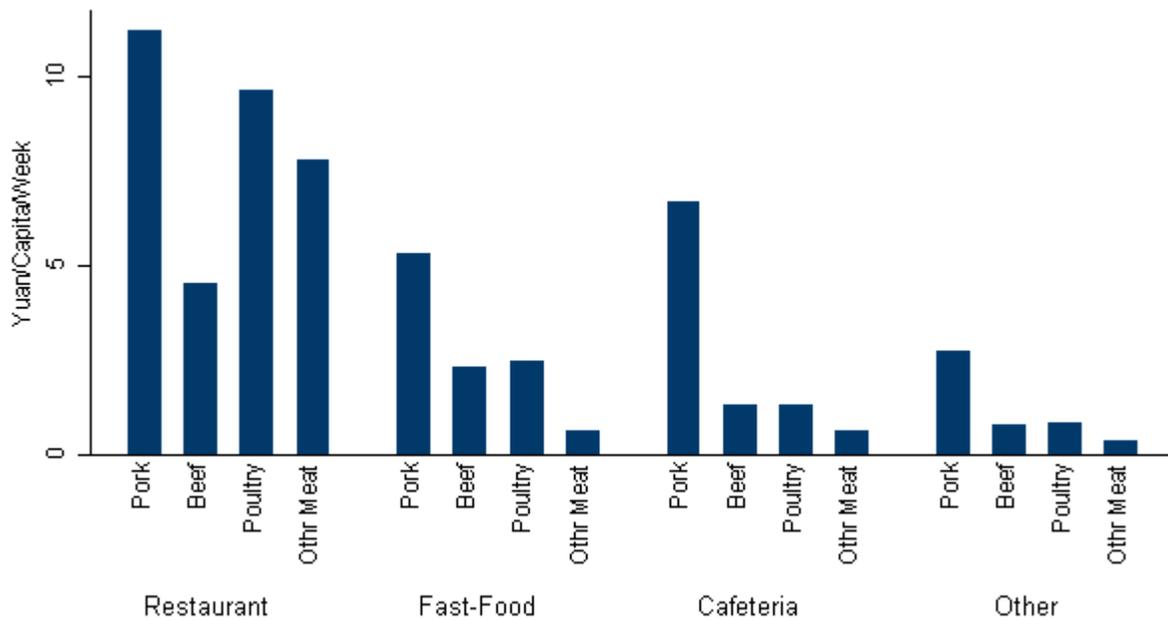


Figure 10. Drinks Expenditure away from Home by Outlet

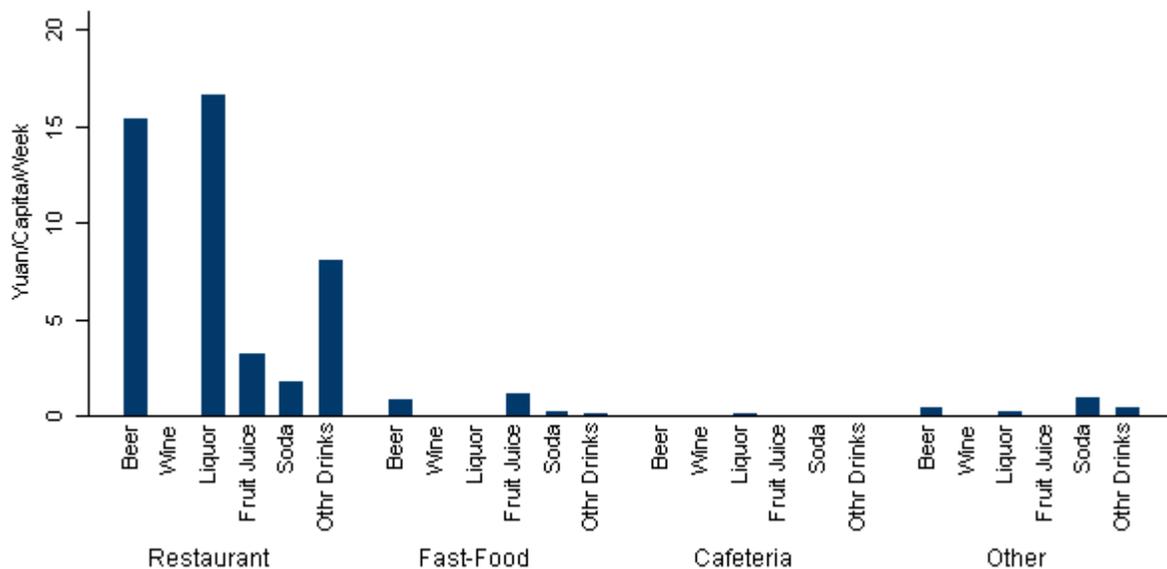
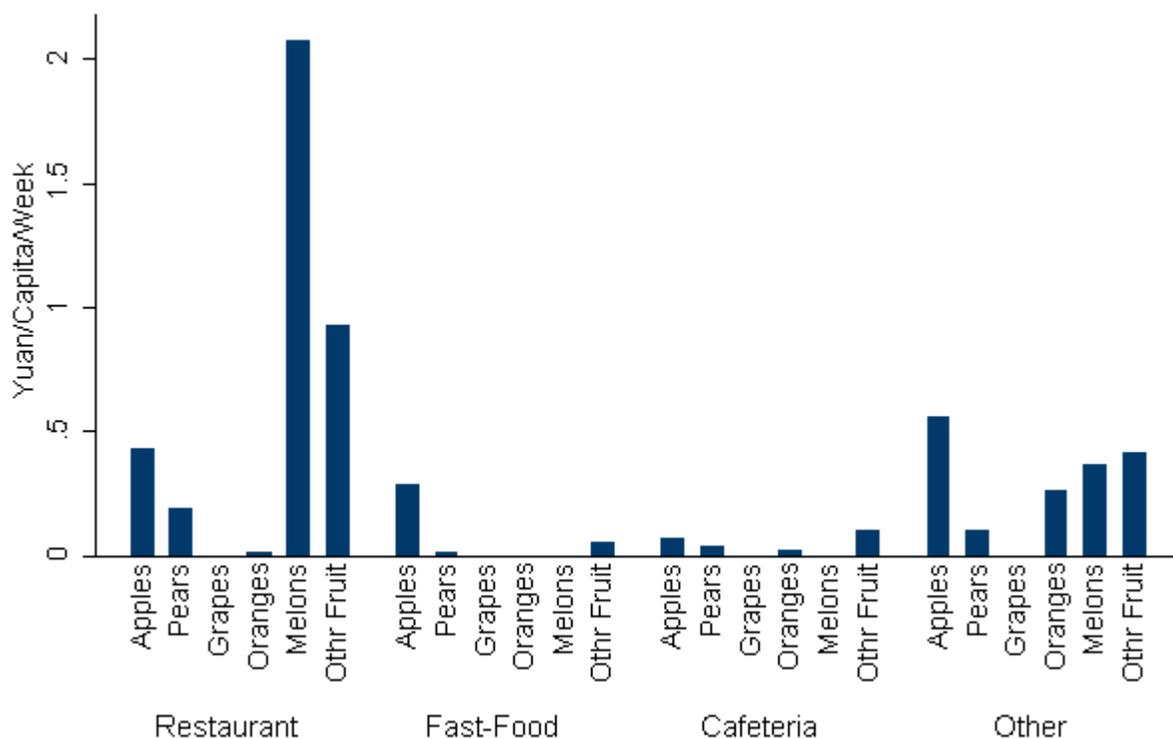


Figure 11. Fruit Expenditures away from Home by Outlet

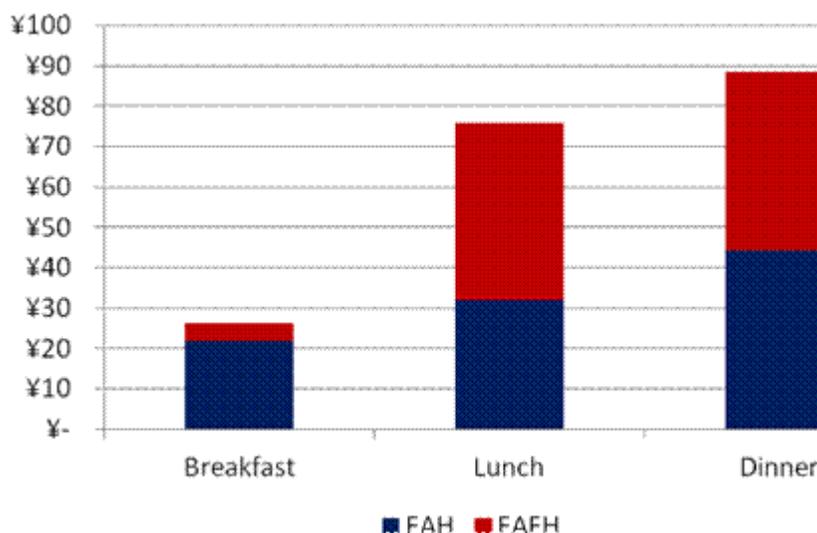


### Food Expenditures by Meal

This section reports food expenditures at home and away from home for the nine food groups and for meat, drinks, and fruit expenditures by meals: breakfast, lunch, and dinner. In Chengdu, the most money is expended for dinner while the least is expended for breakfast (Figure 12). This pattern, however, differs by food group. Most grain, eggs, and dairy expenditures at home are greatest at

breakfast (Table 4). In contrast, most at home meat, seafood, vegetables, fruit and drink expenditures occur at dinner. For bean products at home, breakfast and dinner expenditures are nearly equal.

