

Appendix—China Household Survey Data

This study relies on tabulations of data from urban and rural household surveys conducted by China's National Bureau of Statistics. The surveys are conducted annually on a nationwide sample of households to learn about income, consumption, employment, housing, demographics, education, and asset ownership. The surveys are China's primary source of information on its urban and rural residents. The urban and rural surveys are conducted separately.

The urban survey sample includes households registered in an urban area and those who lived there at least ½ year but are registered elsewhere.¹ The rural sample is drawn from all households that have lived in a rural area for at least a year. The samples are drawn in multiple stages. The urban sample is drawn from all large and medium cities and a representative sample of small county-level cities and towns. The sample is chosen by choosing streets, street committees, and households from within the chosen committees. The rural sample is determined by first choosing a sample of counties from each province, then choosing a sample of villages, and finally choosing at least 10 households from each sampled village. One-third of the urban sample and one-fifth of the rural sample is rotated each year.

Improvements in the sample have been made since the surveys were restarted in the 1970s (Bramall, 2001). The underrepresentation of small town's residents in the urban household sample was addressed by expanding the sample to include more households in small cities and towns beginning in 2002. The urban sample now includes over 48,000 households in 146 cities and 80 county towns. The rural sample is now selected from all provinces and includes 68,000 households selected from 9,000 villages in 857 counties nationwide. The surveys do not cover military or institutional populations. It appears that the surveys do not capture the large migrant population of about 150 million who live part of the year at urban work sites, dormitories, or temporary residences and part of the year in their home villages. The sample is believed to also underrepresent extremely low- and high-income households (Bramall, 2001; Khan and Riskin, 2005).

There are some questions about the measurement of income by these surveys (Bramall). Khan and Riskin found that the exclusion of the rental value of owned housing was the largest omitted component of income. This component has become larger as more urban households have become homeowners. Most rural households own their houses and many have been rebuilt or improved during the past decade. Another income source not counted is the value of subsidies from employers, but these subsidies have declined sharply. Illegal income is not counted either, but the size of this component is unknown.

This study makes no attempt to adjust income reported by official statistics. If the true income of households were measured, the main impact would be to further increase the incomes of the highest earning households. The rental value of housing is likely positively correlated with the officially measured income since housing demand tends to be income elastic. Illegal income is

¹China has a household registration system that requires all households to register at their place of long-term residence. Households cannot move permanently to a different location without gaining permission to change their registration. However, in recent years, restrictions have become looser and many rural migrants have taken up residence in urban areas. A household's registration is specified as "agricultural" or "nonagricultural." Urban areas, especially county towns, can contain large numbers of "agricultural" households, although they may not necessarily be engaged in agriculture. The survey includes both agricultural and nonagricultural households that reside in urban areas. The sample does not include persons living in dormitories.

income is likely to be positively correlated with measured income as well.² Consequently, if these components were added to income, the likely result would be that incomes of the top tier of households would be even higher than measured by the official surveys. Quantity elasticities, already small at these income levels, would become slightly smaller.

Unlike most income and expenditure surveys that cover only a short time period, China's survey captures expenditures and consumption via a diary kept by the household over the course of an entire year. China's survey has fewer problems with censored responses than do food surveys that record consumption during a short period of time.

The urban survey collects expenditures and quantities purchased for a wide variety of foods, including grains (rice, wheat, other grains, noodles, and other products), different kinds of edible oils, meats, fish, vegetables, fruits, alcohol, tobacco, beverages, dairy, and other foods (appendix table 1). Expenditures on meals away from home are included. The urban survey also includes the value of food and meals received without cash payment. This study does not include these in-kind gifts and subsidies of food, but preliminary analysis found that they were equivalent to less than 5 percent of food expenditures. The rural survey collects data on quantities consumed, quantities purchased, expenditures, and income. Other living expenditures are also recorded.

