Supplementary File 1

Supplementary tables for: How Well Does an Asset-Based Wealth Index Rank Households? Construction and Validation against Consumption in Bangladesh's Household Income and Expenditure Survey 2022

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All tables are computed from the Bangladesh Household Income and Expenditure Survey 2022 with the code in Supplementary File 2. Unless stated otherwise, shares are weighted by household weights.

Table S1 All 83 indicators: weighted means, item non-response and first-component loadings

Indicator	Imputed (n)	All (%)	Rural (%)	Urban (%)	Common	Rural	Urban
Walls: straw, bamboo, polythene	0	2.7	3.3	1.4	-0.039	-0.051	-0.037
Walls: mud or unburnt brick	0	7.3	9.6	2.4	-0.055	-0.060	-0.046
Walls: tin (CI sheet)	0	41.3	50.3	22.1	-0.150	-0.156	-0.138
Walls: wood	0	0.6	0.7	0.4		0.005	-0.007
Walls: brick or cement	0	47.9	35.7	73.7	0.190	0.218	0.157
Roof: straw, bamboo, polythene	0	0.6	0.8	0.2	-0.015	-0.018	-0.014
Roof: tin (CI sheet)	0	76.0	85.9	54.8	-0.206	-0.176	-0.198
Roof: tile (tally)	0	1.0	1.3	0.5	-0.017	-0.015	-0.018
Roof: brick or cement	0	22.3	11.9	44.4	0.218	0.200	0.202
Toilet: flush to sewer	0	10.1	1.6	28.1	0.138	0.067	0.099
Toilet: flush to septic tank	0	16.3	12.9	23.7	0.112	0.167	0.071
Toilet: flush to pit	0	12.4	13.6	9.8		0.035	-0.038
Toilet: flush to open drain / unknown	0	1.5	1.0	2.8		0.011	-0.007
Toilet: pit with slab, VIP, composting	0	53.3	62.7	33.3	-0.132	-0.112	-0.119
Toilet: pit without slab, bucket, hanging	0	5.6	7.2	2.2	-0.056	-0.073	-0.042
Toilet: none (open field)	0	0.7	1.0	0.1	-0.026	-0.043	-0.013
Toilet shared with other households	0	24.5	21.7	30.5	-0.071	-0.099	-0.120
Water: piped into dwelling	0	10.1	0.0	31.7	0.171		0.153
Water: piped into yard	0	4.1	0.0	12.8	0.004		-0.057
Water: neighbour's pipe or public tap	0	5.1	1.8	12.1		-0.028	0.004
Water: tubewell	0	76.8	95.0	38.1		0.032	-0.105
Water: bottled, packaged or kiosk	0	0.6	0.4	0.9	0.013	0.019	0.004
Water: protected well, rain, tanker	0	1.2	1.2	1.3	-0.002	-0.007	-0.001
Water: unprotected well or surface water	0	0.8	1.1	0.2	-0.023	-0.032	-0.015
Electricity is main light source	0	97.7	96.9	99.3	0.048	0.075	0.033
Cooking fuel: natural gas	0	16.6	3.6	44.3	0.152	0.073	0.105
Cooking fuel: LPG	0	12.0	7.8	20.9	0.072	0.098	0.024
Cooking fuel: electricity	0	0.9	0.5	1.7	0.024	0.008	0.021
Cooking fuel: wood or charcoal	0	53.0	64.9	27.8	-0.106	-0.016	-0.115
Cooking fuel: straw, husk, crop waste	0	12.4	16.6	3.4	-0.067	-0.069	-0.049
Cooking fuel: dung	0	4.6	6.1	1.6	-0.032	-0.025	-0.029
Separate kitchen room or building	0	61.5	60.1	64.6	0.087	0.100	0.104
Separate dining room	0	26.9	24.7	31.6	0.146	0.145	0.181

