

DOES HOUSEHOLD SIZE STILL MATTER? A LARGE-SCALE TEST OF RESOURCE DILUTION VERSUS INSTITUTIONAL BUFFERING IN HOUSEHOLD FINANCIAL CAPABILITY

Manuscript Tables and Supplementary Data

Authors: Qabuul Cabdirashiid Cabdirahmaan, Muhiim Khadar Cabdi, Hanaan Cabdiwahaab Sh. Ahmed, Aida Cabdirahmaan Mohamed, Aragsan Hassan Jaamac, Hibo Omar Mahmoud
College of Business, Economics, Statistics and Data Science, University of Hargeisa, Somaliland
Corresponding Author: Muhiyadin Aden (mohiadinadam@gmail.com)

Table 1

Summary of Key Empirical Studies on Household Size and Financial Outcomes

Author(s) & Year	Context / Sample	Key Finding	Direction
Mouna & Jarboui (2023)	France, n = 8,500 households	Each additional dependent child reduces saving rate by ~3.5 pp, net of income/education	Negative
Kim & Lee (2024)	South Korea, national survey 2020–2023	4+ member households show 28% lower financial resilience vs. single-person households	Negative
Brown, Richardson & Stango (2025)	United States	Household size attenuates the positive effect of financial literacy on savings	Negative (moderating)
Grohmann, Klühs & Menkhoff (2022)	India, Peru, Ghana, n > 15,000	Significant negative effect in India & Peru; no significant effect in Ghana	Mixed / context-dependent
Okello, Ntale & Ssekakubo (2023)	Rural Uganda	Inverted U-shaped relationship between household size and savings	Non-linear
Mwangi & Wanjiru (2024)	Kenya, FinAccess 2023	Negative association with formal savings; positive association with informal (chama) savings	Mixed by channel
Warsame, Mohamed & Hersi (2024)	Mogadishu, Somalia	Negative association with bank-account ownership	Negative
Ali & Farah (2023)	Somaliland	Larger households receive more remittances, spent mainly on consumption	Indirect / consumption-biased

Note. pp = percentage points.

Table 2*Conceptual Definitions of Key Terms*

Term	Definition
Household	A family-based social and economic unit of individuals related by blood, marriage or adoption who live together and share resources, responsibilities and daily living expenses.
Household size	The total number of individuals residing in a single household.
Financial capability	The combination of knowledge, skills, attitudes and behaviors that enable individuals to manage money effectively, plan for the future and cope with financial shocks (OECD, 2020).
Saving behavior	The portion of disposable income not spent on consumption.
Budgeting practices	The process of planning and tracking income and expenses.
Financial resilience	The ability to withstand and recover from financial shocks (e.g., job loss, medical emergency).
Institutional buffering	The offsetting of individual or household-level financial strain through informal collective institutions such as rotating savings associations, remittance networks and kin-based mutual obligation.

Table 3*Sample Size Parameters and Sampling Strategy (UMSS Standards)*

Parameter	Value	Justification
Confidence level	95%	$Z_{\alpha/2} = 1.96$ (standard in social science research)
Statistical power	90%	$Z_{\beta} = 1.2816$ (recommended for business surveys per UMSS)
Assumed proportion (p)	0.50	Maximum variability; conservative approach
Design effect (DEFF)	3.0	High cluster effect for urban household surveys (Heeringa et al., 2017; UMSS, 2026)
Non-response rate	30%	Standard for household surveys in Somali contexts (UMSS, 2026)
Minimum required sample	1,051	Calculated using the formula below
Final achieved sample	5,762	Per UMSS standards
Sampling strategy	Stratified multistage cluster sampling	Stratified by district and economic zone (business centers, commercial zones, SME clusters, residential areas)

Key methodological references: Cochran (1977); Kish (1965); Heeringa et al. (2017); Groves et al. (2009); World Bank (2018).

Table 4*Sample Size Calculation Steps*

Step	Operation	Result
1	$Z\alpha/2 + Z\beta$	$1.96 + 1.2816 = 3.2416$
2	$(Z\alpha/2 + Z\beta)^2$	$3.2416^2 = 10.5080$
3	$p(1 - p)$	$0.50 \times 0.50 = 0.25$
4	$(Z\alpha/2 + Z\beta)^2 \times p(1 - p)$	$10.5080 \times 0.25 = 2.6270$
5	d^2	$0.05^2 = 0.0025$
6	Base $n = 2.6270 / 0.0025$	1,050.8
7	Rounded base n	1,051
8	After DEFF ($\times 3.0$)	3,153
9	After non-response inflation ($\div 0.70$)	4,504
10	Final achieved sample (UMSS standard)	5,762

Table 5*Operationalization of Study Variables*

Variable Type	Variable	Measurement	Scale
Independent	Household size	Number of members (1–10, 11–20, 21+)	Ordinal
Dependent	Financial capability	Composite index (0–100) derived from knowledge, attitude, and behavior sub-scales	Interval
Control	Monthly income	Monthly household income in USD	Ratio
Control	Education	Highest level completed (none, Quran, primary, secondary, vocational, university)	Ordinal
Control	Employment status	Employed, self-employed, unemployed, student, retired, business owner	Nominal
Control	Gender	Male / Female	Nominal
Control	Age	Age in years	Ratio
Control	Active bank account	Whether respondent holds an active account (Yes/No)	Nominal
Control	Applied for credit	Applied for credit in the last 12 months (Yes/No)	Nominal

