

Supplementary material

Supplementary appendix A. Information about PDS items

Information about PDS items is collected in two separate modules: the rations module and a seven-day diary of food purchases. The former collects information about the quantity of ration items received, consumed, bartered, sold, or given away by the household during the previous 30 days. In the rations module, households are also asked how much they would pay in the open market to purchase each PDS or ration item. The diary records all purchases of food, including ration items, over the previous seven days (expenditures and quantities) (table SA.A.1). To estimate a household's consumption of PDS items, the analysis follows the methodology for the construction of the official welfare aggregate for estimating poverty (World Bank, 2013). Any purchases of PDS items recorded in the diary over the seven-day recall period are multiplied by a factor of 30/7 to obtain 30-day equivalents, and these quantities are added to the consumption of PDS items over the previous 30 days as recorded in the rations module. In practice, purchases of PDS items (recorded in the diary) are few and far between.

Table SA.A.1 near here

Next, these monthly quantities of PDS items need to be valued. Two key principles guide this valuation procedure. Households that consume (or purchase) a larger quantity of PDS items must be assigned higher consumption and, thereby, utility. Second, in principle, goods and services ought to be valued equal to the market price faced for the marginal unit consumed. In Iraq, ration items are rarely traded in the market, and a market-equivalent price is nonexistent. Few transactions are recorded in the diary. There are two main reasons why market prices or, in this case, unit values (the ratio of expenditure to quantity) from market transactions are not used as the reference for valuing ration items. The first is the insufficient number of observations per item. For instance; the share of households reporting purchases of ration items in the diary questionnaire varies from less than 1 per cent in the case of vegetable fat, lentils, brown wheat, and sugar to a maximum of less than 3 per cent in the case of rice. Furthermore, there are no transactions recorded in some geographical divisions for some items. Second, there is a possibility that these unit values may be associated with some households that are quantity constrained and purchased PDS items on the market because their allocation proved insufficient.

Additionally, the unit values for the nearest free-market equivalents are significantly higher for some items. For instance, the difference between the median unit value of ration rice and the unit value of diary and commercial local rice is 70 per cent (table SA.A.2). This gap doubles if one is comparing with the median unit value of imported commercial rice. This could be mainly related to important quality differences between these types of goods. This implies that market prices for commercially available items cannot be used to value all ration items because they are not perfect substitutes.

Table SA.A.2 near here

Another possibility is to use official prices for ration items. Two main concerns are relevant. The first is that these prices are low. Using these heavily subsidised prices would artificially suppress the value of food expenditures stemming from rations. The second concern is that rations should be valued

at a price close to the price at which the products would be traded. But these official prices are not prices at which households can procure unlimited quantities (by design). The remaining candidate for the valuation of rations is the self-reported value of ration items. The 2012 Iraq Household and Socio-Economic Survey (IHSES 2012) asks households how much they would pay for ration-equivalent items on the market.¹ In practice, few households expressed an opinion, and enumerators approached the local ration agent in the cluster in a manner akin to a price survey. However, there were variations in these prices that may reflect uncertainty, noise, and local variations in supply, demand, and quality. To ensure that all those who consume exactly the same amount of a ration item are assigned the same expenditure and, thereby, utility and that this expenditure increases with higher consumption, the methodology followed in the study uses the national median values of prices reported by ration agents to value ration items (World Bank, 2013).

Supplementary appendix B. The mixed demand model

In a mixed demand model, there are n free-market products and m subsidised products. Let $X = [x_1, \dots, x_n]$ be the vector of goods the prices of which are determined on the market. Let $Z = [z_1, \dots, z_m]$ be the vector of goods the quantities of which are predetermined (quotas). Let p and q be the price vectors associated with X and Z , respectively. The mixed demand of a representative consumer is derived from the solution to the following maximisation problem (Moschini and Rizzi, 2007; Ramadan and Thomas, 2011):

$$\begin{aligned} \max_{x,q} u(x, z) - v(p, q, y) \\ \text{s. t. } p'x + q'z = y \end{aligned} \tag{SA.B.1}$$

where u and v are the direct and indirect utility functions, respectively, and y is the consumer's income (or total expenditure). Solving the first-order conditions of the above maximisation problem yields the vector of Marshallian mixed demands:

