

Online Appendix to “Empowered by Adversity: Economic Shocks and Noncognitive Skill Development in Ethiopian Youth”

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Table A1: Summary Statistics

	Round 4			Round 5		
	Obs.	Mean	SD	Obs.	Mean	SD
Male	1328	0.53	0.50	1328	0.53	0.50
Age in Months	1328	145.5	3.90	1328	181.0	3.76
Household Size	1328	5.78	1.92	1328	5.65	1.91
Number of Brothers	1328	1.23	1.20	1328	1.18	1.19
Number of Sisters	1328	1.05	1.15	1328	1.01	1.14
Father Age	1056	47.4	9.01	1045	50.4	9.03
Father Education						
No Formal Schooling	1056	0.14	0.35	1045	0.14	0.34
Primary/Secondary: Highest Grade	586	5.90	3.17	533	6.21	3.16
Secondary or Above	1056	0.14	0.35	1045	0.15	0.36
Mother Age	1252	38.3	6.49	1251	41.3	6.49
Mother Education						
No Formal Schooling	1254	0.35	0.48	1248	0.35	0.48
Primary/Secondary: Highest Grade	571	5.85	3.35	551	6.07	3.29
Secondary or Above	1254	0.076	0.26	1248	0.082	0.27
Child Religion						
Orthodox Christian	1328	0.82	0.38	1328	0.82	0.38
Muslim	1328	0.10	0.30	1328	0.10	0.30
Other Christian	1328	0.066	0.25	1328	0.066	0.25
Child Ethnicity						
Amhara	1328	0.34	0.47	1328	0.34	0.47
Oromo	1328	0.23	0.42	1328	0.23	0.42
Tigrrian	1328	0.28	0.45	1328	0.28	0.45
Rural	1328	0.55	0.50	1328	0.55	0.50
Region						
Tigray	1328	0.26	0.44	1328	0.25	0.43
Amhara	1328	0.23	0.42	1328	0.24	0.42
Oromiya	1328	0.21	0.41	1328	0.22	0.41
SNNP	1328	0.12	0.32	1328	0.12	0.32
Addis Ababa	1328	0.17	0.38	1328	0.17	0.38
Household Wealth Index	1328	0.43	0.17	1328	0.45	0.17
School Enrollment	1328	0.98	0.16	1328	0.93	0.25
Grade Enrolled	1294	4.97	1.43	1239	7.70	1.57
Age at First Grade	1326	7.00	1.31	1326	7.00	1.31
Ever Missed School for a Week or More	1325	0.15	0.35	1317	0.099	0.30
Ever Repeated Grade	1328	0.26	0.44	1328	0.38	0.49
Any Difficulties Getting to School	1295	0.099	0.30	1240	0.062	0.24
Time in Getting to School (Minutes)	1293	20.1	15.4	1238	21.4	15.7
Worked	1328	0.55	0.50	1328	0.98	0.14
Working At Home	1328	0.39	0.49	1328	0.87	0.34
Working Outside Home	1328	0.070	0.26	1328	0.13	0.34
Working on the Family Farm	1328	0.0083	0.091	1328	0.35	0.48
Working for Pay	1328	0.038	0.19	1328	0.081	0.27
Time Use						
Sleeping, Leisure	1328	12.8	1.93	1328	12.2	2.09
Working, Farm Work	1328	0.048	0.54	1328	0.20	1.24
Chores, Care for Others	1328	3.65	2.14	1328	3.98	2.29
In School	1328	5.92	1.54	1328	5.59	1.88
Studying	1328	1.60	0.91	1328	2.00	1.17
Aspire to go to University	1328	0.73	0.45	1328	0.82	0.39
Expect to go to University	1311	0.70	0.46	1328	0.77	0.42
Parents Aspire to go to University	1328	0.79	0.41	1328	0.80	0.40
Parents Expect to go to University	1328	0.75	0.43	1328	0.73	0.44
Child Career Aspiration						
Agriculture, Trade, Craftsmen	1328	0.12	0.33	1328	0.14	0.35
Public Servants	1328	0.29	0.45	1328	0.20	0.40
Professionals	1328	0.52	0.50	1328	0.56	0.50
Creatives, Religious Leader	1328	0.036	0.19	1328	0.044	0.20
Parental Career Aspiration						
Agriculture, Trade, Craftsmen	1328	0.076	0.27	1328	0.097	0.30
Public Servants	1328	0.37	0.48	1328	0.42	0.49
Professionals	1328	0.52	0.50	1328	0.45	0.50
Creatives, Religious Leader	1328	0.016	0.12	1328	0.014	0.12
Observations	1328			1328		