Appendix table 1

Food definitions in urban household survey

Category	Description
Food	Various consumption goods needed to obtain nutrition for the body or consumed for enjoyment, including major foods, supplementary foods, cigarettes, alcohol, beverages, fruits and melons, sugar, cakes, and dairy products. These products are purchased in stores, markets, work unit cafeterias, and alternative food retail businesses.
Grain:	
Rice	Including japonica (short and medium grain), indica (long grain), and glutinous rice.
Flour	Wheat flour.
Other grains	Mainly coarse grains like corn, millet, and oats.
Grain products	Processed grain products, including uncooked and cooked products, such as breads, <i>mantou</i> (steamed bread), noodles, instant noodles, dumplings, and dumpling skins.
Starch and tubers	Assorted tubers, starch, and starch products, including potatoes and sweet potatoes/yams.
Cakes	Food products using flour and sugar as the major ingredients, and oil, egg, milk, fruit, and nuts as the supplementary ingredients. Include cookies, cakes, frozen rice cakes, and rice sugar candies. Does not include breads. Snack fees collected by kindergartens or elementary schools are counted as cake expenditure if it is not clear what percentage of the collected money goes into which use.
Dry beans and bean products	Including soy beans, other beans, tofu, and other bean products.
Oils:	
Vegetable oils	Edible oils obtained from vegetable products, including peanut, vegetable seed, sesame, bean, tea, and sunflower seed oils. This category also includes salad oils produced by mixing several vegetable oil products.
Animal fats	Cooked and uncooked animal fats and oils, including oils extracted from pork and beef fat. If raw pork fat is bought for edible oil production purposes, the quantity is accounted at 80 percent.
Meat:	
Pork	Fresh or frozen pork, including intestines, heads, feet, skin, bones, and pork blood.
Beef	Fresh or frozen beef, including intestines, heads, and feet.
Lamb	Fresh or frozen lamb, including intestines, heads, and feet.
Other meats	Includes rabbit, donkey, venison, dog, snake, and other wild animal meats.
Meat products	Processed meat products, including cooked pork products, salted and dried meat, sausages, hot dogs, lamb kebabs, fresh meat balls, fried pork skins, and canned meat products.
Poultry:	
Chicken	Edible live, slaughtered chicken, cut chicken legs, chicken wings, frozen chicken, including head, chicken feet, bones, and intestines.
Duck	Edible live, slaughtered, cut duck legs, wings. Include duck head, feet, and intestines.
Other poultry	Poultry other than chicken and duck. Includes wild chicken, wild duck, turkey, pigeon.
Poultry products	Domestic and wild poultry meat preserved, salted, cooked, roasted, cooked or baked. Includes canned poultry meat and processed intestine products.
Eggs:	
Fresh eggs	Fresh chicken and duck eggs, also including other fresh poultry eggs.
Eggs products	Processed poultry egg products. Includes salted, preserved, frozen, and tea eggs.
Aquatic products:	
Fish	Includes fish in sea water and fresh water.
Shrimp	Shrimp and prawns from sea water or fresh water.
Other aquatic products	Aquatic products besides shrimp and fish.
Processed aquatic products	Include dried fish, fish balls, seafood balls, etc.