$$x^* = x(p, z, y) \text{ and } q^* = q(p, z, y) \tag{SA.B.2}$$

These yield the following optimum direct and indirect utility functions:²

$$\begin{aligned} u(x^*, z) &= v(p, q^*, y) \\ &\equiv V^M(p, z, y) \end{aligned} \tag{SA.B.3}$$

where $V^M(p, z, y)$ is the mixed utility function. The mixed demand functions $x(p, z, y)$ and $q(p, z, y)$ satisfy the adding up conditions and are homogeneous of degree zero and degree one in p and y , respectively. The symmetry property applies to the compensated mixed demand functions that are the same as the compensated demand under rationing and may be characterised in terms of the restricted cost function as follows (Moschini & Rizzi, 2006, 2007):

$$C(p, z, u) \equiv \min_x \{p \cdot x \mid u(x, z) \geq u\} \tag{SA.B.4}$$

The restricted cost function $C(p, z, u)$ is monotonic in its arguments and homogeneous of degree one and concave in p . Using Shepard's lemma, one finds that the partial derivatives of the cost function with respect to p and z yield the compensated (Hicksian) demand functions for the goods that are chosen optimally, x^h , and the compensated price-dependent functions, q^h , respectively. The latter are the prices that would have resulted in z being identified as the cost-minimising solution (Moschini and Anuradha, 1993; Moschini and Rizzi, 2007):

$$\nabla_p C(p, z, u) = x^h(p, z, u) \tag{SA.B.5}$$

$$\nabla_z C(p, z, u) = -q^h(p, z, u)$$

These Hicksian demands can be related to the Marshallian demands, as follows:

$$\begin{aligned} x(p, z, y) &= x^h(p, z, V^M(p, z, y)) \\ q(p, z, y) &= -q^h(p, z, V^M(p, z, y)) \end{aligned} \tag{SA.B.6}$$

So, for achieving a given utility level u , the total cost given (p, z) can be written as:

$$C^M(p, z, V^M(p, z, y)) = C(p, z, u) - \nabla_z C(p, z, u) \equiv y \tag{SA.B.7}$$

where $C^M(p, z, V^M(p, z, y))$ is defined as the mixed cost function. According to Moschini and Rizzi (2007), the mixed utility function, $V^M(p, z, y)$, can be derived from equation (SA.B.7). For this, they select a cost function from the Gorman Polar form that is affine in u , as follows:

$$C(p, z, u) = F(p, z) + G(p, z)u \tag{SA.B.8}$$

where F and G are continuous and differentiable in p and z . Such a specification allows a closed form of the mixed utility function to be derived from the mixed cost function, as follows:

$$V^M(p, z, R) = \frac{R - F(p, z) + \nabla_z F(p, z)z}{G(p, z) - \nabla_z G(p, z)z} \tag{SA.B.9}$$

Following Diewert and Wales (1988) and Moschini and Rizzi (2007), the analysis uses a normalised quadratic form for the functions F and G to ensure that the chosen parameterisation satisfies the requirements of a flexible functional form, as follows:

$$\begin{aligned} F(p, z) &= \delta'p(a'p)(\mu'z) \\ G(p, z) &= \beta'p + (a'p)(\gamma'z) + 0.5(a'p)(z'\Gamma z) + p'Lz \end{aligned} \tag{SA.B.10}$$

Using the above specification, the mixed demand equations and the mixed utility can be written as follows:

$$\begin{aligned} x_i^* &= \delta_i + (\mu'z)a_i + \{\beta_i + \sum_{j=1}^n \frac{\beta_{ij}p_j}{a'p} + \sum_{k=1}^m \lambda_{ik}z_k \\ &\quad + a_i \left[\gamma'z - 0.5 \left(\frac{p'Bp}{(a'p)^2} \right) + 0.5(z'\Gamma z) \right] \} V^M \end{aligned} \tag{SA.B.11}$$

$$-q_k^* = (a'p)\mu_k + [(a'p)\gamma_k + (a'p) \sum_{s=1}^m \gamma_{ks}z_s + \sum_{j=1}^n \lambda_{jk}p_j] V^M \quad (\text{SA.B.12})$$

$$V^M = \frac{y - \delta'p}{\beta'p + 0.5 \left(\frac{p'Bp}{(a'p)^2} \right) - 0.5(a'p)(z'\Gamma z)} \quad (\text{SA.B.13})$$

where $i = 1, 2, \dots, n$ for the free-market products and $k = 1, 2, \dots, m$ for the quantity determined products.