Figure 12. Food Expenditures by Meal



The pattern is markedly different for food away from home expenditures (Table 4). Expenditures at lunch are largest for grain, meat, eggs, vegetables, and bean products. They are largest at dinner for seafood, fruit, dairy, and drinks.

For the meat products, pork, beef, poultry, and other meat, lunch and dinner are the meals when most expenditures occurs (Figure 13). Pork expenditures are highest at lunch with about 50 percent consumed away from home. Poultry and other meat expenditures are greater for dinner both at home and away from home. Beef expenditures are nearly the same for lunch and dinner. Drink expenditures are dramatically higher for lunch and dinner with most of these expenditures occurring away from home, particularly for beer and liquor (Figure 14). While drink expenditures are large at lunch, they are larger for each drink item at dinner except in the case of fruit juice. The same essential pattern pertains to fruits as it does for meats and drinks. Fruit expenditures are also much greater for lunch and dinner than for breakfast (Figure 15). Expenditures on apples at home increase significantly for dinner. Melon expenditures away from home also increase dramatically at dinner.

Table 4. Food Expenditures by Meal

Commodity/Meal	Food At Home	Food Away From Home	Total Food
<b>Grain</b>			
breakfast	6.810	1.283	8.093
lunch	3.213	4.801	8.015
dinner	3.371	3.294	6.665
<b>Meat</b>			
breakfast	1.633	0.982	2.615
lunch	15.105	15.915	31.020
dinner	21.419	12.557	33.976
<b>Eggs</b>			
breakfast	2.399	0.441	2.841
lunch	0.306	0.923	1.229

	dinner	0.370	0.793	1.163
Seafood				
	breakfast	0.018	0.462	0.480
	lunch	1.526	3.203	4.729
	dinner	1.730	3.643	5.373
Vegetables				
	breakfast	0.444	0.289	0.733
	lunch	7.074	5.653	12.727
	dinner	8.367	3.230	11.597
Fruit				
	breakfast	0.774	0.199	0.974
	lunch	2.249	1.791	4.040
	dinner	4.907	2.023	6.931
Dairy				
	breakfast	8.043	0.443	8.487
	lunch	0.203	0.295	0.499
	dinner	0.344	0.816	1.160
Drinks				
	breakfast	0.643	0.020	0.663
	lunch	1.273	8.793	10.066
	dinner	2.428	16.103	18.532
Bean Products				
	breakfast	1.209	0.172	1.381
	lunch	0.853	2.612	3.465
	dinner	1.220	1.986	3.205

Note: all amounts shown in RMB. Average exchange rate in 2010 was 1 USD = 6.76 RMB