Indicator	Imputed (n)	All (%)	Rural (%)	Urban (%)	Common	Rural	Urban
Landline telephone	0	1.2	0.2	3.4	0.113	0.006	0.122
Members per room (continuous)	0	1.87	1.82	1.97	-0.090	-0.120	-0.129
Bedstead (khat)	1	96.3	96.2	96.4	0.046	0.079	0.046
Almirah or file cabinet	8	41.3	36.0	52.7	0.170	0.190	0.181
Dressing table	15	43.3	37.9	54.8	0.171	0.222	0.162
Wardrobe	19	37.9	27.2	60.9	0.188	0.200	0.162
Dining table and chairs	5	43.5	42.8	45.0	0.120	0.130	0.165
Showcase	8	67.1	66.3	68.8	0.109	0.163	0.116
Reading table	20	59.6	59.7	59.4	0.074	0.104	0.095
Tea trolley or table	16	18.1	13.2	28.5	0.189	0.192	0.191
TV trolley or table	21	10.9	7.7	17.8	0.123	0.115	0.118
Sofa set or divan	15	18.0	11.7	31.4	0.221	0.226	0.217
Dress stand (alna)	9	75.1	77.5	70.1		0.110	-0.021
Easy or rocking chair	24	6.2	4.9	9.0	0.069	0.039	0.077
Carpet	22	4.0	2.4	7.5	0.136	0.084	0.152
Shoe rack	23	20.8	13.4	36.4	0.186	0.153	0.190
Meat safe	14	61.3	56.9	70.6	0.076	0.112	0.038
Television	20	51.0	42.9	68.3	0.153	0.181	0.133
Smartphone	14	68.9	63.1	81.3	0.146	0.189	0.131
Feature (button) phone	6	86.4	87.4	84.3		0.005	-0.051
Wrist watch or wall clock	16	45.5	39.3	58.8	0.156	0.181	0.149
TV card	22	1.5	1.4	1.8	0.028	0.015	0.042
WiFi router	24	8.9	3.6	20.3	0.196	0.137	0.194
Solar panel	17	8.1	10.8	2.3		-0.005	0.002
Electric fan	7	96.5	95.9	97.8	0.053	0.084	0.047
Microwave or electric oven	25	3.8	0.9	10.0	0.183	0.099	0.186
Refrigerator or freezer	17	53.5	45.5	70.5	0.188	0.245	0.166
Air conditioner	25	2.1	0.1	6.5	0.168	0.041	0.174
Washing machine	25	1.7	0.5	4.3	0.132	0.030	0.147
Camera or camcorder	25	1.1	0.4	2.6	0.094	0.048	0.097
Bicycle	26	22.5	25.9	15.3	-0.003	0.038	0.013
Rickshaw, auto-rickshaw, easy bike	26	5.0	5.7	3.4	-0.033	-0.027	-0.041
Motorcycle or scooter	24	9.8	9.9	9.5	0.080	0.143	0.072
Pressure lamp	26	0.4	0.4	0.3	0.008	0.012	0.011
Sewing machine	25	15.0	15.1	14.8	0.039	0.088	0.023
Water filter or purifier	23	9.8	5.0	20.1	0.183	0.134	0.186
Geyser (water heater)	28	2.7	0.7	7.1	0.165	0.083	0.170
Own tubewell for drinking water	17	50.3	60.9	27.7		0.079	-0.061
Water pump or motor	27	20.3	21.6	17.5	0.088	0.194	0.062
Boat or engine boat	36	1.7	2.4	0.4	-0.023	-0.020	-0.018
Computer, laptop or tablet	0	9.5	4.5	20.2	0.199	0.143	0.206
Any member has a bank account	0	57.2	52.8	66.4	0.135	0.158	0.140
Agricultural land: under 0.5 acre	60	17.0	19.1	12.6		-0.002	-0.001
Agricultural land: 0.5 to under 2.5 acres	60	16.1	18.8	10.2		0.095	0.063
Agricultural land: 2.5 acres or more	60	3.2	3.7	2.1		0.081	0.039
Owns homestead land	60	87.7	92.1	78.5		0.051	0.028
Owns cattle or buffalo	0	25.8	34.5	7.3		-0.007	-0.051
Owns goats or sheep	0	16.3	21.6	5.0		-0.017	-0.042

Indicator	Imputed (n)	All (%)	Rural (%)	Urban (%)	Common	Rural	Urban
Owns chickens or ducks	0	39.4	51.0	14.8		-0.004	-0.066
Owns farm machinery	0	6.6	8.9	1.7		0.048	0.005

Means for members per room are in persons. Loadings are elements of the first eigenvector, oriented so that owning a refrigerator raises the score. A blank common loading means the indicator is not in the common index (land, livestock and machinery by design; the others because their rural and urban loadings differ in sign). A blank rural loading means no rural household reports the item. Imputed: scored households with the item missing, replaced by the area mean