The structural estimation equations of the demand system can be written in terms of budget shares as follows:

$$\begin{aligned} W_i = & [\delta_i + (\mu'z)a_i \\ & + \left\{ \beta_i + \sum_{j=1}^n \frac{\beta_{ij}p_j}{a'p} \right. \\ & \left. + \sum_{k=1}^m \lambda_{ik}z_k + a_i \left[\gamma'z - 0.5 \left(\frac{p'Bp}{(a'p)^2} \right) + 0.5(z'\Gamma z) \right] \right\} V^M] \frac{p_i}{y} + \varepsilon_i \end{aligned} \quad (\text{SA.B.14})$$

$$-W_k = [(a'p)\mu_k + [(a'p)\gamma_k + (a'p) \sum_{s=1}^m \gamma_{ks}z_s + \sum_{j=1}^n \lambda_{jk}p_j] V^M] \frac{z_k}{y} + \xi_k \quad (\text{SA.B.15})$$

The W_i 's and the W_k 's are the budget shares of the goods with predetermined prices and fixed quantities, respectively; γ and μ are $m \times 1$ vectors of parameters; $B = [\beta_{ij}]$ is the $n \times n$ matrix of parameters; $\Gamma = [\gamma_{ks}]$ is the $m \times m$ matrix of parameters; β_i and δ_i are parameters to be estimated; $a = [a_1, a_2, \dots, a_n]'$ is a vector of arbitrarily chosen coefficients to ensure the homogeneity property; and ε_i and ξ_k are error terms.

Supplementary appendix C. Items included in the four free-market products

Table SA.C.1 here

Supplementary appendix D. The formulas of the estimated elasticities

Price elasticities of free-market goods ($i, j=1,2,...n$):

$$\varepsilon_{ij} = \frac{\partial x_i^*(z, p, u)}{\partial p_j} * \frac{p_j}{x_i} \quad (\text{SA.D.1})$$

Own quantity mixed elasticities of ration items ($k, s = 1,2,...m$):

$$\varepsilon_{ks} = \frac{\partial q_k^*(z, p, u)}{\partial z_s} * \frac{q_k}{z_s} \quad (\text{SA.D.2})$$

Elasticities of free-market goods with respect to ration goods:

$$\varepsilon_{ik} = \frac{\partial x_i^*(z, p, u)}{\partial z_k} * \frac{z_k}{x_i} \quad (\text{SA.D.3})$$

Price elasticities of ration items with respect to free-market goods:

$$\varepsilon_{kj} = \frac{\partial q_k^*(z, p, u)}{\partial p_j} * \frac{p_j}{q_k} \quad (\text{SA.D.4})$$

Supplementary appendix E. The estimated results for the different quintiles in rural and urban areas

Tables SA.E.1–SA.E.7 here

Supplementary appendix F. The estimated results for Kurdistan and the rest of Iraq

Tables SA.F.1 and SA.F.2 here

Endnotes

¹ The question on the IHSES questionnaire is 'If you could buy this [ITEM] in the market, how much would you have to pay for it?'

² Given the duality between direct and indirect utility functions; the indirect utility function derived from a utility function achieves a minimum on prices such that $u(x) = \min v(p,y)$. Hence, for each level of x , there is a level of p such that: $u(x) = v(p,y)$.

References

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Tables

Table SA.A.1. Average shares of ration items in total expenditure, four food items analysed (%)

	<i>Quintile</i>	<i>Poorest</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Richest</i>
Rural	Brown flour	32.9	28.1	24.7	21.4	16.1
	Rice	13.4	10.8	9.6	7.8	6.0
	Vegetable oil	20.1	17.4	15.5	13.9	10.9
	Sugar	16.7	14.5	13.0	11.5	9.1
Urban	Brown flour	30.7	26.1	22.1	18.0	12.7
	Rice	12.8	11.2	9.2	7.5	5.0
	Vegetable oil	19.4	17.0	15.2	13.3	10.5
	Sugar	16.1	14.5	13.0	11.5	9.2

Source: Estimations based on IHSES 2012.