Figure 13. Meat Expenditures by Meal

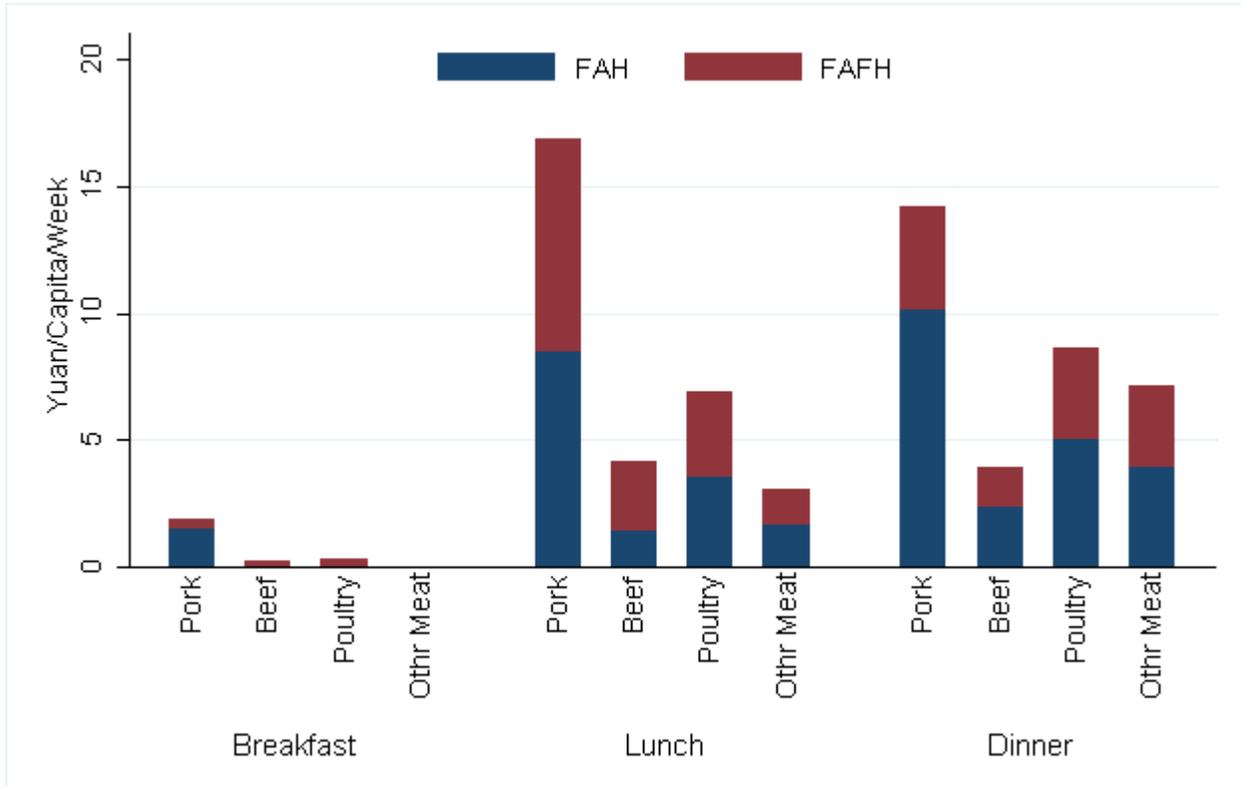


Figure 14. Drinks