SI Appendix

Methods

Data

We use two sources of data for our analysis. We first extract social data from multiple censuses from the Integrated Public Use Microdata Series-International (IPUMS-I) (1). IPUMS-I harmonizes a randomized sub-sample of individual census records from around the world in order to facilitate comparative research across countries and time. We use these data to create a dataset that includes variables on educational attainment, sex, age, birth year, birthplace province, relationship to household head, and household head's educational attainment. Our sample is drawn from approximately 1,000 provinces[1] in 29 countries across the global tropics (see Figure 1). We selected countries based on the following criteria: at least 50% of the land area is located within the tropics (between approximately 23.5° N and 23.5° S latitude), at least two census years of data with information on years of schooling completed are available, data on relationship to household head are available, and birthplace and census province geographic units are available and consistent over time. For birthplace province, we harmonized the units to match the time-stable geographic boundaries created by IPUMS-I. Using these criteria, our final sample is composed of data from 85 censuses conducted between 1969 and 2012 in countries across sub-Saharan Africa, Latin America and the Caribbean, and Southeast Asia (see Table S1 for a list of countries and survey years). For our analysis, we restrict the sample to children born in 1950 or later who were aged 12 to 16 years at the time of the census in order to capture children during late-primary and early-secondary school ages and before most children begin to exit their parents' household. Individuals in the sample were born as early as 1953 or as late as 2000.

Data on temperature and precipitation are derived from the Climatic Research Unit Time-series (CRU TS v. 4.00) through the University of East Anglia (2). CRU provides monthly gridded mean temperature and precipitation data from 1900 to the present with a resolution of 0.5˚ latitude by 0.5˚ longitude. The CRU dataset was created by interpolating weather station data from over 4,000 stations throughout the world. We extract rainfall and temperature data at the province level using time-stable geographic boundaries created by IPUMS-I (the provinces correlate to either the first- or second-level subnational administrative unit in each country). The climate variables consist of spatial means at the province level (3). Using the CRU data, we then construct a set of climate variables at the province-year scale, which we link to individuals using their birthplace province.

Analysis

We measure two attributes of climate change in the analysis: temperature and precipitation anomalies during early life, defined as the year before birth until age five. Our measures are mean annual temperature (˚C) and total annual rainfall (mm) over this period, which we transform into z-scores relative to all other seven-year periods of the same duration from 1949 to 2012 for that province. For temperature, we use a standard approach to z-score calculation, and for precipitation we standardize precipitation values using a gamma distribution and then estimate z-scores based on those values. Our main measures cover climatic conditions across the first six years of the child's life as well as during the year before birth (ages -1 through 5), where the year of birth is defined as age zero.

[1] We refer to all birthplace and census geographic units as provinces for clarity. Table S1 presents the administrative unit names used in each country (e.g., province, department, region, district).

This captures climatic conditions experienced in utero, infancy, and early childhood before the age at which formal schooling generally begins. Though climatic conditions experienced during schooling ages are also associated with educational outcomes (4–7), we focus on the prenatal and early life period given strong evidence that these are critical periods that affect long-term health and human capital outcomes (8) (see Table S3 for results).

Our outcome variable is the highest grade/level of formal schooling completed, measured in years. We estimate a set of ordinary least squares (OLS) models stratified by world region (East and Southern Africa, West and Central Africa, Central America and the Caribbean, South America, and Southeast Asia)[2] . Given evidence for non-linear relationships between climatic conditions and a number of outcomes including economic production (9), migration (3), agriculture (10, 11), and health outcomes (12), we use a quadratic specification including linear and squared terms for both precipitation and temperature.

Control variables include the child's age, sex, relationship to the household head (child of head or other), and the household head's education (below primary completed, primary completed, or secondary or more completed). To test whether household head education mitigates the effects of climatic conditions on children's educational outcomes, we estimate an additional set of models in which household head education is interacted with the climate variables (see Table S4 for results). In order to control for underlying differences in educational outcomes across provinces, we include province fixed-effects in the models, which account for all time-invariant factors at the province level. We also include country-specific linear time trends to account for country-level linear changes over time that may impact educational outcomes, such as socioeconomic development and changes in education policy. In addition, we use two-way clustering: we cluster at the province level to account for non-independence among individuals living in the same province and also at the country-birth year level to account for non-independence among individuals born in the same country in the same year. This approach assumes that two children born in same country in different provinces and different years are statistically independent. Data constraints over this large spatial and temporal scale do not allow us to control for other potential subnational shocks such as armed conflict, but we expect that these events will be either uncorrelated with climate anomalies or endogenous to them, in which case they are part of the pathway from climate to attainment (13). We also use sampling weights to account for the number of individuals represented by each observation in the dataset. The analytic sample contains 13,831,770 observations while the weighted data, which account for the IPUMS sampling weights, are representative of approximately 246 million individuals.

Sensitivity Analyses

The sizes of provinces vary greatly, from approximately 2 km^2 to 1.6 million km^2. For the largest provinces, many of which are located in Brazil, yearly temperature and precipitation data are averaged over very large spatial scales. In order to test whether averaging the climate data in large provinces affects model results, we performed a sensitivity analysis by excluding the top 10% of provinces by area from the model (this excluded 56 provinces). Figure S1/Table S6 present the results of the supplementary analysis. The substantive results did not change.

In addition, in our analyses we measure exposure to climatic conditions in the province of birth over a seven-year period (the year before birth through age five). Thus, if a child migrates to another province before age five, their exposure to climatic conditions will be misclassified. Among

[2] The range of predicted values of education in our main specification is -1.77 to 11.16 years. Only 0.3% of predicted values fall outside the realistic range (fewer than 0 years of education).

five year olds in the census data, 93% remained in their province of birth. In order to test whether the migration of some individuals affects our results, we performed a supplementary analysis using only children who lived in their province of birth at the time of the census. At the time of the census, 90% of children were located in the province of their birth (ranging from 85% in West and Central Africa to 94% in Southeast Asia). Figure S2/Table S7 present the results of this analysis. The substantive results did not change.

A number of studies have shown that mother's education has important effects on children's outcomes, including mortality and education (14, 15). In order to test whether the effect of mother's education differed from that of household head's education, we performed a supplementary analysis that substituted mother's education for household head education. The coefficients and significance levels in the two climate-education interaction models (Figure S3/Table S8) are extremely similar, which suggests that household head's education and mother's education interact with climate is very similar ways to affect children's educational outcomes. In the IPUMS data, mother's education is typically only available for children of the household head. Because only 82% of the sample is children of the household head, using mother's education excludes the majority of the remaining 18% of children, who may be differentially selected on their vulnerability to the educational impacts of adverse climatic conditions. We therefore chose to use household head education in our main specification.

We also test two alternative approaches to estimating the standard errors. First, we cluster at the country-survey year (i.e., census) level instead of at the birthplace and country-birth year level. This alternate form of clustering conservatively assumes that the outcomes of any two children born in the same country during the same decade are correlated. Our results (Figure S6/Table S11) are substantively the same as our main results, despite reduced significance in some regions.

Because birthplace provinces are from different parts of the world and vary greatly in size, the number of individuals in each province (cluster) may vary greatly. Classic cluster-robust standard errors may not be robust when clusters are unequal in size. To test for this, we use the *clusteff* command in Stata[63]. An estimated effective number of clusters above 50 indicates that conventional cluster methods are appropriate (16), and our results (Table S12) indicate that the classic cluster-robust standard error methods are indeed appropriate for our data.

Lastly, we used the *crossfold* package in Stata to conduct a k-fold cross-validation experiment on the full sample of 29 countries in order to test the predictive power of our model. The results (Table S13) indicate that the mean absolute error is very similar across five different partitions of the data, which suggests that the model is appropriate for fitting out-of-sample data.

Supplementary Models

To further explore the potential mechanisms underlying the climate-education relationship, we estimate a set of supplementary models, described below.

First, we examine whether the effects of climatic conditions vary by age of exposure. We conducted an analysis that breaks climate exposure into three time periods: the year before birth and year of birth (years -1 and 0), ages 1 and 2, and ages 3 to 5. Figures S7/S8 and Table S14 present results from these models, which suggest that the relationships vary by region. In ESA, SEA, and WCA, cooler temperatures during the in utero/infancy period are associated with higher educational attainment (though the relationships are not statistically significant). This suggests that direct impacts of heat on fetal development, or on in utero exposure to infectious diseases, may play a role in future educational attainment. In addition, we see a negative relationship between heat exposure and education during ages 1 to 2 in ESA and during ages 3 to 5 in CAC and SEA, which indicates that the impacts of heat on agricultural production (or on food prices in urban areas) may negatively impact

early child nutrition, and in turn, schooling outcomes. We find a positive relationship between rainfall during ages 3 to 5 and education in WCA and SEA. This suggests that periods of higher rainfall during early childhood may correlate with greater agricultural production and better nutrition in these regions. In CAC, exposure to high rainfall during the in utero/infancy period is negatively correlated with education. In this region, hurricanes may increase infectious disease transmission, destroy housing and assets, and/or lead to fetal stress exposure, which may negatively affect fetal growth and development, thereby impacting future educational outcomes.

Our main specifications include children aged 12 to 16 at the time of the survey, many of whom were still in school. These models allow us to examine the relationship between climate and years of schooling among children of the same age in the same province. Yet children exposed to adverse climatic conditions may eventually catch up with their peers in educational attainment by the time they finish schooling, especially those from highly educated households. To test this, we estimated a set of models that included individuals aged 17 to 20 at the time of the survey, nearly 70% of whom were no longer in school (Figure S9/Table S15). In ESA, WCA, and SAM we see similar relationships between climate and educational attainment among individuals aged 17 to 20 and those aged 12 to 16. Further, as in our main specification, in CAC we see a negative relationship between high heat and educational attainment among those from the most educated households and a negative relationship between rainfall and education among individuals from the least educated households in hurricane-prone countries (results by head education and hurricane status available upon request). These analyses suggest that in ESA, WCA, SAM, and CAC, the links between climate and education are sustained throughout an individual's schooling trajectory. Interestingly, among individuals aged 17 to 20 in SEA, we see a much weaker relationship between rainfall and education, and no significant relationship between temperature and education. This suggests that individuals in this region exposed to adverse climatic conditions may catch up from educational deficits by adulthood and that other regions may in fact be more vulnerable to the long-term impacts of climate change on human capital.

Next, we estimate a set of models that includes early life exposure as well as exposure during two additional time periods: ages 6 to 10, and ages 11 to current age (Figures S10/S11 and Table S16). Results indicate that the relationship between climatic conditions and education varies by period of exposure, which suggests that different mechanisms linking climate and education may be at play in different regions. For example, in SEA, early life heat is negatively correlated with education, while there is no significant relationship in later childhood. In this region, the impact of heat exposure on physical and cognitive development in utero and early childhood is likely the main pathway. In contrast, in CAC heat during school ages (6 to 10 and 11 to current age) is negatively associated with education, which suggests that high heat may lead children to drop out of school to assist in household income generation. Indeed, a study of 28 countries across Central America and the Caribbean found that an annual increase in one degree Celsius is associated with a 2.5% drop in production, likely due to reduced productivity of workers given heat stress (17). Thus, children from households that are exposed to particularly hot years may be needed to help fill that productivity gap.

In order to better understand the extent to which the negative relationship between rainfall and education in CAC is due to hurricanes, we examined educational attainment in the region stratified by whether the country is hurricane prone (Figure S12 and Table S17). We defined hurricane-prone countries as those who have had at least five direct hurricane landfalls according to NOAA data (https://coast.noaa.gov/hurricanes/). The models indicate that higher than typical rainfall in early life only has a negative association with educational attainment among children from the least educated households living in hurricane-prone countries.

To further parse out the strong negative relationship between heat and education in Southeast Asia, which we posit is due to the hot and humid conditions in much of the region, we estimate a set of models that stratifies all provinces in the five regions by four climate types: cool and dry, cool and wet, warm and dry, and warm and wet (Figure S13/Table S18). We classify provinces into these groups by whether they are above/below the median for temperature and rainfall. Results indicate that there is a strong negative relationship between high temperatures and education, but only in warm and wet provinces. These results echo findings that the combination of high heat and humidity is most dangerous to human health (18, 19).

To examine whether the observed relationships have changed over the observational period (which includes children born between 1953 to 2000), we estimate a set of models with an interaction between climate and whether the child was born in 1985 or later (Figure S14/Table S19). Many countries implemented programs to increase school enrollment in the 1990's or early 2000's, so children born between 1985 and 2000 would have entered school during or after these reforms. Again, results vary greatly by region. In ESA, the link between heat and education is driven by children born before 1985, while in CAC and SEA, there is a stronger negative relationship between heat and education among children born in 1985 or later. This suggests that in CAC and SEA, regions that are historically hot and humid, increasingly warm conditions in latter decades may dampen the effects of educational expansion.