Table A2: Summary Statistics - Weather Shocks

	Round 4			Round 5		
	Obs.	Mean	SD	Obs.	Mean	SD
Adverse Weather Shock	1328	0.20	0.40	1328	0.24	0.43
Drought	1328	0.093	0.29	1328	0.19	0.39
Flood	1328	0.028	0.16	1328	0.021	0.14
Erosion	1328	0.021	0.14	1328	0.0083	0.091
Frost	1328	0.10	0.30	1328	0.034	0.18
Adverse Weather Shock Affected More than Half Yearly Income	1328	0.13	0.34	1328	0.16	0.37
Coping Strategies						
Did Nothing	268	0.27	0.45	322	0.19	0.39
Ate Less or Reduce Expenditures	268	0.65	0.48	322	0.18	0.39
Sold Possessions	268	0.31	0.46	322	0.19	0.39
Used Savings	268	0.0075	0.086	322	0.075	0.26
Worked More	268	0.25	0.43	322	0.18	0.38
Received Help from Government	268	0.13	0.34	322	0.66	0.47
Received Help from Relatives/Friends	268	0.052	0.22	322	0.043	0.20
Moved	268	0.034	0.18	322	0.016	0.12
Sent Children to Work / Took Out of School	268	0.034	0.18	322	0.025	0.16
Observations	1328			1328		

Table A3: Weather Shocks and Child Health

	(1)	(2)	(3)	(4)	(5)
	Stunting	Low BMI for Age	Child Had Serious Illness	Child Had Serious Injury	School Enrollment
Adverse Weather Shock	0.0324 (0.0278)	-0.0596* (0.0336)	-0.00811 (0.0302)	0.0189 (0.0244)	-2.55e-18 (0.0142)
Observations	2656	2644	2656	2652	2656

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. In columns (1), (2) and (5), the dependent variables are indicators that the child is stunted, has low BMI for age, is enrolled in school at the time of the survey. In columns (3) and (4), the dependent variables are indicators that the child had a serious illness or serious injury since the last survey round. Indicator for adverse weather shock is an indicator that takes the value of 1 if the household reports having a drought, flood, erosion, or frost as one of the three most important events that negatively affected the household's economic condition. All columns control for gender, age in months, age in months squared, household size, rural indicator, child ethnicity, child religion, child language, lagged household wealth index, survey cluster, region, and round fixed effects, and child fixed effects.

Table A4: Psychosocial Scales: Generalized Self-Efficacy, Self-Esteem, Sense of Agency, Peer Relations, Parent Relations