Expenditures by Meal

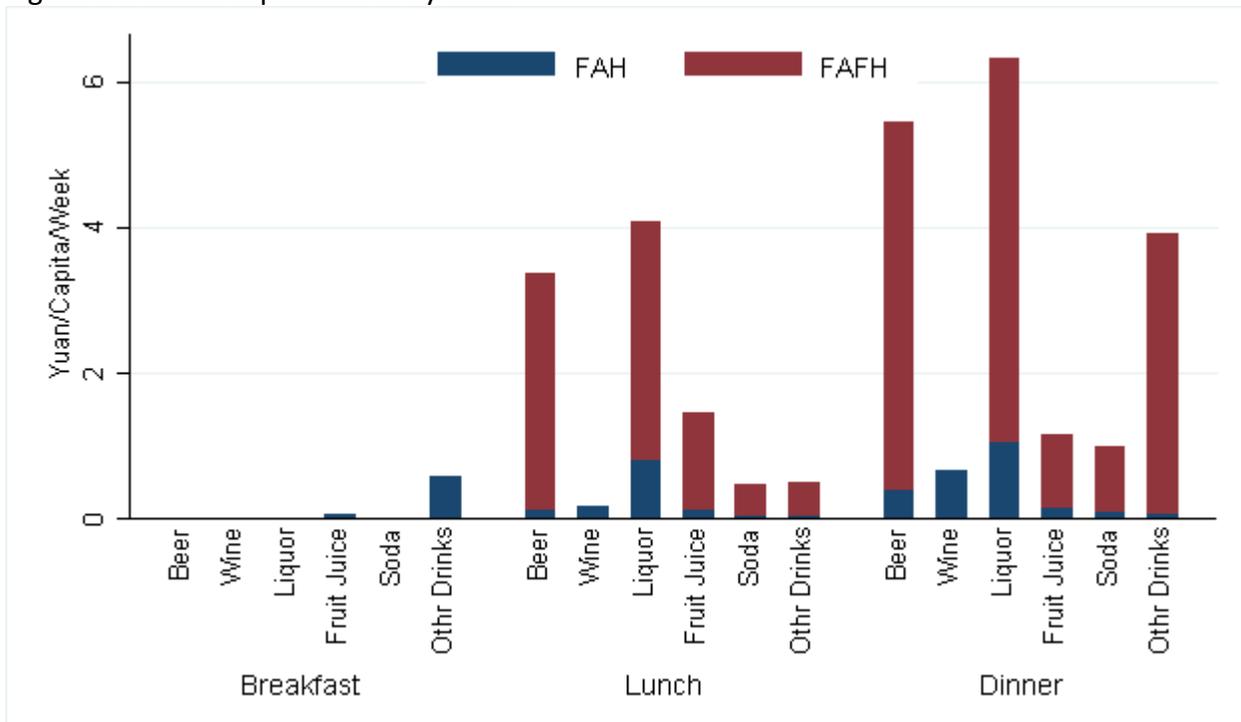
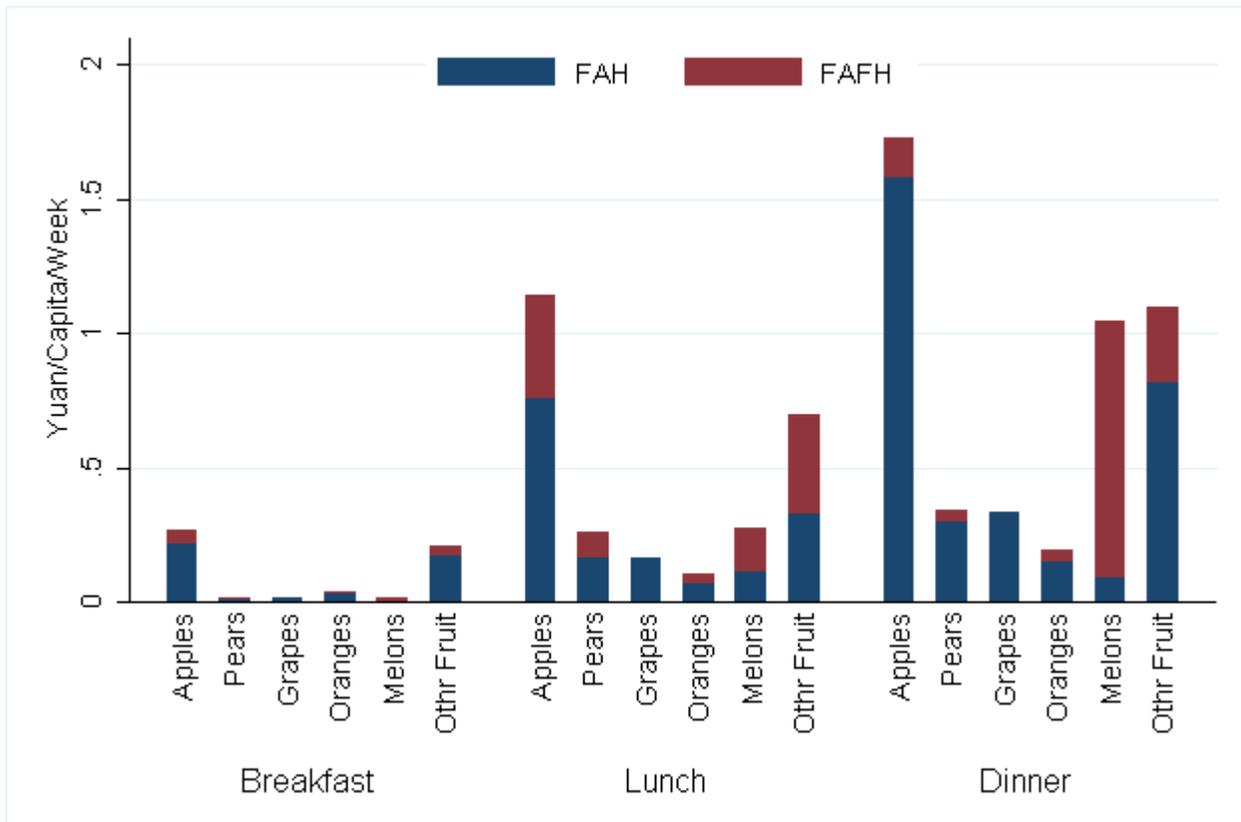