Lastly, we estimate a set of placebo models that include temperature and precipitation anomalies three years before the child's birth year in addition to early life climatic conditions (Table S20). Climatic conditions a few years before birth should not affect a child through direct biological mechanisms, but could impact educational outcomes through lasting effects on household income, wealth, and livelihoods. Results suggest that while early life climate is a much stronger predictor of educational attainment, temperature a few years before birth may also play a role, particularly in WCA, ESA, and CAC.

Table S1. Sample countries, census years, and birthplace administrative units

Region and Country	Census years	Birthplace unit
Central America and Caribbean		
Costa Rica	1973, 1984, 2000, 2011	Province
Dominican Republic	2002, 2010	Province
El Salvador	1992, 2007	Department
Haiti	1971, 2003	Arondissement
Jamaica	1982, 1991, 2001	Parish
Nicaragua	1971, 1995, 2005	Department
Panama	1970, 1980, 2000, 2010	Province
Trinidad and Tobago	2000, 2011	Region
East and Southern Africa		
Botswana	2001, 2011	District
Kenya	1969, 1989, 1999, 2009	Province
Malawi	1987, 2008	District
Tanzania	1988, 2002, 2012	Region
Uganda	1991, 2002	District
Zambia	1990, 2000, 2010	District
South America		
Bolivia	1992, 2001	Province
Brazil	1970, 1980, 1991, 2000	State
Colombia	1973, 1985, 1993, 2005	Department
Ecuador	1974 ,1982, 1990, 2001, 2010	Province
Paraguay	1982, 1992, 2002	Department
Peru	1973, 2007	Province
Venezuela	1971, 1981, 1990, 2001	State
Southeast Asia		
Cambodia	1998, 2008	District
Indonesia	1976, 1980, 1985, 1990	Province
Thailand	1970, 1980, 1990, 2000	Province
West and Central Africa		
Cameroon	1976, 1987, 2005	Department
Ghana	1984, 2000, 2010	Region
Guinea	1983, 1996	Prefecture
Mali	1998, 2009	Circle
Senegal	1988, 2002	Department

Table S2. Historical climate across study provinces and early life climate anomalies among sample children

	East and Southern Africa			West and Central Africa			Central America and Caribbean			South America			Southeast Asia		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Mean annual temperature (° C)	22	15	28	27	21	31	25	19	28	18	4	28	27	23	30
Early life temperature z-score	0.21	-1.32	1.81	0.27	-2.25	1.55	0.40	-2.27	1.65	-0.22	-2.44	2.26	-0.79	-2.12	1.31
Total annual rainfall (mm)	1005	85	2123	1238	19	4563	1857	397	6751	1082	4	7699	1793	723	4466
Early life rainfall z-score	-0.21	-2.70	2.40	-0.55	-2.34	1.91	-0.30	-2.47	2.74	-0.14	-3.34	3.02	-0.37	-3.26	2.20

Table S3. Descriptive statistics for study children

	East and Southern Africa		West and Central Africa		Central America and Caribbean		South America		Southeast Asia	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Years of schooling	4.46	2.60	4.07	3.28	5.46	3.03	4.57	2.74	5.19	2.23
Sex [1=female]	0.50		0.49		0.50		0.50		0.49	
Child of HH head	0.70		0.68		0.76		0.85		0.86	
Age:										
12 years	0.24		0.23		0.22		0.21		0.23	
13 years	0.20		0.19		0.20		0.20		0.20	
14 years	0.20		0.19		0.20		0.20		0.19	
15 years	0.19		0.21		0.20		0.20		0.20	
16 years	0.18		0.17		0.19		0.19		0.18	
Household head's education:										
Below primary	0.50		0.65		0.53		0.68		0.66	
Primary	0.36		0.27		0.32		0.19		0.26	
Secondary or more	0.11		0.08		0.15		0.13		0.08	
Weighted N	35,853,156		14,785,210		9,179,124		92,213,320		94,148,929	

Table S4. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	-0.397	-0.0871	-0.0176	0.0363	-0.318*
	(0.221)	(0.106)	(0.109)	(0.0449)	(0.137)
Temperature z-score^2	0.440***	0.0458	0.136	-0.0685**	-0.205**
	(0.0801)	(0.0552)	(0.0716)	(0.0259)	(0.0741)
Rainfall z-score	0.0426	0.243**	-0.0829*	-0.0293	0.0831*
	(0.0498)	(0.0795)	(0.0379)	(0.0272)	(0.0330)
Rainfall z-score^2	-0.0384	-0.00476	-0.0707**	-0.0333*	0.00240
	(0.0316)	(0.0751)	(0.0265)	(0.0169)	(0.0176)
Sex [1=female]	0.138***	-0.446***	0.325***	0.331***	-0.0848*
	(0.0319)	(0.0692)	(0.0400)	(0.0328)	(0.0376)
Relationship to household head [1=child]	0.224***	0.334***	0.245***	0.477***	0.233***
	(0.0284)	(0.0383)	(0.0425)	(0.0405)	(0.0506)
Age [12 years is baseline]					
13	0.780***	0.491***	0.738***	0.687***	0.830***
	(0.0828)	(0.134)	(0.0921)	(0.101)	(0.105)
14	1.501***	0.957***	1.450***	1.363***	1.491***
	(0.0864)	(0.149)	(0.102)	(0.0993)	(0.106)
15	2.111***	1.224***	2.086***	1.931***	1.940***
	(0.100)	(0.185)	(0.130)	(0.115)	(0.128)
16	2.707***	1.773***	2.650***	2.433***	2.510***
	(0.120)	(0.230)	(0.155)	(0.142)	(0.155)
Head's education [below primary is baseline]					
Primary	0.952***	1.267***	1.189***	1.231***	1.012***
	(0.0773)	(0.110)	(0.0736)	(0.0806)	(0.0913)
Secondary or higher	1.793***	1.964***	1.761***	1.766***	1.610***
	(0.109)	(0.153)	(0.0838)	(0.107)	(0.129)
Joint test					
Climate variables	32.62***	12.25*	14.57**	15.52**	36.82***
R^2	0.308	0.384	0.490	0.450	0.350
Weighted N	35,853,156	14,785,210	9,179,124	92,213,320	94,148,929
Number of provinces	169	157	109	339	254

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.
* p<0.05 ** p<0.01 *** p<0.001

Table S5. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, with climate-household head education interactions

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	-0.398	0.0153	0.0668	0.123*	-0.164
	(0.217)	(0.0992)	(0.120)	(0.0564)	(0.131)
Temperature z-score^2	0.448***	0.135*	0.265***	-0.0659	-0.221**
	(0.0908)	(0.0527)	(0.0704)	(0.0354)	(0.0750)
Rainfall z-score	0.0484	0.194**	-0.117*	-0.0305	0.0265
	(0.0611)	(0.0742)	(0.0507)	(0.0380)	(0.0355)
Rainfall z-score^2	-0.0409	-0.0418	-0.106**	-0.0545*	-0.0346
	(0.0376)	(0.0890)	(0.0329)	(0.0213)	(0.0187)
Climate-head's education interactions [less than primary is baseline]					
Primary * Temperature z-score	-0.0191	-0.223*	-0.0672	-0.201***	-0.216*
	(0.101)	(0.101)	(0.0722)	(0.0527)	(0.109)
Primary * Temperature z-score^2	0.0272	-0.220*	-0.232***	0.0316	0.219***
	(0.0917)	(0.0901)	(0.0565)	(0.0607)	(0.0653)
Secondary or higher * Temperature z-score	0.114	-0.407***	-0.223*	-0.318***	-0.572**
	(0.125)	(0.110)	(0.0948)	(0.0634)	(0.184)
Secondary or higher * Temperature z-score^2	-0.203	-0.269*	-0.255**	0.0226	0.116
	(0.126)	(0.106)	(0.0811)	(0.0799)	(0.0979)
Primary * Rainfall z-score	-0.00465	0.165	0.102	-0.00211	0.151***
	(0.0689)	(0.0992)	(0.0660)	(0.0592)	(0.0426)
Primary * Rainfall z-score^2	-0.0176	0.0781	0.106**	0.0617	0.119***
	(0.0333)	(0.110)	(0.0374)	(0.0337)	(0.0314)
Secondary or higher * Rainfall z-score	-0.0284	0.261*	0.0853	0.0127	0.195**
	(0.0967)	(0.125)	(0.0813)	(0.0793)	(0.0627)
Secondary or higher * Rainfall z-score^2	0.0775	0.144	0.0802	0.0894*	0.187***
	(0.0491)	(0.139)	(0.0503)	(0.0353)	(0.0321)
Sex [1=female]	0.139***	-0.444***	0.325***	0.329***	-0.0872*
	(0.0319)	(0.0692)	(0.0400)	(0.0328)	(0.0379)
Relationship to household head [1=child]	0.224***	0.344***	0.254***	0.489***	0.257***
	(0.0283)	(0.0390)	(0.0417)	(0.0406)	(0.0530)
Age [12 years is baseline]					
13	0.776***	0.492***	0.742***	0.691***	0.828***
	(0.0824)	(0.133)	(0.0917)	(0.0984)	(0.103)
14	1.498***	0.964***	1.450***	1.368***	1.487***
	(0.0858)	(0.148)	(0.102)	(0.0965)	(0.104)
15	2.107***	1.235***	2.088***	1.933***	1.932***
	(0.100)	(0.182)	(0.130)	(0.113)	(0.126)
16	2.702***	1.778***	2.660***	2.438***	2.491***
	(0.120)	(0.227)	(0.154)	(0.140)	(0.156)
Head's education [below primary is baseline]					

Primary	0.950***	1.538***	1.324***	1.113***	0.544***
	(0.111)	(0.135)	(0.105)	(0.108)	(0.0667)
Secondary or higher	1.821***	2.372***	2.024***	1.647***	0.934***
	(0.145)	(0.168)	(0.125)	(0.146)	(0.102)
Joint test:					
Climate variables	25.36***	27.01***	21.72***	18.47**	20.86***
Interactions	171.61***	55.21***	23.23**	56.44***	43.28***
R^2	0.309	0.385	0.492	0.452	0.357
Weighted N	94,148,929	35,853,156	9,179,124	14,785,210	92,213,320
Number of provinces	169	157	109	339	254

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

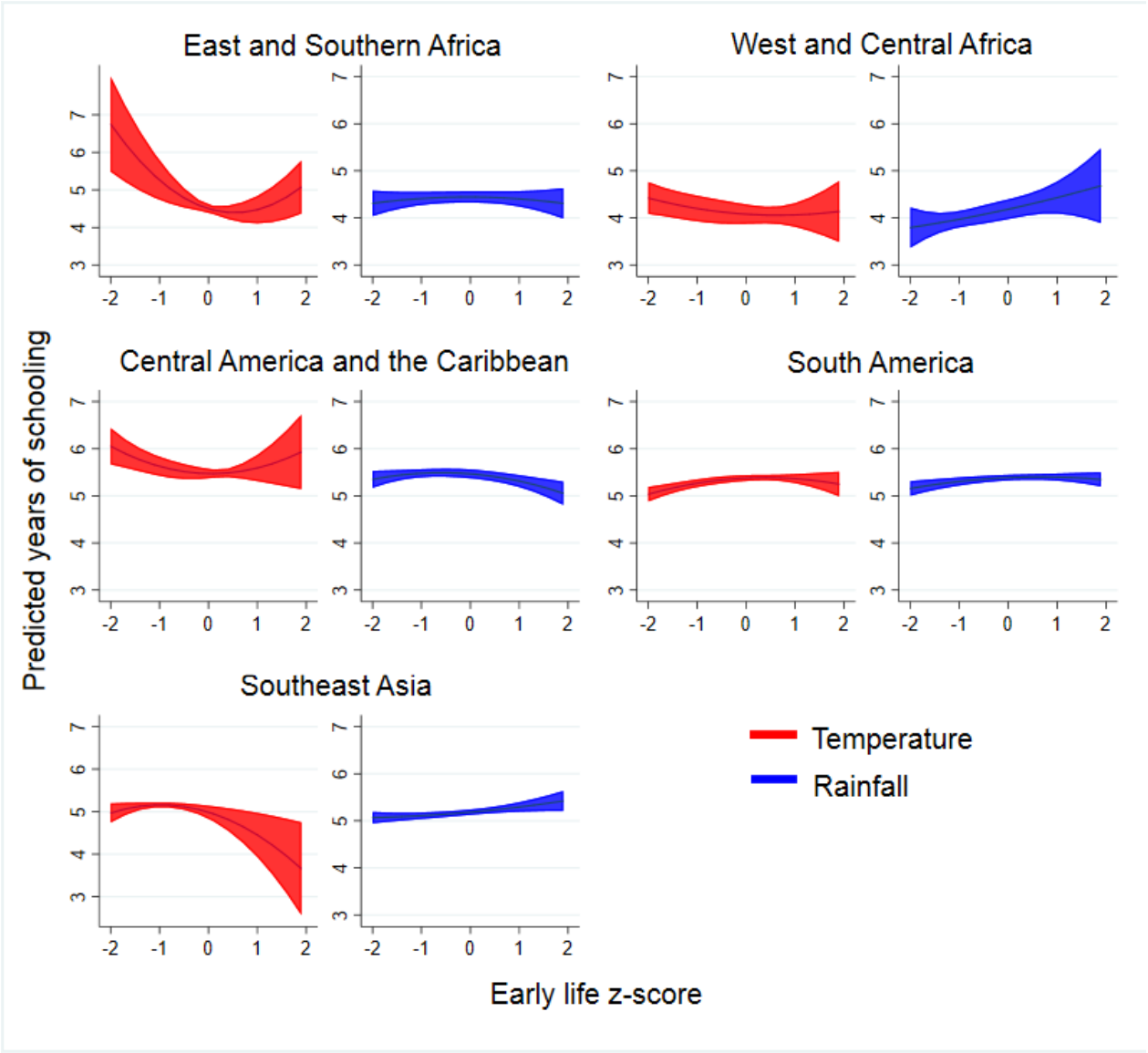

Figure S1. Predicted years of schooling among children aged 12 to 16 based on early life climate z-score excluding the largest 10% of provinces by area, including cluster-robust 95% confidence intervals.
Note: Models also include controls for the child's age, sex, relationship to household head, and household head education, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S6. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, excluding the largest 10% of provinces by area