Continued—

Food definitions in urban household survey—Continued

Category	Description
Vegetables:	
Fresh vegetables	Fresh vegetables not processed.
Dried vegetables	Dried vegetable products.
Vegetable products	Processed vegetables, for instance, canned and frozen vegetables.
Fruit and melons:	
Fresh melons	Includes melons, sweet melons, and cantelopes.
Fresh fruits	Includes apples, pears, hawthorn, peach, cherries, kiwi, strawberry, orange, banana, apple, mango, pineapple, lichee, etc. Nuts are not included.
Dry fruits	Fruits dried under the sun or dried over heat sources.
Fruit and melon products	Processed fruit and melons.
Nut and fruit nuts	Includes uncooked and cooked nuts, peanuts, sesame, and other nut or fruit nut products.
Flavorings	Salt, soy sauce, shrimp oil, vinegar, MSG, etc.
Sugar	Sugar products, including white sugar, candies, and other sugar products. Does not include saccharin.
Cigarettes	Includes both cigarettes and tobacco leaves.
Alcoholic beverages:	
Liquor (<i>bai jiu</i>)	Liquor distilled from starch or sugar products, mainly sorghum, millet, or rice. Includes packaged and unpackaged. Weight in kilograms is calculated without the bottle.
Fruit wine	Wine made of various fruits and wild fruits, primarily grape, apple, and lichee wine.
Beer	Yeast fermented using barley malt and hops with low alcohol content.
Other alcoholic beverages	Other alcoholic beverages such as rice or millet wine, champagne, sparkling wine. Does not include medicinal alcohol.
Beverages:	
Carbonated drinks	Carbonated non-alcoholic liquid drinks. Includes salted, sweet, and fruit flavored drinks.
Fruit and vegetable drinks	Includes nonalcoholic fruit, vegetable, plant root, and bottled tea drinks.
Bottled water	Includes mineral water, "pure" water, and natural water, including bottled water dispensed by water coolers.
Tea leaves	Products processed from new leaves of tea trees.
Coffee, cocoa	Coffee includes coffee beans, instant coffee, and cocoa powder.
Other drinks	Other non-alcoholic drinks, such as fruit-flavored instant drinks.
Dairy products:	
Fresh milk products	Includes cow, horse, sheep, and goat milk and milk mixtures. Does not include yogurt, milk powder, or soybean milk.
Milk powder	Milk powder dried from fresh milk.
Yogurt	Milk product produced by the introduction of bacteria and fermentation.
Other milk products	Milk products besides fresh milk, milk powder, and yogurt.
Meals away from home	Expenditure outside of home. Includes expenditure in work unit cafeteria, restaurants, and at friends' houses. Does not include food expenditures paid by work units.

Source: China National Bureau of Statistics, *Urban Household Survey Handbook*.