Table S2 Ownership and housing characteristics by wealth quintile (% of households)

Indicator	Poorest	Second	Middle	Fourth	Richest
Electricity is main light source	91.4	98.5	99.6	100.0	99.9
Walls: brick or cement	7.6	24.8	46.0	74.6	95.8
Roof: brick or cement	0.3	1.9	7.9	33.2	74.5
Toilet: flush to septic tank	2.1	5.3	10.4	26.2	41.2
Toilet: flush to sewer	0.7	2.9	6.1	12.9	30.3
Toilet: pit with slab, VIP, composting	71.6	70.7	61.8	38.6	18.6
Water: piped into dwelling	0.1	1.2	2.1	11.0	39.3
Cooking fuel: natural gas	2.1	6.6	11.3	22.7	44.3
Cooking fuel: LPG	2.9	6.4	9.3	17.2	26.2
Cooking fuel: wood or charcoal	62.6	64.2	62.1	48.9	24.5
Separate kitchen room or building	43.0	56.1	61.2	68.6	82.5
Television	13.8	36.7	55.6	68.7	88.3
Refrigerator or freezer	6.2	29.6	62.4	81.6	98.2
Smartphone	26.5	60.9	78.3	89.2	97.8
Feature (button) phone	86.2	89.5	88.2	86.0	81.6
WiFi router	0.0	0.3	1.8	6.3	39.1
Computer, laptop or tablet	0.1	0.7	2.4	5.7	41.6
Air conditioner	0.0	0.0	0.1	0.1	11.3
Washing machine	0.0	0.3	0.6	0.2	8.0
Motorcycle or scooter	0.6	3.4	7.0	15.8	24.3
Bicycle	15.5	25.2	27.6	24.9	20.4
Rickshaw, auto-rickshaw, easy bike	6.7	7.8	5.4	3.5	0.9
Sofa set or divan	0.1	0.7	6.2	18.8	69.5
Wardrobe	5.9	17.3	31.6	55.6	87.3
Any member has a bank account	26.3	45.5	58.8	70.9	90.9
Electric fan	88.0	98.1	98.9	99.1	99.8
Bedstead (khat)	89.7	96.9	98.3	97.6	100.0
Agricultural land: 0.5 to under 2.5 acres	5.7	13.2	18.9	21.6	23.0
Owns cattle or buffalo	31.0	31.3	30.1	24.2	11.0
Owns chickens or ducks	47.4	46.2	45.1	37.0	19.2
Members per room (continuous)	2.20	2.03	1.90	1.75	1.38

Members per room in persons. Item non-response replaced by the area mean, as in the index

Table S3 Wealth quintile by per-capita consumption quintile (row %, population-weighted)

Wealth quintile	Consumption Q1	Q2	Q3	Q4	Q5
Poorest	47.0	26.0	15.9	7.9	3.1
Second	27.6	27.5	23.1	15.5	6.3
Middle	16.1	25.9	24.9	21.2	11.8
Fourth	6.8	16.3	23.6	30.3	22.9
Richest	0.9	4.4	12.9	25.4	56.4

N = 14,258 households

Table S4 Mapping of the area scores onto the common score and quintile cut-offs of the composite score

Area	Households	Constant	Slope	R^2
Rural	7,139	-0.304	0.669	0.980
Urban	7,123	0.648	1.236	0.992

Quintile	Minimum score	Maximum score	Mean score
Poorest	-1.724	-0.746	-0.982
Second	-0.746	-0.394	-0.571
Middle	-0.394	0.028	-0.194
Fourth	0.028	0.717	0.337
Richest	0.718	4.325	1.660

Weighted least squares of the standardised common score on the standardised area score, household weights. Quintile cut-offs use population weights

Table S5 Urban share of the poorest and richest quintile under alternative constructions (%)

Version	Poorest quintile	Richest quintile
Main index (DHS composite)	13.9	66.4
R1 Composite, unweighted PCA	13.0	65.5
R2 Common-indicator PCA only	11.2	64.5
R3 Single national PCA, all indicators	9.0	69.5
R4 MCA, first dimension	9.5	67.7
R5 Count of durable goods	22.9	52.2

Population-weighted. Urban residents are 31.4% of the population of scored households, so 31.4% in each quintile would mean no urban–rural difference. Values taken from the log of the robustness do-file