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	-0.393	-0.0678	-0.0176	0.0487	-0.354*
	(0.222)	(0.115)	(0.109)	(0.0384)	(0.139)
Temperature z-score^2	0.366***	0.0517	0.136	-0.0613*	-0.182*
	(0.0814)	(0.0583)	(0.0716)	(0.0262)	(0.0713)
Rainfall z-score	-0.00378	0.229*	-0.0829*	0.0460	0.0925**
	(0.0448)	(0.0969)	(0.0379)	(0.0310)	(0.0352)
Rainfall z-score^2	-0.0357	0.0174	-0.0707**	-0.0345*	0.0173
	(0.0318)	(0.0812)	(0.0265)	(0.0145)	(0.0166)
Sex [1=female]	0.127***	-0.446***	0.325***	0.262***	-0.0838*
	(0.0342)	(0.0707)	(0.0400)	(0.0387)	(0.0398)
Relationship to household head [1=child]	0.210***	0.334***	0.245***	0.459***	0.250***
	(0.0248)	(0.0391)	(0.0425)	(0.0381)	(0.0513)
Age [12 years is baseline]					
13	0.772***	0.498***	0.738***	0.725***	0.824***
	(0.0883)	(0.143)	(0.0921)	(0.0592)	(0.0940)
14	1.503***	0.970***	1.450***	1.471***	1.450***
	(0.0911)	(0.154)	(0.102)	(0.0709)	(0.0958)
15	2.130***	1.245***	2.086***	2.075***	1.893***
	(0.107)	(0.193)	(0.130)	(0.0809)	(0.117)
16	2.718***	1.783***	2.650***	2.572***	2.455***
	(0.129)	(0.240)	(0.155)	(0.100)	(0.141)
Household head education [below primary is baseline]					
Primary	0.825***	1.254***	1.189***	1.194***	1.010***
	(0.0538)	(0.110)	(0.0736)	(0.0521)	(0.0945)
Secondary or higher	1.625***	1.946***	1.761***	1.700***	1.590***
	(0.0898)	(0.155)	(0.0838)	(0.0898)	(0.135)
Joint test					
Climate variables	20.47***	7.76	14.57**	19.02***	26.96***
R^2	0.324	0.394	0.490	0.434	0.353
Weighted N	24,293,593	14,137,650	9,179,124	38,518,754	82,726,693
Number of provinces	159	152	109	306	246

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

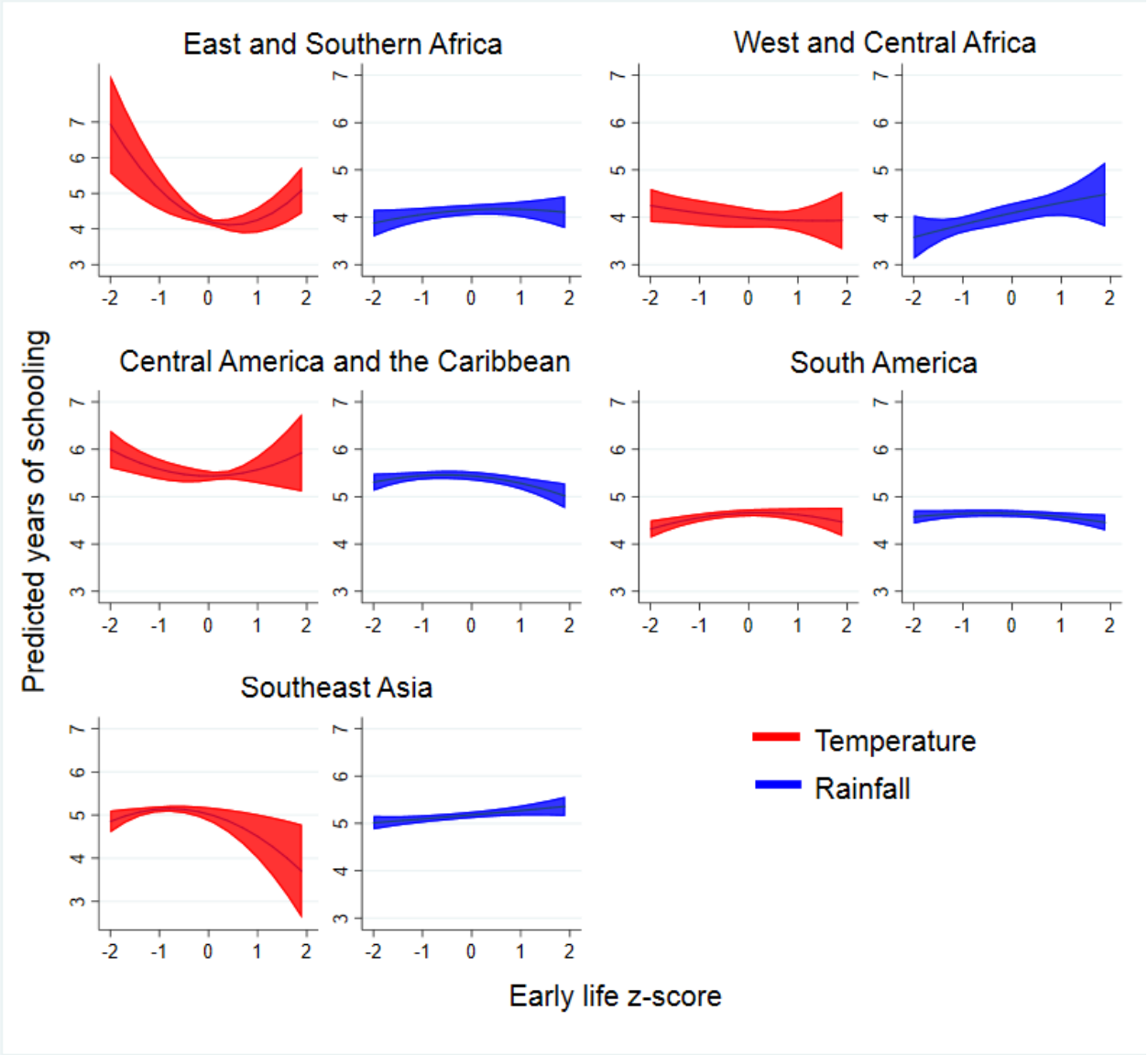

Figure S2. Predicted years of schooling among children aged 12 to 16 based on early life climate z-score excluding children not located in their province of birth at the time of the census, including cluster-robust 95% confidence intervals.

Note: Models also include controls for the child's age, sex, relationship to household head, and household head education, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S7. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, excluding children not located in their province of birth at the time of the census

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	-0.428	-0.0779	-0.00467	0.0311	-0.316*
	(0.231)	(0.110)	(0.114)	(0.0468)	(0.138)
Temperature z-score^2	0.469***	0.0269	0.139	-0.0699**	-0.201**
	(0.0838)	(0.0566)	(0.0744)	(0.0266)	(0.0733)
Rainfall z-score	0.0546	0.230**	-0.0812*	-0.0332	0.0887**
	(0.0534)	(0.0833)	(0.0389)	(0.0280)	(0.0342)
Rainfall z-score^2	-0.0428	-0.0129	-0.0742**	-0.0349*	0.00307
	(0.0325)	(0.0806)	(0.0280)	(0.0172)	(0.0173)
Sex [1=female]	0.151***	-0.435***	0.335***	0.348***	-0.0791*
	(0.0329)	(0.0690)	(0.0410)	(0.0333)	(0.0370)
Relationship to household head [1=child]	0.229***	0.268***	0.210***	0.433***	0.205***
	(0.0304)	(0.0379)	(0.0426)	(0.0422)	(0.0479)
Age [12 years is baseline]					
13	0.775***	0.485***	0.739***	0.685***	0.834***
	(0.0837)	(0.139)	(0.0931)	(0.0991)	(0.105)
14	1.496***	0.944***	1.451***	1.360***	1.489***
	(0.0875)	(0.156)	(0.104)	(0.0988)	(0.106)
15	2.099***	1.206***	2.081***	1.924***	1.938***
	(0.102)	(0.193)	(0.135)	(0.117)	(0.129)
16	2.685***	1.732***	2.644***	2.427***	2.507***
	(0.124)	(0.242)	(0.161)	(0.145)	(0.156)
Household head education [below primary is baseline]					
Primary	0.897***	1.179***	1.193***	1.235***	1.012***
	(0.0848)	(0.105)	(0.0749)	(0.0877)	(0.0924)
Secondary or higher	1.694***	1.843***	1.776***	1.780***	1.631***
	(0.121)	(0.149)	(0.0859)	(0.119)	(0.136)
Joint test					
Climate variables	34.63***	10.30*	13.15*	15.60**	37.21***
R^2	0.306	0.393	0.493	0.456	0.349
Weighted N	31,244,612	12,546,370	8,214,858	82,061,127	87,688,494
Number of provinces	169	157	109	339	254

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

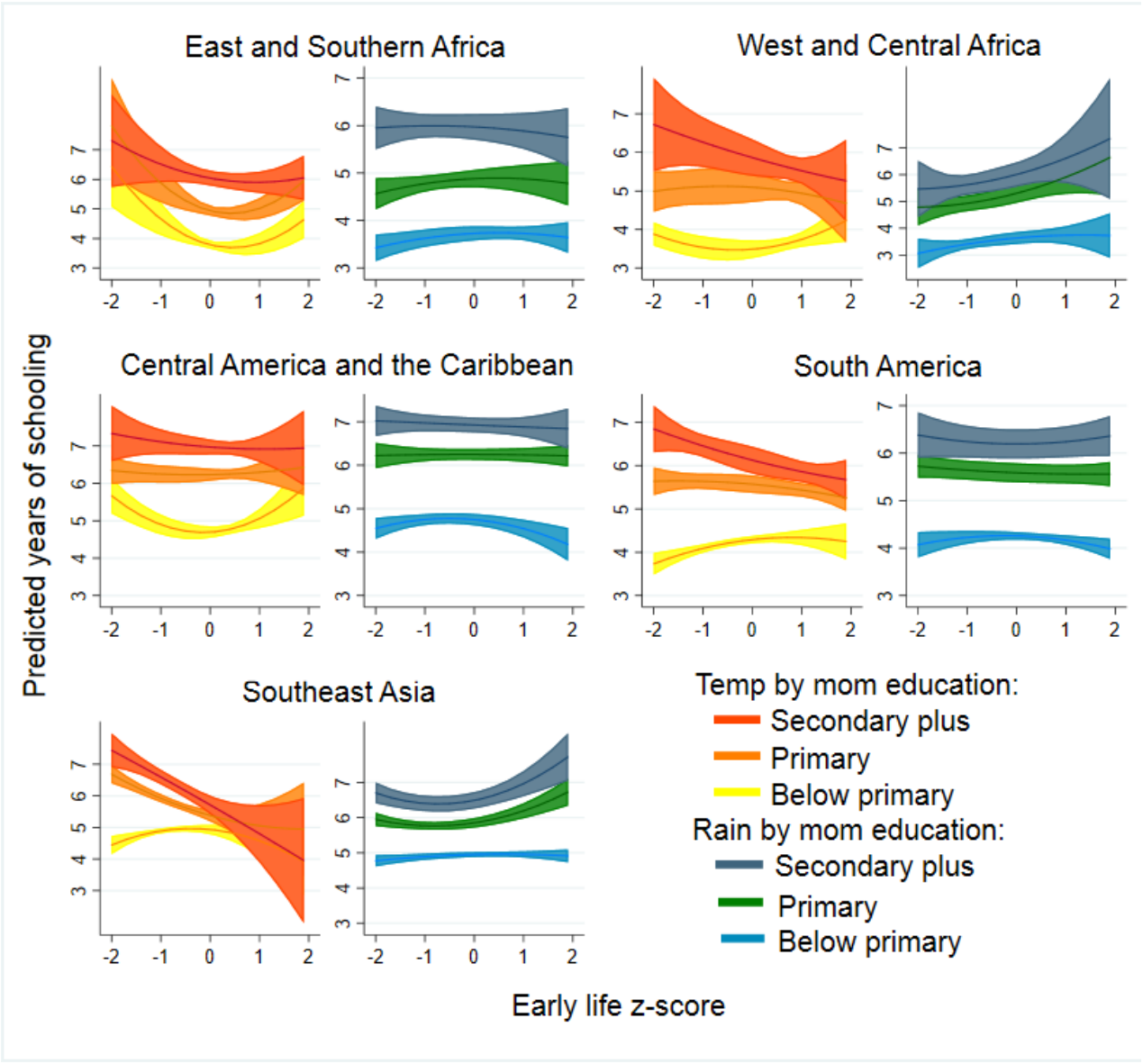

Figure S3. Predicted years of schooling among children aged 12 to 16 based on early life climate z-score and mother's educational attainment, including cluster-robust 95% confidence intervals.
Note: Models also include controls for the child's age, sex, and relationship to household head, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S8. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, with climate-mother's education interactions