Appendix table 2

Quantity model estimates for urban households

Commodity	α	Standard error	β	Standard error	γ	Standard error	δ	Standard error	Adjusted R ²
Grain	5.51	.24	-0.304	0.147	-0.124	0.025	0.020	0.010	0.900
Rice	4.13	.22	.070	.131	-.042	.022	-.006	.008	.789
Flour	9.76	.56	-1.659	.334	-0.800	.057	-0.114	.021	.985
Other grains	.09	.55	-.337	.331	.115	.057	-.033	.021	.869
Grain products	4.08	.37	-1.287	.219	-0.100	.037	.006	.015	.895
Starches and tubers	2.84	.39	.075	.039	-0.074	.039	-0.122	.015	.887
Oils	4.11	.24	-0.930	.141	-0.200	.024	0.072	.009	.912
Vegetable oils	3.96	.24	-1.002	.143	-0.186	.024	0.080	.009	.908
Animal fats	7.22	.90	-1.643	.539	-0.885	.092	-0.105	.035	.972
Meat	3.72	.24	-1.509	.144	-.019	.025	-.001	.010	.986
Pork	3.41	.19	-1.147	.116	-.023	.020	-.009	.007	.982
Beef	2.69	.48	-2.774	.284	-0.176	.049	.004	.018	.967
Mutton	3.42	.92	-3.679	.551	-0.303	.094	0.140	.035	.921
Other meat	4.09	1.11	-3.914	.667	-0.502	.114	0.049	.043	.772
Meat products	.62	.59	-2.931	.355	.118	.061	.001	.023	.987
Poultry	.76	.22	-1.452	.130	0.192	.022	-0.034	.008	.996
Chicken	.59	.20	-1.155	.119	0.150	.020	-0.046	.008	.995
Duck	-.11	.49	-1.691	.290	.093	.050	.006	.019	.977
Other poultry	-8.23	.64	-.350	.383	0.784	.065	-0.237	.025	.992
Poultry products	-.87	.68	-3.093	.405	0.220	.069	-.001	.026	.988
Eggs	3.47	.31	-1.444	.183	-0.091	.031	0.050	.011	.955
Aquatic products	-1.12	.48	-0.706	.286	0.430	.049	-.025	.018	.989
Fish	-.60	.39	-0.551	.236	0.322	.040	-.003	.015	.987
Shrimp	-4.56	.91	-2.365	.547	0.585	.093	-0.104	.035	.987
Other aquatic products	-4.01	.90	-1.986	.538	0.575	.092	-0.087	.034	.986
Fresh vegetables	4.45	.27	-0.375	.164	.042	.028	.007	.010	.909
Alcohol	4.19	.47	-2.595	.279	-0.174	.048	.009	.018	.962
Liquor	5.91	.57	-2.491	.344	-0.525	.059	-.030	.022	.875
Wine	-3.11	.97	-2.576	.575	0.248	.098	.032	.037	.978
Beer	4.62	.55	-3.438	.327	-0.256	.056	.011	.021	.966
Other alcohol	-6.94	1.95	-2.094	1.169	0.747	.199	-.081	.075	.955
Other beverages	-3.60	.83	-2.418	.495	0.713	.085	0.064	.032	.992
Soft drinks	-2.02	.57	-2.134	.341	0.358	.058	-0.083	.022	.991
Fruit and veg. juice	-3.74	.83	-3.011	.499	0.463	.085	0.179	.032	.990
Bottled water	-4.52	1.08	-3.097	.647	0.782	.110	0.105	.041	.990
Tea leaf	-3.02	1.12	-.884	.668	.190	.114	-.012	.043	.856
Fresh fruit	3.51	.19	-2.204	.115	0.056	.020	-0.026	.007	.997
Fresh melon	2.67	.44	-1.927	.265	.066	.045	-0.045	.017	.982
Dried fruit	-.34	.65	-2.769	.388	.058	.066	.008	.025	.978
Fruit and melon products	-4.81	1.59	-2.071	.956	0.487	.163	-.088	.061	.948
Nuts	-1.71	.59	-0.687	.351	0.319	.060	-0.048	.022	.974
Cakes	.78	.38	-2.495	.228	0.109	.039	0.051	.015	.993
Dairy	2.65	.65	-4.096	.386	.099	.066	0.141	.025	.991
Milk	2.56	.73	-4.147	.440	.094	.075	.132	.028	.988
Milk powder	2.05	.77	-3.307	.462	-0.235	.079	-.019	.030	.933
Yogurt	-.08	.54	-4.468	.325	0.154	.055	0.259	.021	.995

Note: The quantity model is $\ln q_{ij} = \alpha_i + \beta_i (1/y_i) + \gamma_i \ln y_i + \delta_i d + u_{ij}$. Variables q_{ij} , y_i and d are quantity, income, and year dummy variables. Estimated with weighted least squares. Coefficients in bold typeface are statistically significant at 5 percent.

Source: Estimated by ERS from China National Bureau of Statistics data.

Appendix table 3

Quantity model estimates for rural households

Commodity	α	Standard error	β	Standard error	γ	Standard error	δ	Standard error	R ²
Grain	5.568	0.158	-0.150	0.035	-0.003	0.018	-0.053	0.007	0.976
Vegetables	5.403	0.217	-0.524	0.048	-0.053	0.025	-0.036	0.010	0.993
Beef and mutton	-7.794	1.087	1.358	0.238	0.934	0.125	0.064	0.050	0.931
Pork	0.854	0.275	-0.014	0.060	0.230	0.032	-0.005	0.013	0.990
Aquatic products	-5.935	0.382	0.028	0.083	0.944	0.044	0.020	0.017	0.999
Poultry	-3.692	0.399	-0.101	0.087	0.618	0.046	0.071	0.018	0.997
Eggs	-0.898	0.474	-0.308	0.104	0.336	0.054	0.016	0.022	0.993
Milk	-14.602	1.408	2.578	0.308	1.727	0.162	0.344	0.064	0.969
Fruit	-1.158	0.997	0.109	0.408	0.521	0.089	-0.517	0.047	0.997
Edible oils	1.507	0.737	-0.336	0.161	0.091	0.085	-0.201	0.034	0.958
Tobacco	0.296	0.099	-0.002	0.022	0.367	0.011	-0.048	0.005	0.999
Sugar	-2.652	0.502	0.111	0.110	0.400	0.058	-0.311	0.023	0.989