Generalized Self-Efficacy		
1.	I can always manage to solve difficult problems if I try hard enough.	
2.	If someone opposes me, I can find the means and ways to get what I want.	
3.	It is easy for me to stick to my aims and accomplish my goals.	
4.	I am confident that I could deal efficiently with unexpected events.	
5.	Thanks to my resourcefulness, I know how to handle unforeseen situations.	
6.	I can solve most problems if I invest the necessary effort.	
7.	I can remain calm when facing difficulties because I can rely on my coping abilities.	
8.	When I am confronted with a problem, I can usually find several solutions.	
9.	If I am in trouble, I can usually think of a solution.	
10.	I can usually handle whatever comes my way.	
Self-Esteem		
1.	I do lots of important things.	
2.	In general, I like being the way I am.	
3.	Overall, I have a lot to be proud of.	
4.	I can do things as well as most people.	
5.	Other people think I am a good person.	
6.	A lot of things about me are good.	
7.	I'm as good as most other people.	
8.	When I do something, I do it well.	
Internal Locus of Control		
1.	If I try hard I can improve my situation in life.	
2.	I like to make plans for my future studies and work.	
3.	If I study hard I will be rewarded with a better job in the future.	
Peer Relations		
1.	I have lots of friends.	
2.	I make friends easily.	
3.	Other kids want me to be their friend.	
4.	I have more friends than most other kids.	
5.	I get along with other kids easily.	
6.	I am easy to like.	
7.	I am popular with kids of my own age.	
8.	Most other kids like me.	
Parent Relations		
1.	My parents understand me	
2.	I like my parents	
3.	My parents like me	
4.	If I have children of my own, I want to bring them up like my parents raised me	
5.	My parents and I spend a lot of time together	
6.	My parents are easy to talk to	
7.	I get along well with my parents	
8.	My parents and I have a lot of fun together.	

Table A5: Reliability of Psychosocial Scales

	Average inter-item correlations	Cronbach's Alpha
GSE scale	0.2573	0.7760
Self-Esteem scale	0.2604	0.7380
Locus of control scale	0.3111	0.5754
Peer relations scale	0.2776	0.7546
Parent relations scale	0.2741	0.7513

Table A6: Principal Component Analysis: Factor Loadings, Eigenvalues, Proportion of Total Variance Explained

	Component 1	Component 2	Component 3
<i>Panel A. Cognitive Skills</i>			
Maths	0.5997	-0.3655	-0.7136
PPVT	0.5368	0.8435	0.0175
Reading	0.5955	-0.3935	0.7004
Eigenvalue	2.0824	0.5620	0.3556
Proportion of Total Variance Explained	0.6941	0.1873	0.1185
<i>Panel B. Noncognitive Skills</i>			
GSE scale	0.5997	-0.4478	0.6632
Self-esteem scale	0.6212	-0.2619	-0.7386
Locus of control scale	0.5044	0.8549	0.1210
Eigenvalue	1.9262	0.6899	0.3839
Proportion of Total Variance Explained	0.6421	0.2300	0.1280

Table A7: Magnitude of Shocks and Skills

	Cognitive Factor		Math Score		PPVT Score		Reading Score	
	(1) OLS	(2) FE	(3) OLS	(4) FE	(5) OLS	(6) FE	(7) OLS	(8) FE
<i>Panel A: Cognitive Skills</i>								
Adverse Weather Shocks	-0.0504 (0.0847)	-0.0878 (0.0735)	0.0516 (0.0610)	0.0651 (0.0672)	-0.193*** (0.0554)	-0.166*** (0.0545)	0.0532 (0.0650)	-0.0479 (0.0660)
Adverse Weather Shocks Affect > 50% Yearly Income	-0.0206 (0.0934)	0.0115 (0.0797)	-0.0642 (0.0673)	-0.0722 (0.0728)	-0.0233 (0.0597)	-0.0895 (0.0591)	0.0533 (0.0716)	0.177** (0.0715)
Observations	2656	2656	2656	2656	2656	2656	2656	2656
	Noncognitive Factor		Generalized Self-Efficacy		Self Esteem		Internal Locus of Control	
	(9) OLS	(10) FE	(11) OLS	(12) FE	(13) OLS	(14) FE	(15) OLS	(16) FE
<i>Panel B: Noncognitive Skills</i>								
Adverse Weather Shocks	0.116 (0.0960)	0.0867 (0.148)	0.0732* (0.0424)	0.0962 (0.0627)	0.0234 (0.0425)	-0.000630 (0.0649)	0.0216 (0.0542)	-0.0181 (0.0781)
Adverse Weather Shocks Affect > 50% Yearly Income	0.390*** (0.109)	0.497*** (0.160)	0.182*** (0.0467)	0.220*** (0.0679)	0.118** (0.0482)	0.146** (0.0703)	0.108* (0.0603)	0.160* (0.0846)
Observations	2656	2656	2656	2656	2656	2656	2656	2656