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	-0.415	0.105	0.0811	0.124*	-0.156
	(0.226)	(0.0980)	(0.115)	(0.0627)	(0.133)
Temperature z-score^2	0.453***	0.151**	0.284***	-0.0774	-0.200**
	(0.0860)	(0.0556)	(0.0724)	(0.0401)	(0.0766)
Rainfall z-score	0.0509	0.164	-0.105*	-0.0282	0.0332
	(0.0555)	(0.0913)	(0.0499)	(0.0415)	(0.0343)
Rainfall z-score^2	-0.0508	-0.0613	-0.103**	-0.0611**	-0.0278
	(0.0361)	(0.0960)	(0.0324)	(0.0230)	(0.0185)
Mother's education interactions [less than primary is baseline]					
Primary * Temperature z-score	-0.0118	-0.191	-0.0567	-0.225***	-0.278*
	(0.129)	(0.120)	(0.0759)	(0.0623)	(0.123)
Primary * Temperature z-score^2	0.0501	-0.221*	-0.244***	0.0442	0.309***
	(0.110)	(0.100)	(0.0646)	(0.0730)	(0.0786)
Secondary or higher * Temperature z-score	0.109	-0.475**	-0.178	-0.421***	-0.741***
	(0.138)	(0.168)	(0.100)	(0.0864)	(0.197)
Secondary or higher * Temperature z-score^2	-0.290*	-0.122	-0.242**	0.109	0.184
	(0.141)	(0.141)	(0.0857)	(0.107)	(0.116)
Primary * Rainfall z-score	-0.000463	0.324*	0.102	-0.0129	0.179***
	(0.0802)	(0.143)	(0.0709)	(0.0695)	(0.0515)
Primary * Rainfall z-score^2	-0.00338	0.176	0.0952*	0.0751	0.158***
	(0.0364)	(0.163)	(0.0398)	(0.0387)	(0.0278)
Secondary or higher * Rainfall z-score	-0.105	0.329	0.0584	0.0274	0.248*
	(0.101)	(0.204)	(0.0920)	(0.106)	(0.102)
Secondary or higher * Rainfall z-score^2	0.0181	0.174	0.104	0.108*	0.222***
	(0.0606)	(0.234)	(0.0578)	(0.0491)	(0.0482)
Sex [1=female]	0.174***	-0.284***	0.405***	0.387***	-0.0539
	(0.0291)	(0.0599)	(0.0399)	(0.0338)	(0.0325)
Relationship to household head [1=child]	0.197***	0.185***	0.101***	0.131***	0.0232
	(0.0164)	(0.0323)	(0.0202)	(0.0172)	(0.0277)
Age [12 years is baseline]					
13	0.774***	0.512***	0.763***	0.698***	0.838***
	(0.0824)	(0.137)	(0.0855)	(0.0950)	(0.0999)
14	1.498***	0.974***	1.504***	1.392***	1.511***
	(0.0863)	(0.148)	(0.0978)	(0.0948)	(0.100)
15	2.146***	1.312***	2.178***	1.985***	1.977***
	(0.102)	(0.190)	(0.124)	(0.114)	(0.121)
16	2.790***	1.911***	2.789***	2.535***	2.550***
	(0.122)	(0.242)	(0.149)	(0.141)	(0.151)
Mother's education [below primary is baseline]					
Primary	1.152***	1.735***	1.561***	1.275***	0.488***
	(0.124)	(0.188)	(0.118)	(0.135)	(0.0702)

Secondary or higher	2.232***	2.505***	2.286***	1.834***	0.840***
	(0.179)	(0.237)	(0.141)	(0.187)	(0.140)
Joint test:					
Climate variables	33.23***	17.21**	21.87***	21.80***	23.10***
Interactions	62.09***	31.66***	15.45	44.76***	119.19***
R^2	0.326	0.392	0.507	0.473	0.359
Weighted N	25,042,003	9,819,970	7,199,984	79,168,228	81,854,248
Number of provinces	169	157	109	339	254

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

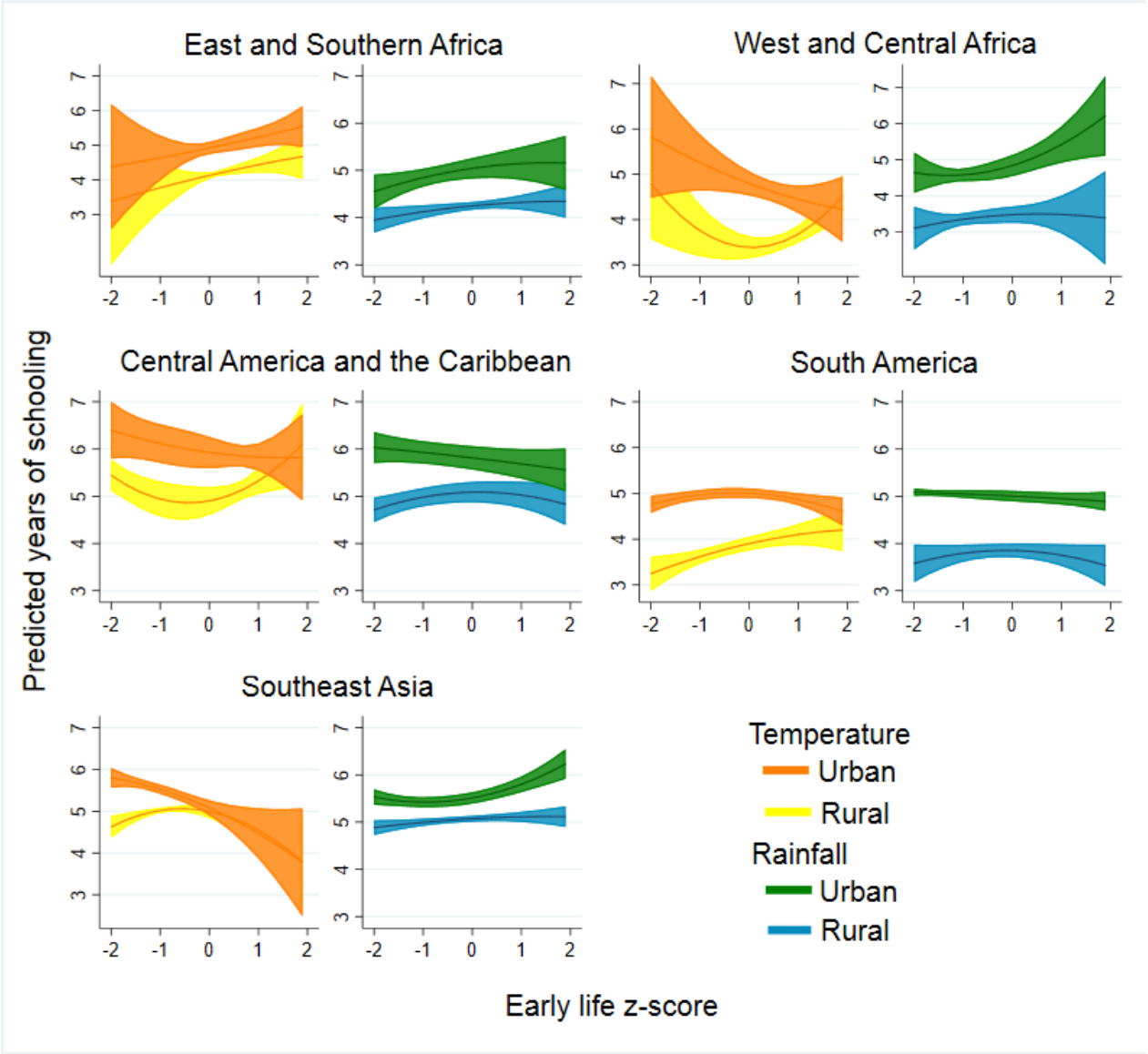

Figure S4. Predicted years of schooling among children aged 12 to 16 based on early life climate z-score, with climate-urban/rural status interactions, including cluster-robust 95% confidence intervals.
Notes: Models also include controls for the child's age, sex, relationship to household head, and household head education, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. In addition, urban/rural status is measured at the time of the census, not at the time of birth.

Table S9. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, with climate-urban/rural status interactions

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	0.362	0.332	0.525**	0.530***	0.0584
	(0.251)	(0.186)	(0.201)	(0.146)	(0.159)
Temperature z-score^2	-0.0596	0.610***	0.417***	-0.00382	-0.335***
	(0.171)	(0.131)	(0.108)	(0.103)	(0.0870)
Rainfall z-score	0.0490	-0.285	0.166	0.0109	-0.0746
	(0.0909)	(0.261)	(0.136)	(0.137)	(0.0673)
Rainfall z-score^2	-0.00255	-0.281	-0.159*	-0.152	-0.136***
	(0.0549)	(0.231)	(0.0678)	(0.0904)	(0.0376)
Climate-urban interactions [rural is baseline]					
Urban * Temperature z-score	-0.0324	-0.368**	-0.334***	-0.289***	-0.294**
	(0.105)	(0.116)	(0.100)	(0.0738)	(0.0927)
Urban * Temperature z-score^2	0.0370	-0.278***	-0.185**	-0.0405	0.125**
	(0.0686)	(0.0788)	(0.0625)	(0.0589)	(0.0482)
Urban * Rainfall z-score	0.0507	0.352*	-0.144	-0.0301	0.132**
	(0.0674)	(0.143)	(0.0875)	(0.0705)	(0.0408)
Urban * Rainfall z-score^2	-0.0228	0.221	0.0761	0.0737	0.118***
	(0.0393)	(0.131)	(0.0400)	(0.0495)	(0.0273)
Sex [1=female]	0.150***	-0.373***	0.334***	0.334***	-0.0837*
	(0.0380)	(0.0716)	(0.0515)	(0.0327)	(0.0381)
Relationship to household head [1=child]	0.229***	0.314***	0.236***	0.498***	0.228***
	(0.0330)	(0.0408)	(0.0511)	(0.0443)	(0.0491)
Age [12 years is baseline]					
13	0.765***	0.528***	0.744***	0.673***	0.824***
	(0.0703)	(0.129)	(0.120)	(0.108)	(0.103)
14	1.462***	1.062***	1.474***	1.342***	1.474***
	(0.0790)	(0.143)	(0.150)	(0.108)	(0.105)
15	1.987***	1.404***	2.075***	1.896***	1.920***
	(0.0953)	(0.190)	(0.198)	(0.123)	(0.129)
16	2.562***	1.972***	2.634***	2.399***	2.465***
	(0.115)	(0.247)	(0.244)	(0.153)	(0.158)
Household head education [below primary is baseline]					
Primary	0.845***	1.039***	0.962***	0.951***	0.905***
	(0.0890)	(0.0849)	(0.0463)	(0.0576)	(0.0779)
Secondary or higher	1.521***	1.562***	1.434***	1.450***	1.427***
	(0.124)	(0.123)	(0.0607)	(0.0840)	(0.113)
Urban	0.801***	1.544***	0.948***	1.094***	0.121*
	(0.0916)	(0.143)	(0.162)	(0.113)	(0.0617)
Joint test					
Climate variables	2.97	29.04***	27.45***	16.20**	48.59***
Interactions	1.58	15.46**	25.29***	18.85***	101.31***
R^2	0.310	0.415	0.503	0.497	0.361

Weighted N	26,195,046	10,535,980	6,428,794	79,740,868	87,688,494
Number of provinces	148	157	105	339	251

Notes: Models only include children living in their birthplace province at the time of the census. Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