Table SA.A.2. Unit values of rationed items and free-market counterparts

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
Price of rationed brown wheat flour	1140	0.532	0.048	0.415	1.019
Price of rationed rice	1140	0.745	0.067	0.607	1.426
Price of rationed sugar	1140	1.594	0.143	1.236	3.056
Price of rationed vegetable oil	1140	2.392	0.218	1.866	4.621
Price of free-market cereals	1140	1.723	0.641	0.497	6.840
Price of free-market rice"	1140	1.236	0.194	0.557	2.228
Price of free-market sweets	1140	3.041	1.219	1.000	12.731
Price of free-market oil	1140	1.653	0.630	1.000	8.603

Table SA.C.1. Items included in the four free-market products

<i>Cereals</i>	<i>Sweets</i>	<i>Oil</i>	<i>Rice</i>
Wheat	Assorted sweets	Vegetable fat (commercial)	Commercial rice (imported)
Brown wheat flour (commercial)	Chocolate	Animal fat (ghee)	Commercial rice (local)
White wheat flour (commercial)	Jam	Vegetable oil (commercial)	Ground rice
Barley	Honey	Olive oil	
Barley flour	Date syrup	Sesame oil	
Maize	Artificially flavoured juice	Other oils	
Burghul (cracked wheat)	Chewing gum		
Habbiya (whole roasted wheat)	Ice-cream		
Jareesh and sameed	Ice		
Macaroni and vermicelli			
Starch			
Cornflakes			
Corn crisps			
Corn chips			
Bread, all types			
Buns, all types and sizes			
Kahi (local millefeuille)			
Klecha (local pastry)			
Cake			
Biscuits			
Rusk and zwieback			
Ready-made pizza			
Other bread and bakery products			

Source: Estimations based on IHSES 2012.

Table SA.E.1. Price elasticities of free-market goods

	<i>Poorest</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Richest</i>
<i>Rural areas</i>					
Cereals with respect to price of					
Cereals	-0.003	-0.004	-0.001	0.000	-0.004
Rice	0.022	0.011	0.011	0.011	0.006
Sweets	-0.062	-0.043	-0.037	-0.032	-0.030
Oils	-0.025	-0.007	-0.013	-0.017	-0.019
Rice with respect to price of					
Cereals	0.083	0.044	0.034	0.026	0.010
Rice	-0.019	-0.015	-0.008	-0.006	-0.005
Sweets	-0.062	-0.046	-0.031	-0.025	-0.019
Oils	-0.282	-0.162	-0.134	-0.120	-0.089
Sweets with respect to price of					
Cereals	-0.062	-0.050	-0.035	-0.028	-0.028
Rice	-0.036	-0.029	-0.020	-0.017	-0.018
Sweets	-0.035	-0.034	-0.026	-0.024	-0.032
Oils	-0.151	-0.092	-0.110	-0.124	-0.155
Oil with respect to price of					
Cereals	0.201	0.104	0.076	0.068	0.038
Rice	0.180	0.088	0.067	0.068	0.039
Sweets	0.394	0.202	0.164	0.159	0.092
Oils	-0.761	-0.378	-0.288	-0.280	-0.105
<i>Urban areas</i>					
Cereals with respect to price of					
Cereals	0.003	0.002	0.002	0.001	0.001
Rice	0.023	0.017	0.015	0.012	0.011
Sweets	-0.058	-0.041	-0.036	-0.031	-0.027
Oils	-0.015	-0.016	-0.014	-0.013	-0.019
Rice with respect to price of					
Cereals	0.091	0.067	0.045	0.031	0.019

Rice	-0.017	-0.012	-0.008	-0.006	-0.002
Sweets	-0.077	-0.054	-0.039	-0.031	-0.021
Oils	-0.273	-0.222	-0.162	-0.129	-0.116
Sweets with respect to price of					
Cereals	-0.045	-0.034	-0.027	-0.023	-0.018
Rice	-0.028	-0.021	-0.017	-0.015	-0.010
Sweets	-0.035	-0.026	-0.024	-0.024	-0.023
Oils	-0.117	-0.112	-0.107	-0.108	-0.170
Oil with respect to price of					
Cereals	0.171	0.139	0.095	0.078	0.054
Rice	0.182	0.148	0.109	0.094	0.073
Sweets	0.423	0.336	0.247	0.212	0.162
Oils	-0.843	-0.696	-0.509	-0.429	-0.313

Source: Estimations based on IHSES 2012.