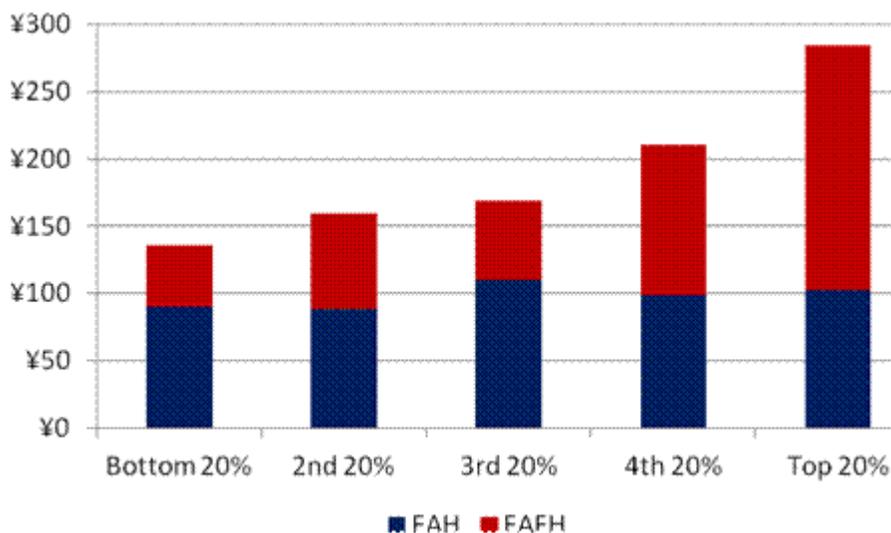
Figure 15. Fruit Expenditures by Meal



### Food Expenditures by Income Group

Income is an important determinant of food consumption. Engel (18) noted that while food expenditures may increase as income increases, a smaller proportion of total income is spent on food as income increases. Income levels also influence the types of foods purchased as well as whether food is consumed at home or away from home. In Chengdu, it is clear that as income increases expenditure for food increases (Figure 16). What is particularly interesting is that food away from home increases more rapidly than food at home. For the richest households (top 20 percent), food expenditures for food away from home is larger than food expenditures at home. An inspection of Table 5 also makes this clear. For grain, meat, eggs, and vegetables, the bottom four income groups spend a larger amount on food at home than food away from home while for the top income group the opposite is the case; they spend more on food away from home than food at home for these four categories of food. When focusing on total food and comparing the five income groups, the richest quintile spends more in each food category except in the case of fruit where the next to richest groups spends the most on fruit. However, this same pattern is not the case when only considering food at home. For food expenditures at home, the richest income groups spends more than the other income groups on eggs, fruit, dairy, and drinks, but not on the other five food groups. In the case of food away from home, fruit is the only food group on which the richest group does not spend more than the other groups.

Figure 16. Food Expenditures by Income Group



The difference in magnitude of expenditures between the richest and poorest groupings is also noteworthy. The richest group generally spends between three to five times that of the poorest groups for the nine food groups. In the case of seafood, the richest group spends over nine times that of the poorest group. A notable exception is for fruit where the richest group spent about 1.3 times that of the poorest group.

In terms of more disaggregation, pork, beef, poultry, and other meat expenditures by income group generally trend upward as incomes increase when aggregating meat at home with meat away from home (Figure 17). Beer and liquor expenditures particularly for away from home increase dramatically as income increase (Figure 18). As indicated above, the expenditures on fruit behave somewhat differently among the five income groups than that of the other food groups. Other fruit shows a clear increasing expenditure pattern as income increases while the pattern is not as clear for apples (Figure 19). Pears actually show an increasing expenditure trend going from the poorest group to the middle income group where the expenditure trend then decreases going from the middle group to the richest group.

Table 5. Total Food Expenditures by Income Group

Commodity	Income Quintile	Food At Home	Food Away From Home	Total Food
Grain	Bottom 20percent	12.707	4.384	17.091
	2nd 20percent	10.642	7.327	17.970
	3rd 20percent	15.684	6.750	22.434
	4th 20percent	13.364	10.900	24.264
	Top 20percent	14.348	18.128	32.477
Meat	Bottom 20percent	37.386	16.208	53.594
	2nd 20percent	36.411	23.441	59.852
	3rd 20percent	45.690	20.947	66.638
	4th 20percent	36.223	31.076	67.300
	Top 20percent	34.830	57.163	91.992
Eggs	Bottom 20percent	2.631	1.295	3.926
	2nd 20percent	2.742	1.034	3.776
	3rd 20percent	3.118	1.505	4.623