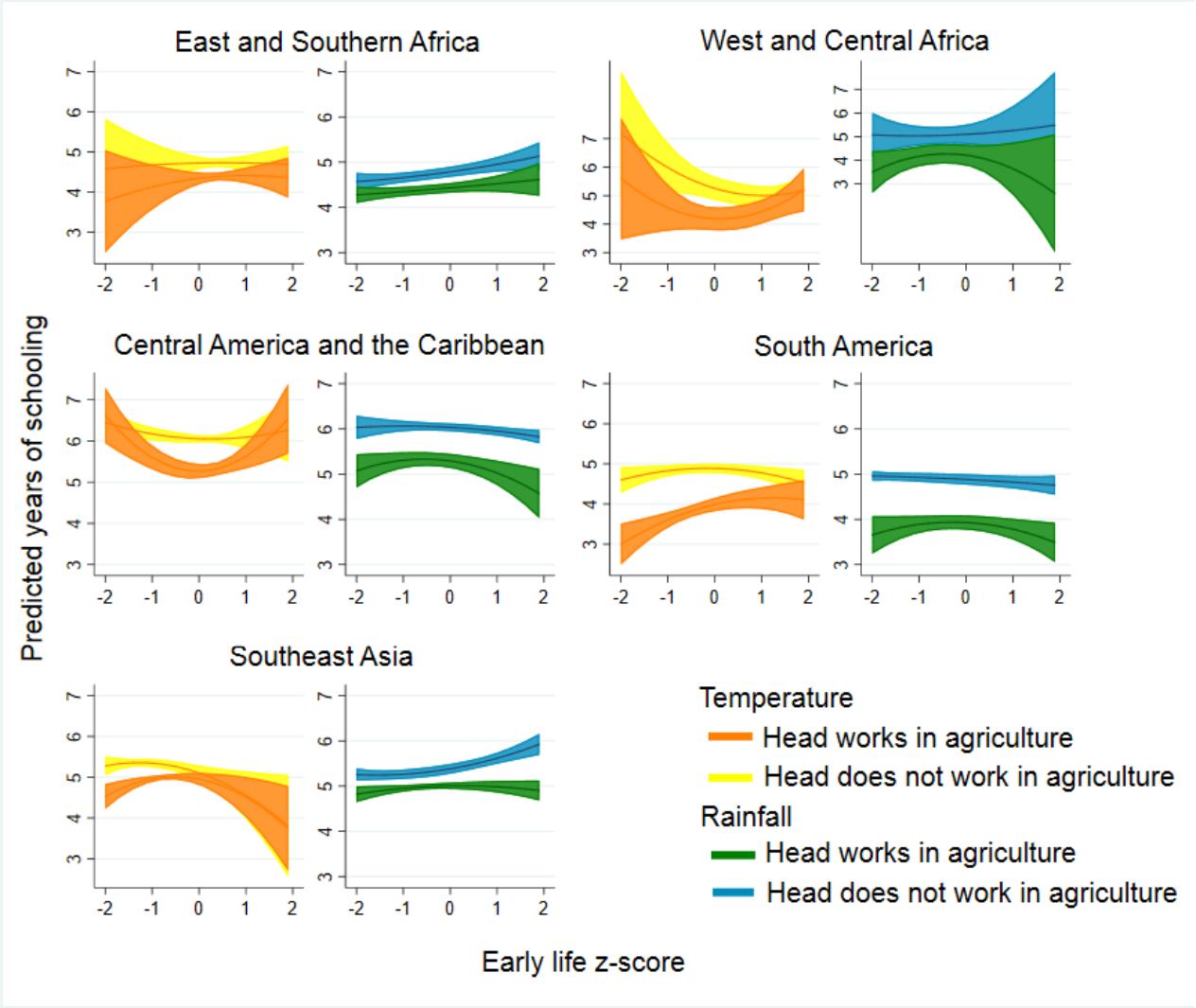

Figure S5. Predicted years of schooling among children aged 12 to 16 based on early life climate z-score, with climate-head works in agriculture/forestry/fisheries interactions, including cluster-robust 95% confidence intervals.

Notes: Models also include controls for the child's age, sex, relationship to household head, and household head education, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. In addition, household head occupation is measured at the time of the census, not the time of birth.

Table S10. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, with climate-household head works in agriculture/forestry/fisheries interactions

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	0.0259	-0.489*	-0.0401	-0.0271	-0.392*
	(0.185)	(0.230)	(0.0921)	(0.0600)	(0.160)
Temperature z-score^2	-0.0234	0.237	0.0796	-0.0858*	-0.153
	(0.0795)	(0.175)	(0.0707)	(0.0363)	(0.0846)
Rainfall z-score	0.146***	0.111	-0.0558	-0.0527*	0.177***
	(0.0411)	(0.271)	(0.0387)	(0.0268)	(0.0345)
Rainfall z-score^2	0.0188	0.0505	-0.0285	-0.00773	0.0565*
	(0.0277)	(0.174)	(0.0224)	(0.0178)	(0.0231)
Climate-head agriculture interactions [head does not work in agriculture/forestry/fisheries is baseline]					
Head works in agriculture* Temperature z-score	0.118	0.420***	0.0547	0.299***	0.168*
	(0.0650)	(0.0806)	(0.0758)	(0.0679)	(0.0819)
Head works in agriculture * Temperature z-score^2	-0.0478	0.0813	0.266***	-0.0256	-0.0657
	(0.0423)	(0.0906)	(0.0673)	(0.0627)	(0.0395)
Head works in agriculture* Rainfall z-score	-0.0585	-0.375**	-0.0851	0.000435	-0.160***
	(0.0391)	(0.140)	(0.0714)	(0.0697)	(0.0317)
Head works in agriculture * Rainfall z-score^2	-0.0140	-0.361***	-0.0972*	-0.0873	-0.0946***
	(0.0248)	(0.0942)	(0.0449)	(0.0515)	(0.0237)
Sex [1=female]	0.161***	-0.328***	0.400***	0.347***	-0.0821*
	(0.0365)	(0.0855)	(0.0406)	(0.0340)	(0.0381)
Relationship to household head [1=child]	0.222***	0.379***	0.232***	0.536***	0.265***
	(0.0365)	(0.0447)	(0.0484)	(0.0471)	(0.0458)
Age [12 years is baseline]					
13	0.857***	0.560**	0.803***	0.661***	0.832***
	(0.0716)	(0.171)	(0.0864)	(0.105)	(0.106)
14	1.601***	1.144***	1.540***	1.332***	1.479***
	(0.0931)	(0.195)	(0.100)	(0.102)	(0.108)
15	2.157***	1.566***	2.236***	1.890***	1.929***
	(0.101)	(0.257)	(0.122)	(0.118)	(0.130)
16	2.758***	2.109***	2.790***	2.396***	2.481***
	(0.116)	(0.332)	(0.159)	(0.152)	(0.159)
Household head education [below primary is baseline]					
Primary	0.844***	1.070***	1.015***	1.012***	0.906***
	(0.0546)	(0.129)	(0.0566)	(0.0684)	(0.0840)
Secondary or higher	1.551***	1.493***	1.617***	1.526***	1.410***
	(0.0803)	(0.154)	(0.0769)	(0.0952)	(0.127)
Head works in agriculture/forestry/fisheries	-0.403***	-1.159***	-0.798***	-0.898***	-0.196**
	(0.0450)	(0.1000)	(0.0933)	(0.101)	(0.0633)
Joint tests:					

Climate variables	15.02**	9.19	10.51*	23.43***	47.22***
Interactions	20.23***	34.22***	15.85**	28.86***	94.53***
R^2	0.317	0.407	0.423	0.489	0.359
Weighted N	15,954,929	7,203,310	6,386,194	76,448,603	87,688,494
Number of provinces	161	118	86	339	251

Notes: Models only include children living in their birthplace province at the time of the census. Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

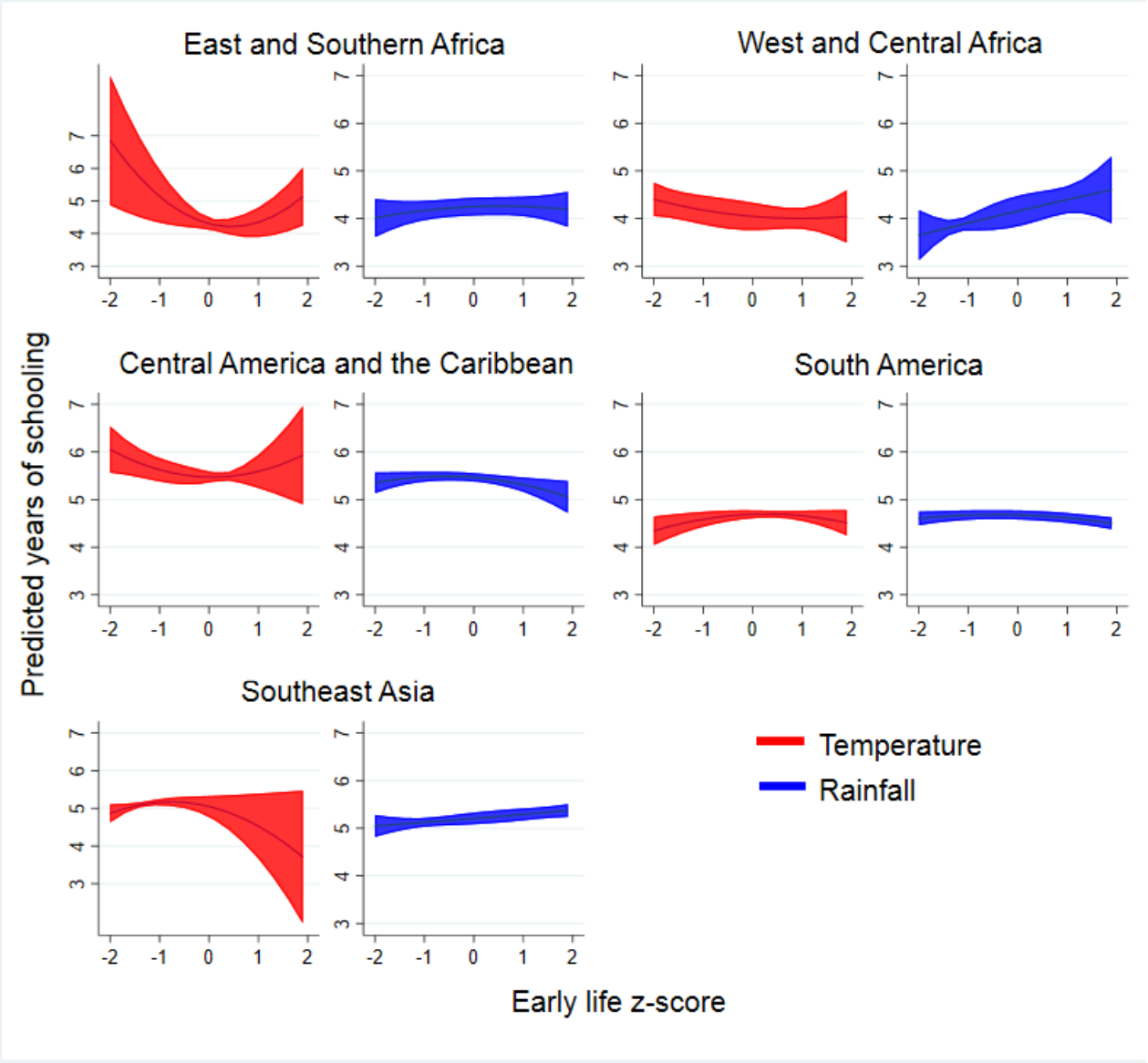

Figure S6. Predicted years of schooling among children aged 12 to 16 based on early life climate z-score with clustering at the country-survey year level, including cluster-robust 95% confidence intervals.
Note: Models also include controls for the child's age, sex, relationship to household head, and household head education, province fixed-effects, and country-specific linear time trends.

Table S11. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, including clustering at the country-survey year level.