Table 6

Demographic Characteristics of Respondents (N = 5,762)

Variable	Category	n	%
District	Ahmed Dhagah	691	11.99
	26 June	1,627	28.24
	31 May	434	7.53
	Mohamed Mooge	186	3.23
	Mahmoud Haybe	556	9.65
	Gacan Libaax	839	14.56
	Ibrahim Koodbuur	1,078	18.71
	Gacmo Dhere	149	2.59
	Macalin Harun	202	3.51
Gender	Male	3,940	68.38
	Female	1,822	31.62
Marital status	Single	3,401	59.02
	Married	2,158	37.45
	Divorced	142	2.46
	Widowed	61	1.06
Education	None	264	4.58
	Quran	340	5.90
	Primary	510	8.85
	Secondary	1,397	24.25
	Vocational/College	211	3.66
	University	3,040	52.76
Employment	Employed	2,117	36.74
	Self-employed	855	14.84
	Unemployed	64	1.11
	Student	89	1.54
	Retired	10	0.17
	Business owner	2,627	45.59
Main income source	Salary	2,205	38.27
	Business	3,382	58.69
	Agriculture	21	0.36
	Casual labor	28	0.49

Variable	Category	n	%
Active bank account	Remittances	19	0.33
	Other	107	1.86
	Yes	3,640	63.17
	No	2,122	36.83

Table 7

Household Size Distribution

Household Size	Frequency	%	Cumulative %
1–10 members	4,787	83.08	83.08
11–20 members	965	16.75	99.83
21+ members	10	0.17	100.00
Total	5,762	100.00	—

Table 8

Descriptive Statistics of Key Study Variables

Variable	N	Mean	SD	Min	Max	Skew
Age (years)	5,762	31.20	9.33	18	80	1.56
Monthly income (USD)	5,652	701.04	1115.12	50	25000	5.36
Financial knowledge (%)	5,672	67.39	22.22	0	100	-0.77
Financial attitude (%)	5,622	68.73	13.13	0	100	-0.94
Financial behavior (%)	5,760	47.73	36.41	0	100	0.07
Financial Capability Index (%)	5,760	60.87	17.55	0	99.17	-0.36

Table 9

Financial Capability Level Distribution

Level	Frequency	Valid %	Cumulative %
Low	1,548	26.88	26.88
Moderate	2,955	51.30	78.18
High	1,257	21.82	100.00
Total (valid)	5,760	100.00	—

Table 10*Mean Financial Capability Index by Household-Size Category*

Household Size	Mean FC Score (%)	N	SD
1–10 members	60.81	4,785	17.55
11–20 members	61.17	965	17.54
21+ members	60.94	10	20.51
Total	60.87	5,760	17.55

Table 11*Pearson Correlation Matrix of Key Study Variables*

Variable	1	2	3	4	5	6
1. Monthly income	1					
2. Financial knowledge (%)	-0.038	1				
3. Financial attitude (%)	0.017	0.281	1			
4. Financial behavior/access (%)	0.058	0.231	0.075	1		
5. Financial stress	-0.003	-0.037	-0.035	-0.028	1	
6. Financial Capability Index (%)	0.028*	0.672**	0.433**	0.826**	-0.045**	1

*Note. * $p < 0.05$; ** $p < 0.01$.***Table 12***Multiple Linear Regression of Factors Associated with Financial Capability*

Predictor	B	SE	β	t	p	95% CI
Constant	120.485	1.067	—	112.932	<0.001	[118.39, 122.58]
Age	-0.034	0.026	-0.020	-1.303	0.193	[-0.09, 0.02]
Gender (Female)	-1.135	0.326	-0.032	-3.480	0.001	[-1.78, -0.50]
Household size	0.065	0.045	0.013	1.448	0.148	[-0.02, 0.15]
Monthly income	0.000	0.000	0.010	0.657	0.511	[0.00, 0.00]
Active bank account	20.922	0.331	0.589	63.215	<0.001	[20.27, 21.57]
Applied for credit	16.406	0.298	0.500	55.084	<0.001	[15.82, 16.99]
Employment (Employed)	0.077	0.380	0.002	0.202	0.840	[-0.67, 0.82]
No formal education	-4.507	0.696	-0.061	-6.471	<0.001	[-5.87, -3.14]

Note. $N = 3,610$ (listwise deletion). Dependent variable: Financial Capability Index (0–100).

Table 13

Model Fit Statistics and Multicollinearity Diagnostics

Model Fit Metric	Value	Predictor Variable	VIF
R	0.843	Age	3.057
R ²	0.711	Gender	1.080
Adjusted R ²	0.710	Household size	1.015
F-statistic (df = 8, 3601)	1,107.73	Monthly income	2.938
Model p-value	<0.001	Active bank account	1.082
Durbin–Watson	1.915	Applied for credit	1.026
Standard Error of Estimate	8.832	No formal education	1.102