Note: Quantity model is $\ln q_{ij} = \alpha_i + \beta_i (1/y_j) + \gamma_i \ln y_j + \delta_i d + u_{ij}$. Variables q_{ij} , y_j and d are quantity, income, and year dummy variables, respectively. Estimated with weighted least squares. Coefficients in bold typeface are statistically significant at 5 percent.

Source: Estimated by ERS from China National Bureau of Statistics data.

Appendix table 4

Expenditure model estimates for urban households

Commodity	α	Standard error	β	Standard error	γ	Standard error	δ	Standard error	R ²
Grain	3.74	0.27	0.164	0.162	0.168	0.028	0.008	0.010	0.950
Starches and tubers	.93	.37	.256	.221	.197	.038	.113	.014	.948
Beans	.29	.42	.336	.249	.343	.043	.049	.016	.972
Oils	5.25	.15	-0.954	.090	-1.105	.015	.193	.005	.991
Meat	4.91	.22	-1.425	.135	.129	.023	.022	.009	.995
Poultry	1.81	.32	-1.465	.190	.361	.032	-0.036	.012	.996
Eggs	4.33	.30	-1.294	.182	-0.003	.030	.014	.012	.973
Aquatic products	-2.47	.73	-0.496	.439	.858	.075	-0.055	.028	.991
Fresh vegetables	2.75	.66	-0.417	.397	.300	.068	.010	.025	.954
Dried vegetables	-.40	.60	-2.270	.358	.355	.060	.112	.023	.991
Vegetable products	-2.73	.59	-0.250	.352	.542	.060	.053	.023	.986
Flavorings	1.00	.30	-0.350	.181	.290	.031	.019	.011	.989
Alcohol	3.06	.53	-2.345	.321	.165	.055	.012	.021	.987
Other beverages	-.99	.51	-1.993	.303	.582	.052	-0.012	.019	.995
Fresh fruit	.93	.17	-1.484	.100	.450	.017	-0.033	.006	.999
Fresh melon	-.75	.40	-1.632	.238	.457	.040	.011	.015	.996
Dried fruit	-.99	.77	-2.374	.462	.395	.079	-0.032	.030	.986
Fruit and melon products	-6.19	.81	-1.224	.485	.891	.083	-0.048	.031	.992
Nuts	-2.88	.59	-0.455	.355	.685	.061	.033	.023	.991
Cakes	-.65	.46	-1.638	.277	.540	.047	.006	.020	.996
Dairy	1.84	.50	-3.148	.299	.370	.051	.114	.019	.996
Tobacco	2.60	.55	-1.903	.331	.275	.057	.021	.021	.987
Sugar	-1.47	.27	-0.547	.163	.538	.028	-0.006	.010	.997
Food away from home	-4.47	.30	-0.152	.182	1.171	.031	-0.048	.011	.999

Note: Quantity model is $\ln q_{ij} = \alpha_i + \beta_i (1/y_j) + \gamma_i \ln y_j + \delta_i d + u_{ij}$. Variables q_{ij} , y_j and d are quantity, income, and year dummy variables. Coefficients in bold typeface are statistically significant at 5 percent.

Source: Estimated by ERS from China National Bureau of Statistics data.