	East and Southern Africa	**West and Central Africa**	**Central America and Caribbean**	**South America**	**Southeast Asia**
Temperature z-score	-0.397	-0.0871	-0.0176	0.0363	-0.318
	(0.293)	(0.0937)	(0.130)	(0.0546)	(0.191)
Temperature z-score^2	0.440**	0.0458	0.136	-0.0685*	-0.205
	(0.122)	(0.0606)	(0.0910)	(0.0262)	(0.0930)
Rainfall z-score	0.0426	0.243**	-0.0829	-0.0293	0.0831*
	(0.0419)	(0.0603)	(0.0508)	(0.0229)	(0.0350)
Rainfall z-score^2	-0.0384	-0.00476	-0.0707*	-0.0333**	0.00240
	(0.0425)	(0.0965)	(0.0293)	(0.00941)	(0.0232)
Sex [1=female]	0.138*	-0.446**	0.325***	0.331***	-0.0848
	(0.0510)	(0.119)	(0.0641)	(0.0549)	(0.0497)
Relationship to household head [1=child]	0.224***	0.334***	0.245**	0.477***	0.233**
	(0.0452)	(0.0463)	(0.0647)	(0.0460)	(0.0541)
Age [12 years is baseline]					
13	0.780***	0.491***	0.738***	0.687***	0.830***
	(0.0533)	(0.0499)	(0.0709)	(0.0402)	(0.0851)
14	1.501***	0.957***	1.450***	1.363***	1.491***
	(0.0770)	(0.158)	(0.118)	(0.0948)	(0.0822)
15	2.111***	1.224***	2.086***	1.931***	1.940***
	(0.0975)	(0.231)	(0.167)	(0.141)	(0.122)
16	2.707***	1.773***	2.650***	2.433***	2.510***
	(0.121)	(0.297)	(0.191)	(0.190)	(0.149)
Head's education [below primary is baseline]					
Primary	0.952***	1.267***	1.189***	1.231***	1.012***
	(0.0454)	(0.125)	(0.0989)	(0.102)	(0.124)
Secondary or higher	1.793***	1.964***	1.761***	1.766***	1.610***
	(0.0711)	(0.185)	(0.107)	(0.114)	(0.175)
Joint test					
Climate variables	3.57*	7.60**	2.80	6.86***	10.44**
R^2	0.308	0.384	0.490	0.450	0.350
Weighted N	35,853,156	14,785,210	9,179,124	92,213,320	94,148,929
Number of provinces	169	157	109	339	254

Note: Models include province fixed-effects, country-specific linear time trends, as well as clustering at the country-survey year level.

* p<0.05 ** p<0.01 *** p<0.001

Table S12. Estimated effective number of clusters for each region

Region	Number of clusters	Estimated effective number of clusters
East and Southern Africa	169	108.5
West and Central Africa	157	68.5
South America	339	122.6
Central America and the Caribbean	109	75.3
Southeast Asia	254	113.6

Table S13. K-fold cross-validation experiment using five folds for all regions combined

Model including all regions	Mean absolute error	Number of observations within each fold
est1	2.0817	1,893,072
est2	2.0847	1,893,186
est3	2.0813	1,893,088
est4	2.0817	1,893,487
est5	2.0810	1,892,811

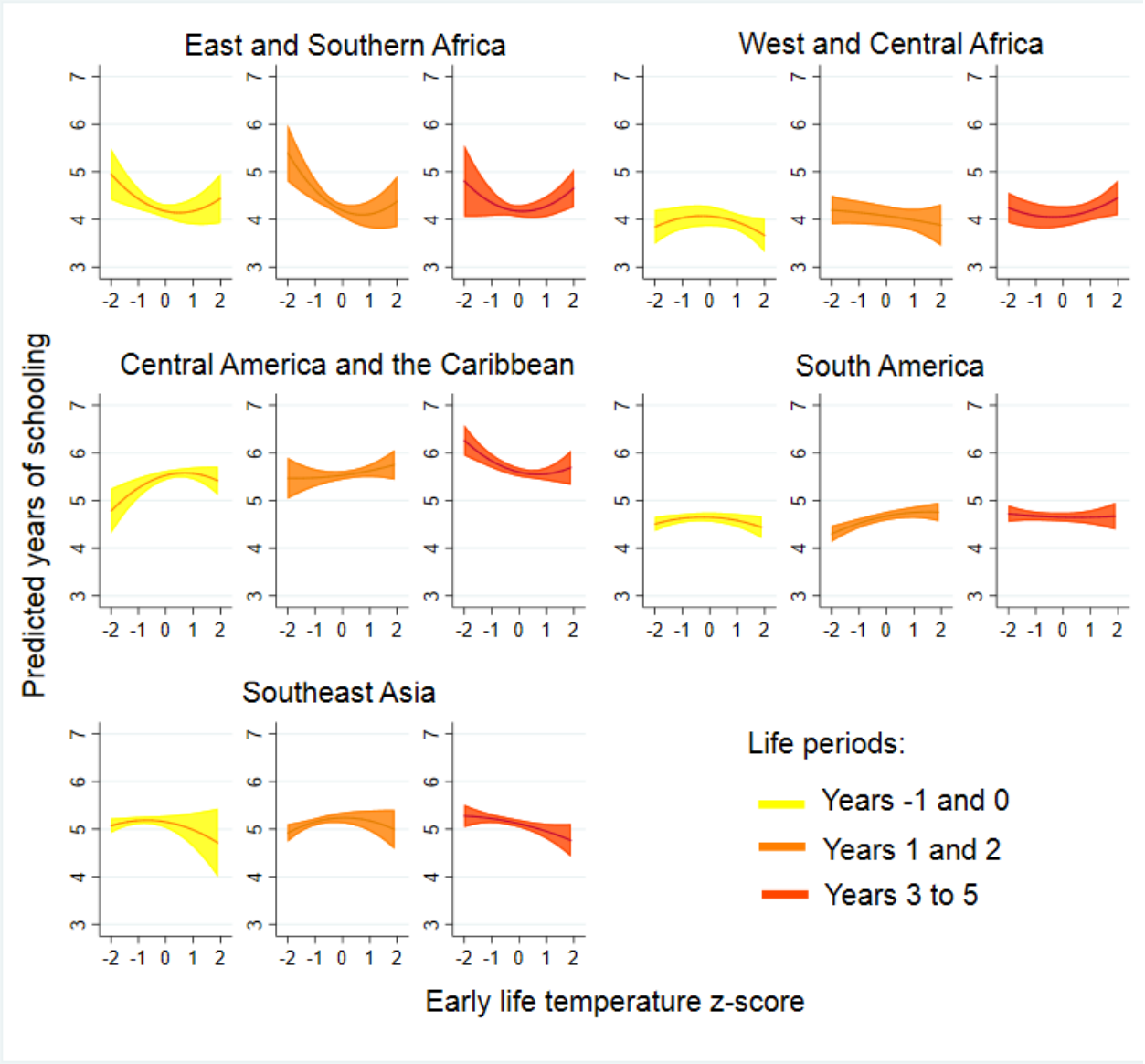

Figure S7. Predicted years of schooling among children aged 12 to 16 based on early life temperature z-score broken up by three life periods, including cluster-robust 95% confidence intervals.
Note: Models also include controls for the child's age, sex, relationship to household head, and household head education, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

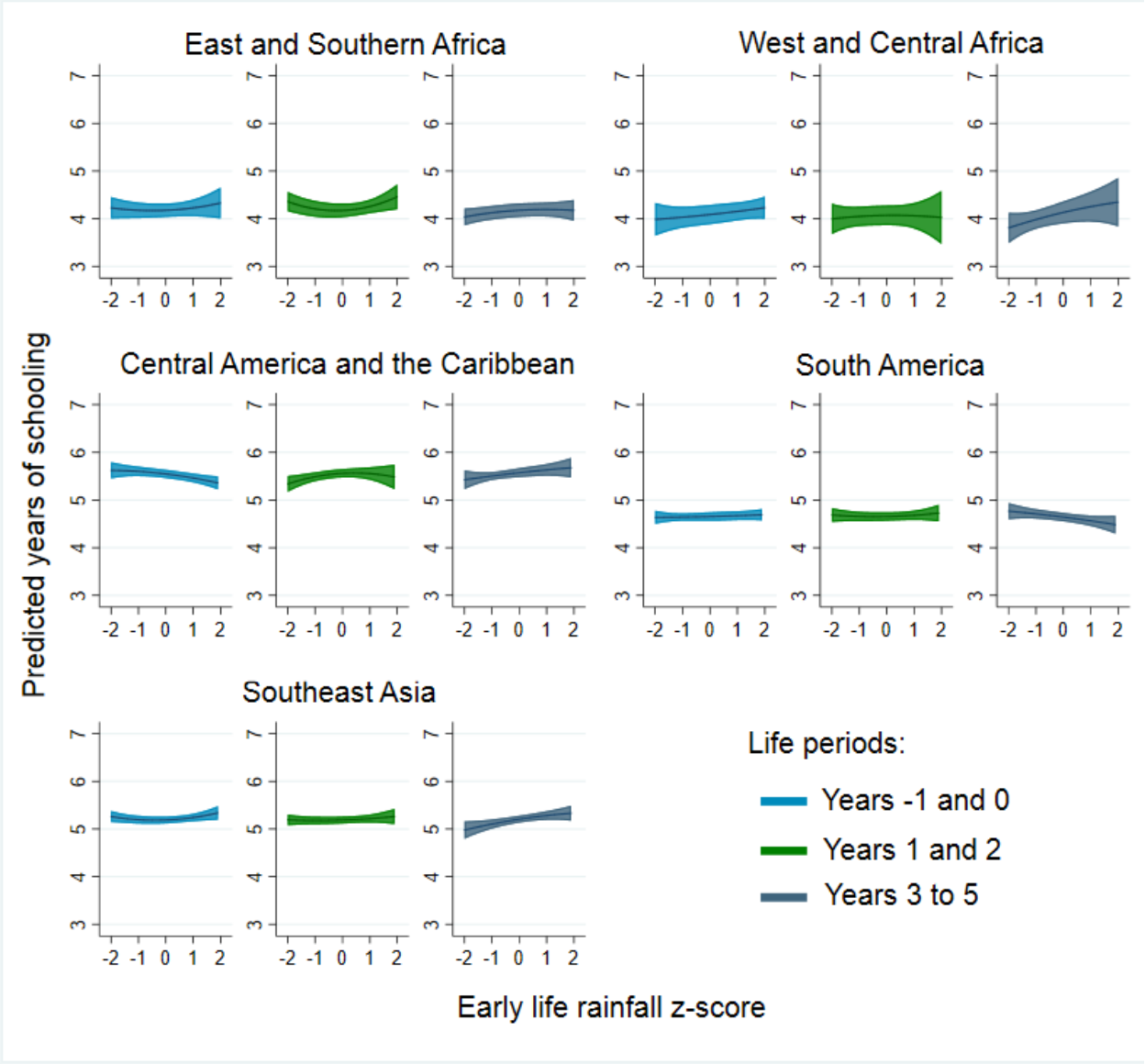

Figure S8. Predicted years of schooling among children aged 12 to 16 based on early life rainfall z-score broken up by three life periods, including cluster-robust 95% confidence intervals.

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

Table S14. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies, including three life periods

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score, ages -1 and 0	-0.128	-0.0444	0.152*	-0.0229	-0.0983
	(0.104)	(0.0597)	(0.0685)	(0.0378)	(0.0943)
Temperature z-score^2, ages -1 and 0	0.131**	-0.0785	-0.111**	-0.0467**	-0.0696
	(0.0434)	(0.0411)	(0.0394)	(0.0179)	(0.0431)
Temperature z-score, ages 1 and 2	-0.253*	-0.0791	0.0744	0.113**	0.0117
	(0.113)	(0.0690)	(0.0556)	(0.0358)	(0.0562)
Temperature z-score^2, ages 1 and 2	0.175***	-0.00920	0.0217	-0.0365*	-0.0736*
	(0.0463)	(0.0309)	(0.0396)	(0.0160)	(0.0315)
Temperature z-score, ages 3 to 5	-0.0373	0.0522	-0.137**	-0.0123	-0.134*
	(0.115)	(0.0739)	(0.0484)	(0.0385)	(0.0526)
Temperature z-score^2, ages 3 to 5	0.140*	0.0731**	0.0986*	0.0118	-0.0270
	(0.0590)	(0.0263)	(0.0401)	(0.0240)	(0.0322)
Rainfall z-score, ages -1 and 0	0.0250	0.0611	-0.0690*	0.0143	0.0226
	(0.0465)	(0.0337)	(0.0275)	(0.0195)	(0.0227)
Rainfall z-score^2, ages -1 and 0	0.0255	0.00543	-0.0157	0.00296	0.0295*
	(0.0223)	(0.0297)	(0.0159)	(0.0160)	(0.0135)
Rainfall z-score, ages 1 and 2	0.0251	0.00743	0.0333	0.0117	0.0193
	(0.0435)	(0.0817)	(0.0387)	(0.0205)	(0.0239)
Rainfall z-score^2, ages 1 and 2	0.0593**	-0.0149	-0.0393	0.0140	0.0104
	(0.0203)	(0.0485)	(0.0228)	(0.0170)	(0.0145)
Rainfall z-score, ages 3 to 5	0.0345	0.135	0.0647*	-0.0729*	0.0896**
	(0.0349)	(0.0783)	(0.0324)	(0.0297)	(0.0316)
Rainfall z-score^2, ages -3 to 5	-0.0178	-0.0137	-0.00521	-0.00529	-0.0122
	(0.0179)	(0.0376)	(0.0235)	(0.0179)	(0.0159)
Sex [1=female]	0.138***	-0.445***	0.326***	0.331***	-0.0842*
	(0.0319)	(0.0691)	(0.0400)	(0.0328)	(0.0375)
Relationship to household head [1=child]	0.224***	0.327***	0.245***	0.475***	0.233***
	(0.0284)	(0.0374)	(0.0429)	(0.0402)	(0.0512)
Age [12 years is baseline]					
13	0.803***	0.448**	0.724***	0.687***	0.790***
	(0.0795)	(0.154)	(0.0814)	(0.0888)	(0.0921)
14	1.505***	0.876***	1.414***	1.350***	1.495***
	(0.0982)	(0.168)	(0.0885)	(0.0834)	(0.0917)
15	2.111***	1.103***	2.151***	1.891***	1.920***
	(0.117)	(0.193)	(0.106)	(0.0931)	(0.142)
16	2.693***	1.602***	2.731***	2.434***	2.561***
	(0.132)	(0.233)	(0.131)	(0.120)	(0.168)
Head's education [below primary is baseline]					
Primary	0.952***	1.265***	1.187***	1.232***	1.011***
	(0.0774)	(0.110)	(0.0736)	(0.0799)	(0.0914)
Secondary or higher	1.793***	1.969***	1.758***	1.768***	1.609***
	(0.110)	(0.150)	(0.0836)	(0.106)	(0.129)