		4th 20percent	3.338	3.064	6.402
		Top 20percent	3.578	3.922	7.500
Seafood		Bottom 20percent	2.099	1.780	3.878
		2nd 20percent	3.461	4.506	7.967
		3rd 20percent	4.274	3.599	7.873
		4th 20percent	3.569	8.090	11.660
		Top 20percent	3.134	19.194	22.328
Vegetables		Bottom 20percent	16.005	4.090	20.095
		2nd 20percent	14.001	5.200	19.201
		3rd 20percent	16.746	6.402	23.148
		4th 20percent	18.574	12.554	31.128
		Top 20percent	13.879	18.036	31.915
Fruit		Bottom 20percent	5.475	3.611	9.086
		2nd 20percent	6.092	2.474	8.566
		3rd 20percent	8.340	1.694	10.034
		4th 20percent	9.795	7.669	17.464
		Top 20percent	10.119	4.585	14.705
Dairy		Bottom 20percent	8.603	0.625	9.228
		2nd 20percent	8.714	0.117	8.831
		3rd 20percent	6.099	0.500	6.599
		4th 20percent	7.275	2.096	9.371
		Top 20percent	12.334	4.458	16.793
Drinks		Bottom 20percent	2.224	10.706	12.931
		2nd 20percent	3.309	20.643	23.952
		3rd 20percent	5.667	17.226	22.893
		4th 20percent	3.152	30.208	33.359
		Top 20percent	7.548	47.647	55.195
Bean Products		Bottom 20percent	3.077	2.664	5.740
		2nd 20percent	3.258	5.943	9.201
		3rd 20percent	4.067	0.794	4.861
		4th 20percent	3.583	5.945	9.528
		Top 20percent	2.431	9.020	11.451

Note: all amounts shown in RMB. Average exchange rate in 2010 was 1 USD = 6.76 RMB