Table SA.E.2. Own quantity mixed elasticities of ration items

		<i>Poorest</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Richest</i>
<i>Rural areas</i>						
Brown flour price with respect to						
Ration	Brown flour	-0.032	-0.034	-0.041	-0.047	-0.066
	Rice	-0.005	-0.001	-0.004	-0.007	0.002
	Sugar	0.034	0.033	0.043	0.051	0.062
	Vegetable oil	0.018	0.021	0.024	0.027	0.042
Rice price with respect to						
Ration	Brown flour	-0.004	-0.004	-0.005	-0.006	-0.009
	Rice	-0.030	-0.030	-0.036	-0.042	-0.050
	Sugar	0.020	0.020	0.025	0.028	0.036
	Vegetable oil	-0.043	-0.045	-0.054	-0.062	-0.082
Sugar price with respect to						
Ration	Brown flour	0.012	0.012	0.015	0.017	0.023
	Rice	0.010	0.010	0.012	0.014	0.018
	Sugar	-0.006	-0.006	-0.008	-0.009	-0.013
	Vegetable oil	0.004	0.004	0.005	0.006	0.008
Vegetable oil price with respect to						
Ration	Brown flour	0.004	0.004	0.005	0.006	0.008
	Rice	-0.012	-0.013	-0.016	-0.018	-0.024
	Sugar	0.002	0.002	0.002	0.002	0.003
	Vegetable oil	-0.001	-0.001	-0.001	-0.002	-0.002
<i>Urban areas</i>						
Brown flour price with respect to						
Ration	Brown flour	-0.030	-0.034	-0.037	-0.042	-0.059
	Rice	-0.009	-0.011	-0.012	-0.013	-0.018
	Sugar	0.035	0.041	0.046	0.053	0.082
	Vegetable oil	0.016	0.018	0.020	0.024	0.035
Rice price with respect to						
Ration	Brown flour	-0.004	-0.004	-0.005	-0.006	-0.008

	Rice	-0.028	-0.033	-0.035	-0.039	-0.051
	Sugar	0.019	0.022	0.024	0.027	0.041
	Vegetable oil	-0.041	-0.049	-0.054	-0.061	-0.092
Sugar price with respect to						
	Brown flour	0.011	0.013	0.014	0.016	0.023
Ration	Rice	0.009	0.010	0.011	0.013	0.017
	Sugar	-0.006	-0.006	-0.007	-0.008	-0.013
	Vegetable oil	0.004	0.004	0.005	0.005	0.008
Vegetable oil price with respect to						
	Brown flour	0.004	0.004	0.005	0.005	0.007
Ration	Rice	-0.012	-0.014	-0.015	-0.017	-0.023
	Sugar	0.002	0.002	0.002	0.002	0.004
	Vegetable oil	-0.001	-0.001	-0.001	-0.002	-0.003

Source: Estimations based on IHSES 2012.

Table SA.E.3. Elasticities of free-market goods with respect to ration items, rural areas, quintiles

		<i>Poorest</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Richest</i>
Cereals with respect to						
Ration	Brown flour	−0.034	−0.021	−0.015	−0.008	−0.003
	Rice	0.116	0.068	0.059	0.048	0.035
	Sugar	0.008	0.005	0.004	0.002	0.001
	Vegetable oil	−0.025	−0.016	−0.013	−0.010	−0.007
Rice with respect to						
Ration	Brown flour	0.300	0.184	0.131	0.102	0.061
	Rice	0.085	0.051	0.035	0.027	0.015
	Sugar	−0.017	−0.010	−0.008	−0.006	−0.004
	Vegetable oil	−0.009	−0.006	−0.004	−0.003	−0.001
Sweets with respect to						
Ration	Brown flour	0.245	0.162	0.139	0.120	0.100
	Rice	0.033	0.021	0.018	0.014	0.010
	Sugar	0.060	0.042	0.034	0.028	0.022
	Vegetable oil	0.014	0.009	0.009	0.008	0.007
Oil with respect to						
Ration	Brown flour	−1.107	−0.532	−0.432	−0.395	−0.227
	Rice	−0.313	−0.150	−0.123	−0.116	−0.066
	Sugar	−0.086	−0.042	−0.035	−0.033	−0.018
	Vegetable oil	−0.074	−0.037	−0.030	−0.027	−0.016

Source: Estimations based on IHSES 2012.