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Dependent variables in columns (3) to (8) are z-scores of the mathematics / receptive vocabulary / reading comprehension test, and dependent variables in columns (1) and (2) are the principal component of the three cognitive test z-scores. Dependent variables in columns (11) to (16) are psychosocial scales, which are constructed as the averages of within-cohort-round z-scores of Likert scale responses. Dependent variables in columns (9) and (10) are the principal component of the three psychosocial scale z-scores. Indicator for adverse weather shock is an indicator that takes the value of 1 if the household reports having a drought, flood, erosion, or frost as one of the three most important events that negatively affected the household's economic condition. Indicator for adverse weather shocks affect > 50% yearly income is an indicator that takes the value of 1 if the household reports having a drought, flood, erosion, or frost as one of the three most important events that negatively affected the household's economic condition, and that event affected more than half of the household's yearly income for at least a year. Columns (1), (3), (5), (7), (9), (11), (13), (15) control for gender, age in months, age in months squared, household size, rural indicator, child ethnicity, child religion, child language, lagged household wealth index, survey cluster, region, and round fixed effects. Robust standard errors. Columns (2), (4), (6), (8), (10), (12), (14), (16) controls additionally for child fixed effects.

Table A8: Quantile Regressions

	Quantile Regressions				
	(1)	(2)	(3)	(4)	(5)
<i>Panel A: Cognitive Skills</i>	OLS	FE	25th Percentile	50th Percentile	75th Percentile
Adverse Weather Shocks	-0.0637 (0.0608)	-0.0797* (0.0474)	-0.0977 (0.0833)	-0.0620 (0.0842)	0.0878 (0.0837)
Observations	2656	2656	2656	2656	2656
	Quantile Regressions				
	(6)	(7)	(8)	(9)	(10)
<i>Panel B: Noncognitive Skills</i>	OLS	FE	25th Percentile	50th Percentile	75th Percentile
Adverse Weather Shocks	0.370*** (0.0700)	0.437*** (0.0958)	0.269*** (0.0907)	0.358*** (0.101)	0.415*** (0.107)
Observations	2656	2656	2656	2656	2656

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Dependent variables in Panel A is the principal component of the three cognitive test z-scores (mathematics / receptive vocabulary / reading comprehension). Dependent variables in Panel B is the principal component of the three psychosocial scales (GSE, self-esteem, internal locus of control), which are constructed as the averages of within-cohort-round z-scores of Likert scale responses. Indicator for adverse weather shock is an indicator that takes the value of 1 if the household reports having a drought, flood, erosion, or frost as one of the three most important events that negatively affected the household's economic condition. Indicator for adverse weather shocks affect > 50% yearly income is an indicator that takes the value of 1 if the household reports having a drought, flood, erosion, or frost as one of the three most important events that negatively affected the household's economic condition, and that event affected more than half of the household's yearly income for at least a year. All regressions control for gender, age in months, age in months squared, household size, rural indicator, child ethnicity, child religion, child language, lagged household wealth index, survey cluster, region, and round fixed effects. Robust standard errors. Columns (2) and (7) control additionally for child fixed effects.

Table A9: Adverse Weather Shocks, Parent Relations and Peer Relations

	Parent Relationship Index		Peer Relationship Index	
	(1)	(2)	(3)	(4)
	OLS	FE	OLS	FE
Adverse Weather Shocks	0.0811** (0.0315)	0.108** (0.0427)	0.103*** (0.0314)	0.114*** (0.0424)
Observations	2623	2612	2656	2656

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Dependent variables are averages of within-cohort-round z-scores. Indicator for adverse weather shock is an indicator that takes the value of 1 if the household reports having a drought, flood, erosion, or frost as one of the three most important events that negatively affected the household's economic condition. All regressions control for gender, age in months, age in months squared, household size, rural indicator, child ethnicity, child religion, child language, lagged household wealth index, survey cluster, region, and round fixed effects. Robust standard errors. Columns (2) and (4) control additionally for child fixed effects.