Figure 17. Meat Expenditures by Income Group

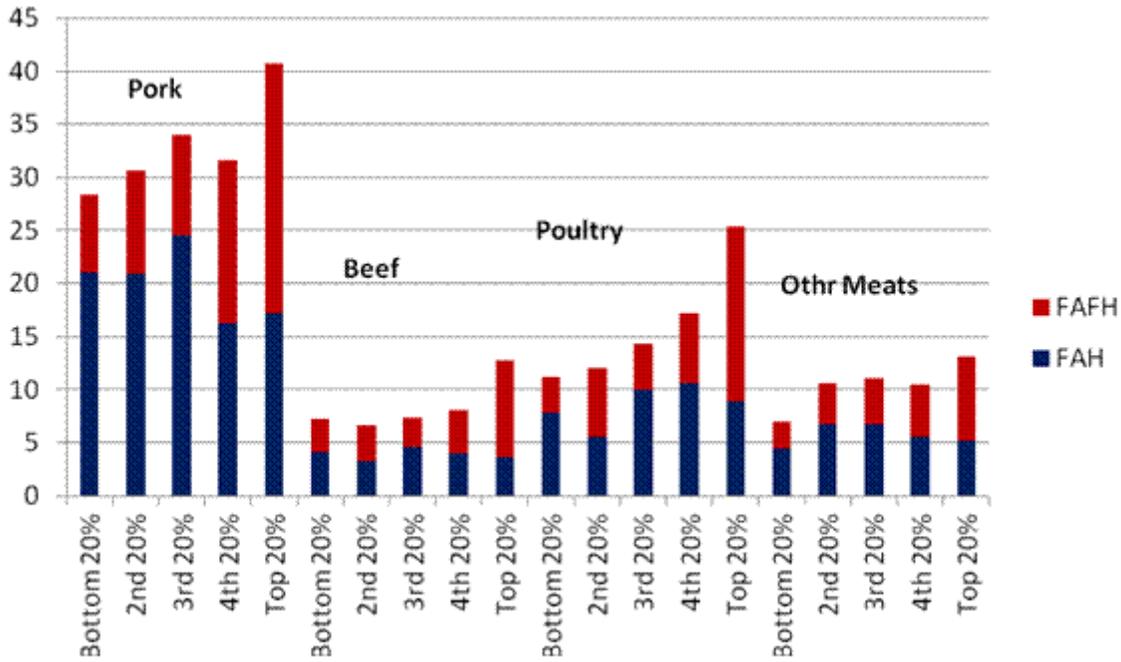


Figure 18. Drink Expenditures by Income Group

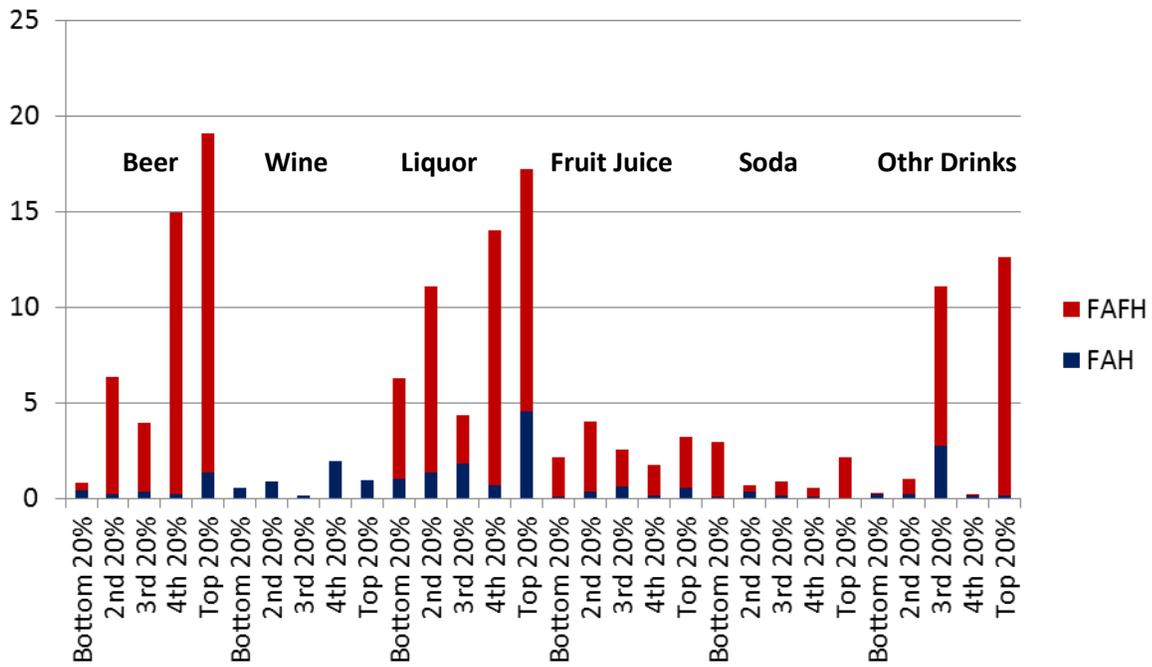
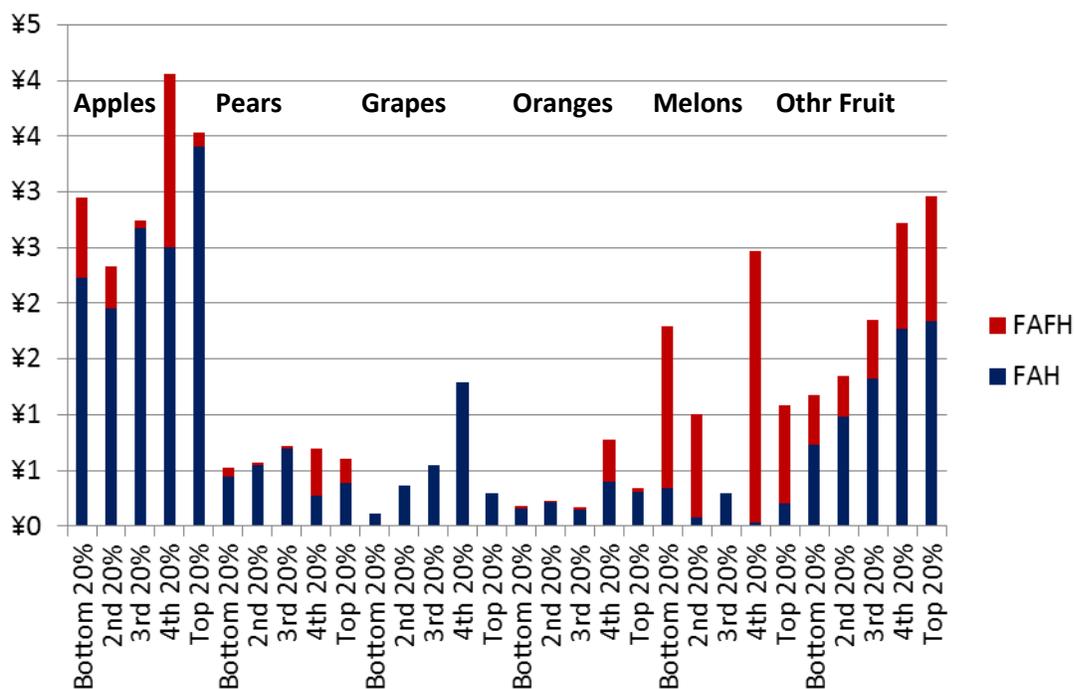


Figure 19. Fruit Expenditures by Income Group



## Summary

For many years, official food consumption in China was likely underestimated due to undercounting of food consumed away from home. Research jointly conducted by a top Chinese research institute and several land-grant universities in the United States have made successful progress in response to this concern. This report summarizes some of the main survey results conducted in Chengdu, China, in 2010. It is hoped the data collected and presented here help U.S. exporters better understand the consumption habits of Chengdu residents and is not meant to provide exhaustive conclusions. For more information on Chengdu and agricultural opportunities in southwest China, please contact the Agricultural Trade Office in Chengdu.

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