Table SA.E.4. Price elasticities of ration items with respect to free-market goods, rural areas, quintiles

		<i>Poorest</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Richest</i>
Ration brown flour with respect to						
Free market	Cereals	0.088	0.103	0.093	0.067	0.058
	Rice	-0.408	-0.405	-0.494	-0.627	-0.866
	Sweets	-0.342	-0.360	-0.465	-0.582	-0.782
	Oils	0.976	0.989	1.211	1.477	1.910
Ration rice with respect to						
Free market	Cereals	-0.205	-0.204	-0.239	-0.255	-0.291
	Rice	-0.064	-0.062	-0.073	-0.087	-0.111
	Sweets	-0.012	-0.012	-0.013	-0.013	-0.012
	Oils	0.235	0.230	0.275	0.306	0.364
Ration sugar with respect to						
Free market	Cereals	-0.009	-0.009	-0.010	-0.009	-0.007
	Rice	0.001	0.001	0.002	0.003	0.006
	Sweets	-0.036	-0.039	-0.048	-0.056	-0.071
	Oils	0.020	0.021	0.029	0.036	0.045
Ration vegetable oil with respect to						
Free market	Cereals	0.021	0.021	0.024	0.024	0.025
	Rice	0.009	0.009	0.010	0.012	0.014
	Sweets	0.000	0.000	0.000	-0.002	-0.005
	Oils	-0.015	-0.015	-0.016	-0.016	-0.018

Source: Estimations based on IHSES 2012.

Table SA.E.5. Elasticities of free-market goods with respect to ration items, urban areas, quintiles

		<i>Poorest</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Richest</i>
Cereals with respect to ration of						
Ration	Brown flour	-0.028	-0.017	-0.012	-0.008	-0.003
	Rice	0.092	0.067	0.053	0.043	0.033
	Sugar	0.007	0.005	0.003	0.002	0.001
	Vegetable oil	-0.021	-0.015	-0.012	-0.010	-0.008
Rice with respect to ration of						
Ration	Brown flour	0.318	0.231	0.160	0.119	0.078
	Rice	0.090	0.065	0.043	0.031	0.018
	Sugar	-0.016	-0.012	-0.008	-0.006	-0.005
	Vegetable oil	-0.011	-0.008	-0.005	-0.004	-0.002
Sweets with respect to ration of						
Ration	Brown flour	0.197	0.156	0.129	0.109	0.103
	Rice	0.026	0.020	0.015	0.012	0.010
	Sugar	0.051	0.040	0.032	0.027	0.025
	Vegetable oil	0.011	0.010	0.008	0.007	0.008
Oil with respect to ration of						
Ration	Brown flour	-0.994	-0.778	-0.555	-0.463	-0.354
	Rice	-0.281	-0.225	-0.157	-0.133	-0.098
	Sugar	-0.082	-0.067	-0.048	-0.042	-0.035
	Vegetable oil	-0.067	-0.053	-0.038	-0.032	-0.026

Source: Estimations based on IHSES 2012.

Table SA.E.6. Price elasticities of ration items with respect to free-market goods, urban areas

		<i>Poorest</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Richest</i>
<i>Ration brown flour with respect to</i>						
	Cereals	0.067	0.063	0.054	0.048	0.021
Free market	Rice	-0.422	-0.500	-0.574	-0.667	-1.002
	Sweets	-0.393	-0.463	-0.537	-0.627	-0.932
	Oils	1.063	1.227	1.389	1.581	2.250
<i>Ration price of rice with respect to</i>						
	Cereals	-0.181	-0.210	-0.219	-0.230	-0.296
Free market	Rice	-0.063	-0.073	-0.080	-0.089	-0.126
	Sweets	-0.013	-0.014	-0.014	-0.013	-0.013
	Oils	0.210	0.249	0.263	0.283	0.385
<i>Ration price of sugar with respect to</i>						
	Cereals	-0.010	-0.010	-0.010	-0.010	-0.009
Free market	Rice	0.000	0.001	0.001	0.002	0.005
	Sweets	-0.042	-0.048	-0.054	-0.061	-0.085
	Oils	0.027	0.031	0.037	0.042	0.063
<i>Ration price of oil with respect to</i>						
	Cereals	0.019	0.021	0.022	0.022	0.026
Free market	Rice	0.010	0.011	0.012	0.012	0.016
	Sweets	0.001	0.000	-0.001	-0.002	-0.005
	Oils	-0.013	-0.014	-0.015	-0.015	-0.020

Source: Estimations based on IHSES 2012.