Joint test					
Climate variables	56.70***	36.40***	63.40***	113.99***	73.50***
R^2	0.308	0.385	0.493	0.452	0.351
Weighted N	35,853,156	14,785,210	9,179,124	92,213,320	94,148,929
Number of provinces	169	157	109	339	254

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

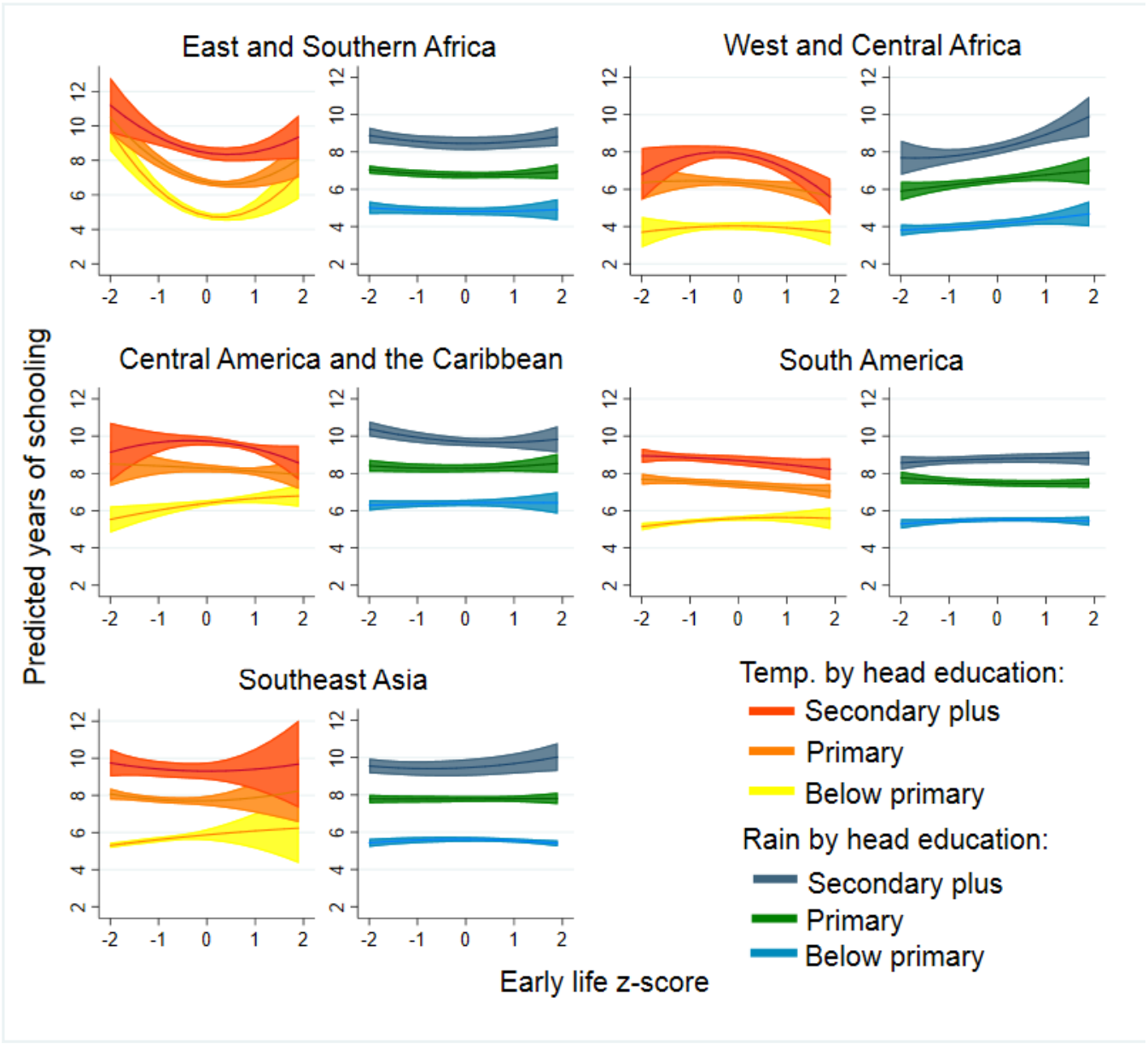

Figure S9. Predicted years of schooling among individuals aged 17 to 20 based on early life climate z-score and household head's educational attainment, including cluster-robust 95% confidence intervals.
Note: Models also include controls for the individual's age, sex, and relationship to household head, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S15. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies for individuals aged 17 to 20 years.

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	-0.548**	-0.011	0.318*	0.107	0.235
	(0.211)	(0.124)	(0.144)	(0.080)	(0.258)
Temperature z-score^2	0.958***	-0.088	-0.060	-0.058	-0.024
	(0.154)	(0.096)	(0.053)	(0.043)	(0.100)
Rainfall z-score	-0.022	0.226*	0.032	0.034	-0.012
	(0.077)	(0.095)	(0.085)	(0.041)	(0.040)
Rainfall z-score^2	0.0367	0.028	-0.015	-0.041	-0.054**
	(0.050)	(0.061)	(0.042)	(0.029)	(0.017)
Climate-head's education interactions [less than primary is baseline]					
Primary * Temperature z-score	-0.00640	-0.183	-0.464**	-0.275***	-0.180
	(0.108)	(0.170)	(0.151)	(0.0697)	(0.111)
Primary * Temperature z-score^2	-0.293*	-0.00879	0.0455	0.0435	0.144
	(0.145)	(0.124)	(0.146)	(0.0552)	(0.0751)
Secondary or higher * Temperature z-score	0.122	-0.350	-0.488*	-0.295*	-0.240
	(0.214)	(0.229)	(0.193)	(0.121)	(0.284)
Secondary or higher * Temperature z-score^2	-0.479	-0.370*	-0.175	0.0263	0.132
	(0.247)	(0.187)	(0.193)	(0.0839)	(0.171)
Primary * Rainfall z-score	-0.0009	0.0544	0.00721	-0.104	0.0209
	(0.0687)	(0.103)	(0.113)	(0.0649)	(0.0661)
Primary * Rainfall z-score^2	0.0245	-0.0393	0.0681	0.0769	0.0592*
	(0.0428)	(0.0745)	(0.0614)	(0.0474)	(0.0285)
Secondary or higher * Rainfall z-score	0.0138	0.359*	-0.164	0.0259	0.144
	(0.124)	(0.159)	(0.143)	(0.0695)	(0.114)
Secondary or higher * Rainfall z-score^2	0.0671	0.142	0.122	0.0168	0.143*
	(0.0746)	(0.125)	(0.0717)	(0.0552)	(0.0593)
Sex [1=female]	-0.374***	-0.934***	0.417***	0.498***	-0.614***
	(0.0674)	(0.0791)	(0.0782)	(0.0595)	(0.0872)
Relationship to household head [1=child]	0.982***	1.005***	1.029***	1.378***	1.177***
	(0.0613)	(0.0728)	(0.0660)	(0.0638)	(0.0992)
Age [17 years is baseline]					
18	0.267**	0.0357	0.389***	0.395***	0.359***
	(0.0869)	(0.0478)	(0.0675)	(0.0733)	(0.0874)
19	0.653***	0.369***	0.769***	0.767***	0.730***
	(0.0766)	(0.0929)	(0.0851)	(0.0696)	(0.0997)
20	0.515***	-0.0407	0.904***	0.946***	0.578***
	(0.0960)	(0.118)	(0.108)	(0.0833)	(0.102)
Head's education [below primary is baseline]					

Primary	1.947***	2.369***	1.864***	1.813***	1.829***
	(0.151)	(0.143)	(0.146)	(0.148)	(0.142)
Secondary or higher	3.655***	4.049***	3.282***	3.104***	3.463***
	(0.256)	(0.193)	(0.156)	(0.195)	(0.277)
Joint test:					
Climate variables	64.71***	13.05*	6.30	24.53***	34.02***
Interactions	9.44	189.03***	46.16***	22.77**	42.46***
r2	0.288	0.463	0.437	0.415	0.365
Weighted N	24,468,012	10,909,040	6,541,547	67,383,686	69,074,460
Number of provinces	169	157	109	339	254

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

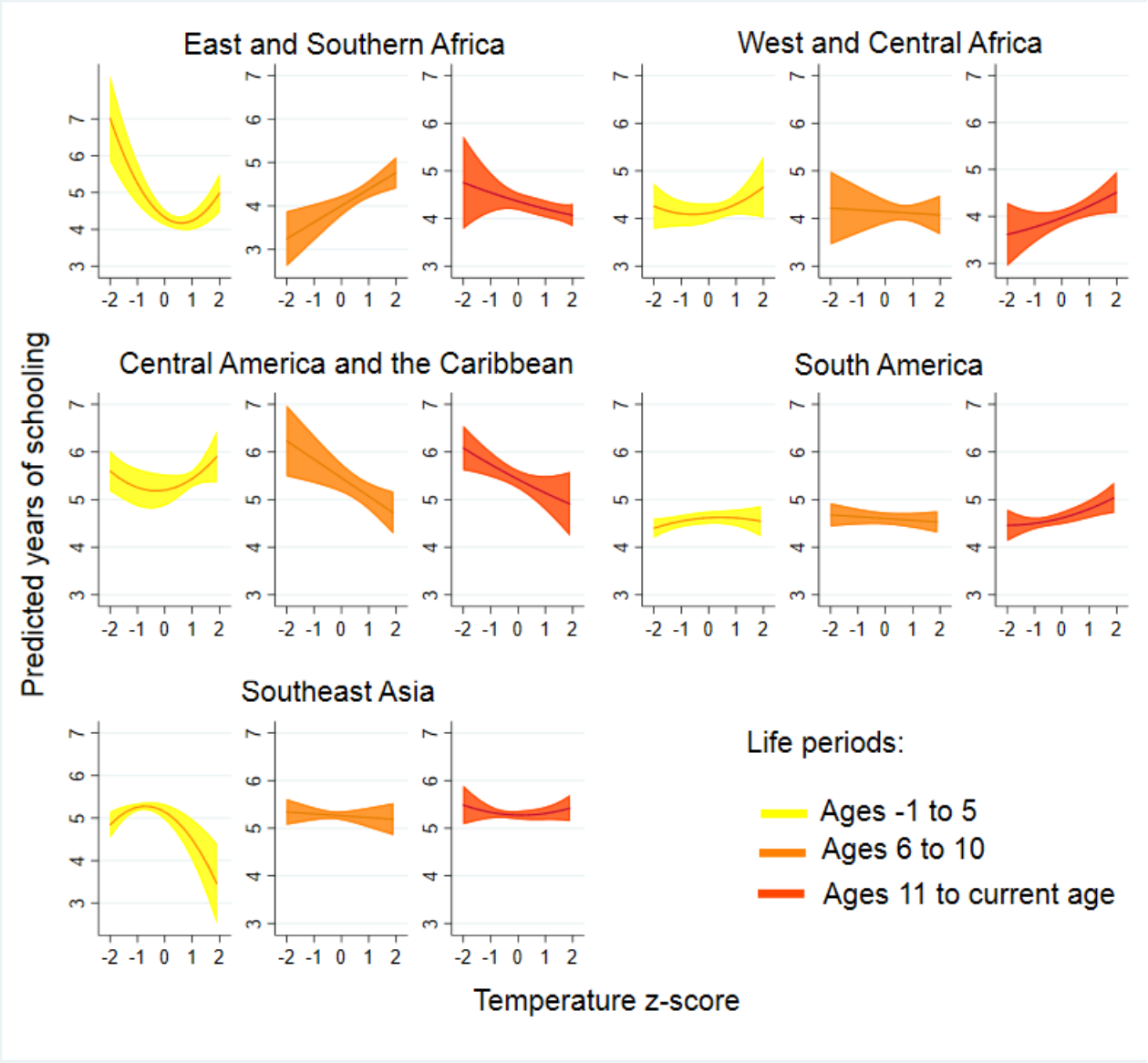

Figure S10. Predicted years of schooling among children aged 12 to 16 based on temperature anomalies during ages -1 to 5, ages 6 to 10, and ages 11 to current age, including cluster-robust 95% confidence intervals.
Note: Models also include controls for the individual's age, sex, and relationship to household head, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