Table SA.E.7. Expenditure elasticities, by quintile of per capita consumption and area

Quintile	Ration product				Equivalent free-market product			
	Brown flour	Rice	Sugar	Vegetable oil	Cereal	Rice	Sweets	Oils
<i>Rural</i>								
1	0.015	-0.024	0.005	0.021	0.086	0.353	0.359	-0.017
2	0.084	-0.005	0.006	0.023	0.054	0.227	0.259	-0.021
3	0.059	-0.009	0.005	0.027	0.045	0.155	0.213	-0.022
4	0.027	0.003	0.005	0.030	0.037	0.118	0.180	-0.013
5	0.263	0.082	0.017	0.044	0.033	0.072	0.166	-0.046
<i>Urban</i>								
1	-0.057	-0.008	0.000	0.019	0.060	0.359	0.292	0.087
2	-0.073	-0.014	0.000	0.022	0.044	0.256	0.224	0.085
3	-0.093	-0.004	-0.001	0.025	0.035	0.175	0.187	0.061
4	-0.088	0.012	-0.001	0.028	0.029	0.129	0.162	0.042
5	-0.146	0.035	-0.002	0.041	0.023	0.082	0.152	0.017

Source: Estimations based on IHSES 2012.

Table SA.F.1. Own-price elasticities of ration items, by quintile of per capita consumption and area, 2012

Quintile	Ration product				Equivalent free-market product			
	Brown flour	Rice	Sugar	Vegetable oil	Cereal	Rice	Sweets	Oils
<i>Kurdistan</i>								
1	-0.032	-0.038	-0.006	-0.005	0.010	-0.004	-0.013	-1.034
2	-0.037	-0.046	-0.007	-0.007	0.006	-0.002	-0.005	-0.941
3	-0.040	-0.044	-0.007	-0.007	0.003	-0.004	-0.013	-0.457
4	-0.048	-0.055	-0.009	-0.009	0.005	0.000	-0.011	-0.541
5	-0.076	-0.080	-0.016	-0.015	0.006	0.002	-0.010	-0.398
<i>Rest of Iraq</i>								
1	-0.030	-0.029	-0.005	-0.004	0.009	-0.007	-0.048	-0.533
2	-0.033	-0.032	-0.006	-0.005	0.007	-0.005	-0.035	-0.370
3	-0.038	-0.038	-0.007	-0.005	0.007	0.000	-0.028	-0.321
4	-0.043	-0.042	-0.007	-0.006	0.006	0.000	-0.026	-0.271
5	-0.058	-0.053	-0.011	-0.009	0.003	0.000	-0.029	-0.133

Source: Estimations based on IHSES 2012.

Table SA.F.2. Expenditure elasticities, by quintile of per capita consumption and region

Quintile	Ration product				Equivalent free-market product			
	Brown flour	Rice	Sugar	Vegetable oil	Cereal	Rice	Sweets	Oils
<i>Kurdistan</i>								
1	-0.04	-0.07	0.00	0.03	0.04	0.29	0.21	0.16
2	-0.10	-0.11	0.00	0.03	0.04	0.18	0.20	0.17
3	-0.02	-0.07	0.00	0.04	0.03	0.12	0.18	0.06
4	-0.13	-0.07	0.00	0.04	0.03	0.09	0.15	0.08
5	-0.34	-0.07	-0.01	0.07	0.02	0.06	0.14	0.05
<i>Rest of Iraq</i>								
1	0.03	0.01	0.00	0.02	0.090	0.46	0.37	-0.13
2	0.05	0.02	0.00	0.03	0.06	0.35	0.25	-0.09
3	0.00	0.02	0.00	0.03	0.04	0.25	0.21	-0.07
4	-0.02	0.03	0.00	0.03	0.03	0.20	0.17	-0.06
5	0.06	0.09	0.00	0.05	0.03	0.12	0.16	-0.06

Source: Estimations based on IHSES 2012.