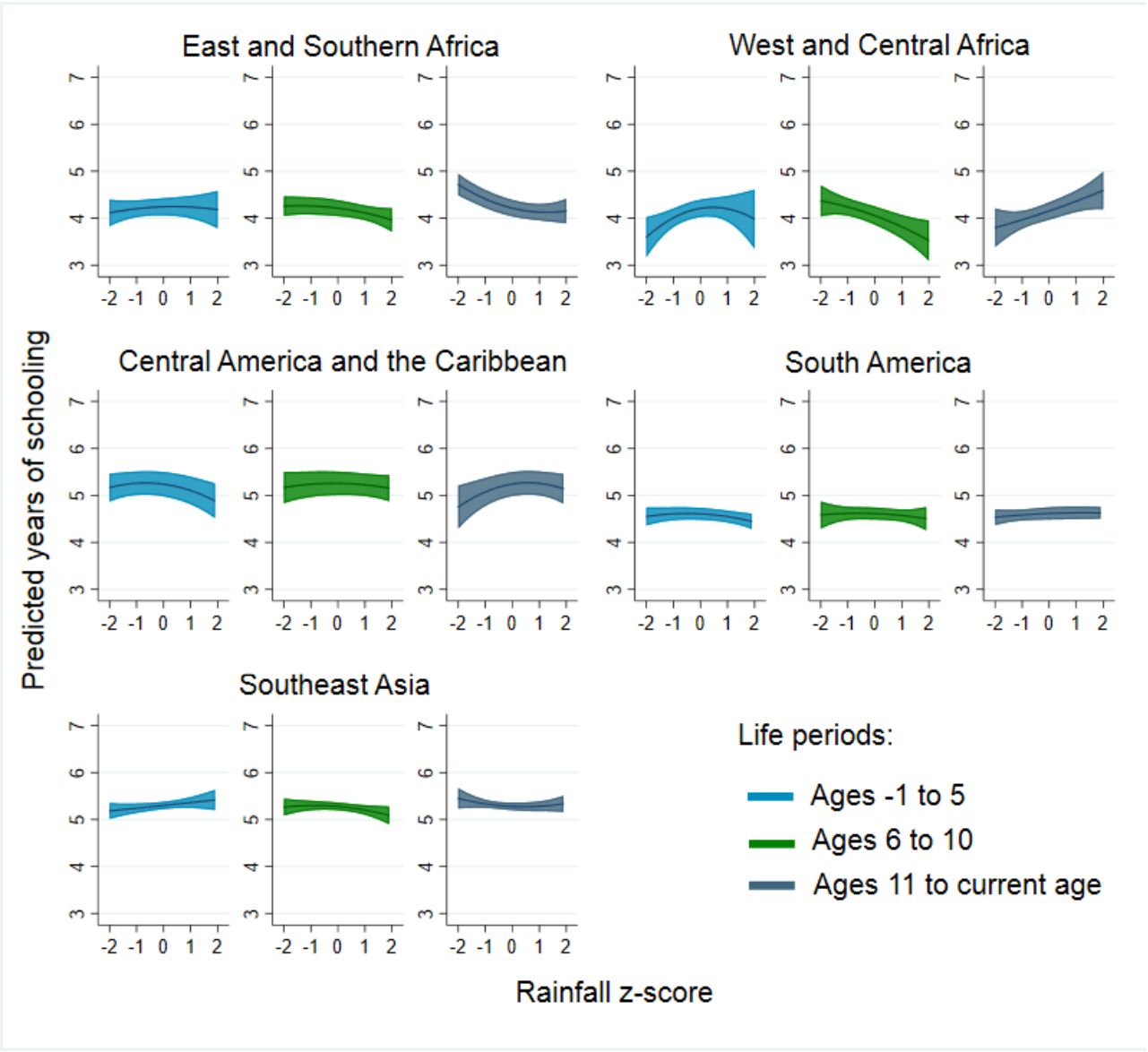

Figure S11. Predicted years of schooling among children aged 12 to 16 based on rainfall anomalies during ages -1 to 5, ages 6 to 10, and ages 11 to current age, including cluster-robust 95% confidence intervals.
Note: Models also include controls for the individual's age, sex, and relationship to household head, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S16. Results from OLS regressions predicting years of schooling completed based on temperature and precipitation anomalies during ages -1 to 5, ages 6 to 10, and ages 11 to current age

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score, ages -1 to 5	-0.489**	0.118	0.0996	0.0312	-0.382**
	(0.159)	(0.112)	(0.109)	(0.0455)	(0.133)
Temperature z-score^2, ages -1 to 5	0.448***	0.138**	0.159*	-0.0363	-0.267***
	(0.0679)	(0.0517)	(0.0679)	(0.0287)	(0.0624)
Rainfall z-score, ages -1 to 5	0.0451	0.0825	-0.0828**	-0.0345	0.0607
	(0.0395)	(0.0708)	(0.0302)	(0.0257)	(0.0345)
Rainfall z-score^2, ages -1 to 5	-0.0180	-0.113	-0.0585**	-0.0295	0.000986
	(0.0320)	(0.0599)	(0.0225)	(0.0151)	(0.0162)
Temperature z-score, ages 6 to 10	0.376***	0.120	-0.274**	-0.00914	-0.0377
	(0.112)	(0.122)	(0.106)	(0.0416)	(0.0775)
Temperature z-score^2, ages 6 to 10	-0.0420	0.184***	0.0670	0.0389	-0.178***
	(0.0493)	(0.0481)	(0.0344)	(0.0204)	(0.0516)
Rainfall z-score, ages 6 to 10	-0.0717	-0.212**	-0.00264	-0.0234	-0.0480
	(0.0399)	(0.0682)	(0.0389)	(0.0296)	(0.0319)
Rainfall z-score^2, ages 6 to 10	-0.0350	-0.0256	-0.0232	-0.0180	-0.0274
	(0.0218)	(0.0356)	(0.0220)	(0.0343)	(0.0182)
Temperature z-score, ages 11 to current age	-0.0599	0.220	-0.295*	0.143*	-0.0126
	(0.127)	(0.124)	(0.121)	(0.0560)	(0.0532)
Temperature z-score^2, ages 11 to current age	-0.0952	0.0227	0.0194	0.0392	0.0466
	(0.0620)	(0.0489)	(0.0436)	(0.0386)	(0.0440)
Rainfall z-score, ages 11 to current age	-0.128***	0.195**	0.0838*	0.0223	-0.0268
	(0.0365)	(0.0689)	(0.0339)	(0.0282)	(0.0262)
Rainfall z-score^2, ages 11 to current age	0.0620**	0.0188	-0.0745*	-0.00805	0.0297
	(0.0235)	(0.0440)	(0.0323)	(0.0139)	(0.0222)
Sex [1=female]	0.138***	-0.446***	0.326***	0.331***	-0.0846*
	(0.0319)	(0.0692)	(0.0400)	(0.0329)	(0.0376)
Relationship to household head [1=child]	0.220***	0.323***	0.243***	0.476***	0.232***
	(0.0281)	(0.0378)	(0.0425)	(0.0403)	(0.0513)
Age [12 years is baseline]					
13	0.743***	0.448***	0.801***	0.684***	0.805***
	(0.0694)	(0.116)	(0.0725)	(0.0876)	(0.0847)
14	1.488***	0.835***	1.531***	1.335***	1.467***
	(0.0774)	(0.119)	(0.0762)	(0.0890)	(0.0931)
15	2.073***	1.123***	2.199***	1.901***	1.985***
	(0.0764)	(0.169)	(0.102)	(0.107)	(0.111)
16	2.672***	1.662***	2.793***	2.407***	2.531***
	(0.0937)	(0.206)	(0.132)	(0.131)	(0.143)
Head's education [below primary is baseline]					
Primary	0.955***	1.267***	1.189***	1.227***	1.013***

	(0.0773)	(0.109)	(0.0729)	(0.0798)	(0.0912)
Secondary or higher	1.795***	1.972***	1.757***	1.765***	1.613***
	(0.110)	(0.151)	(0.0839)	(0.105)	(0.128)
Joint test:					
Climate variables	214.70***	143.89***	59.22***	886.94***	1277.44***
R	0.312	0.387	0.493	0.451	0.352
Weighted N	35,853,156	14,785,210	9,179,124	92,213,320	94,148,929
Number of provinces	169	157	109	339	254

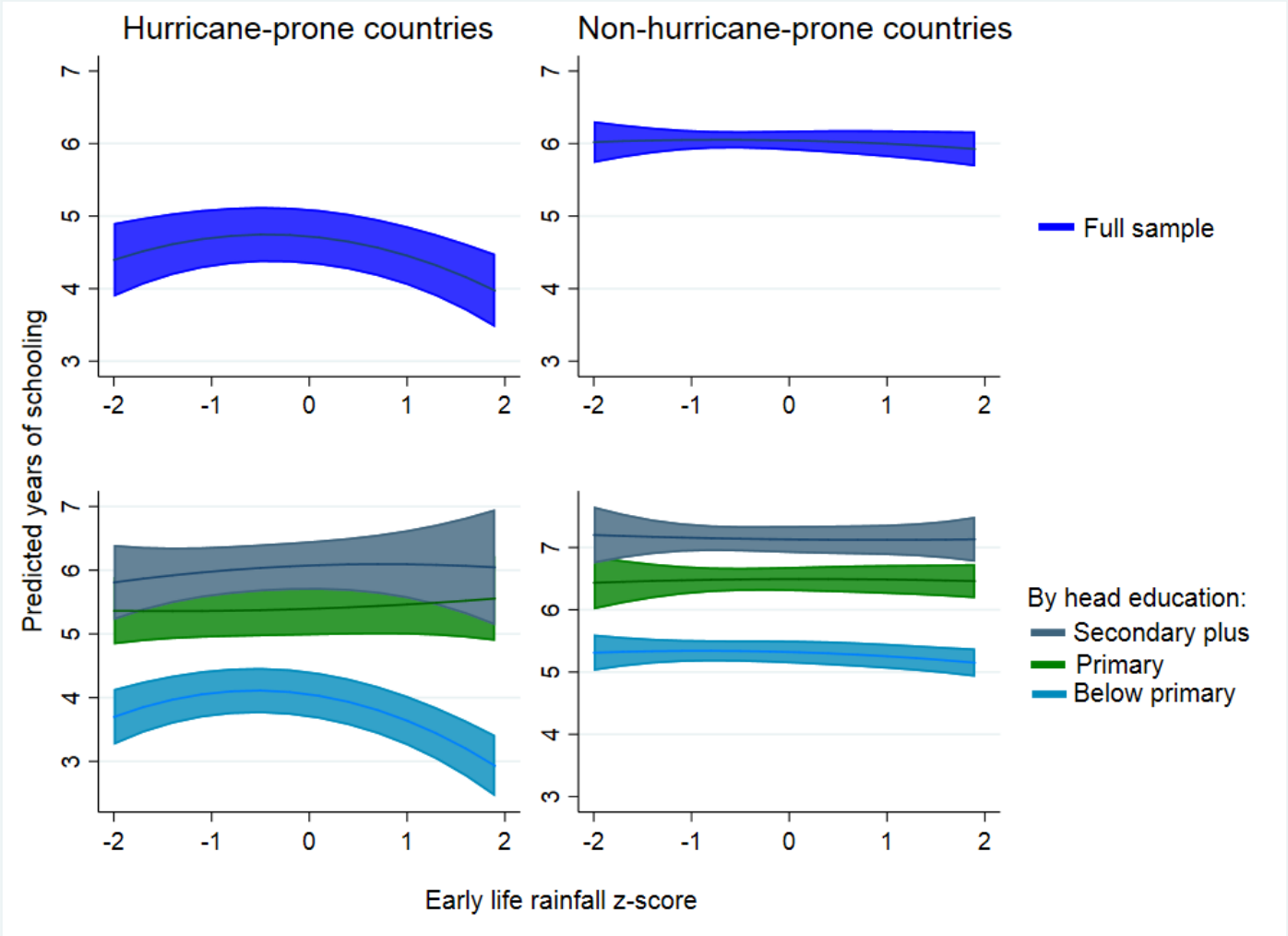

Figure S12. Predicted years of schooling among children aged 12 to 16 in Central America and the Caribbean based on early life rainfall z-score and whether the country is hurricane prone, including cluster-robust 95% confidence intervals.

Notes: Hurricane-prone countries (Dominican Republic, Haiti, Jamaica, Nicaragua, and Trinidad and Tobago) are those that have experienced a minimum of five hurricane landfalls according to the NOAA hurricane tracking site (https://coast.noaa.gov/hurricanes/). Non-hurricane-prone countries include Costa Rica, El Salvador, and Panama. Models also include controls for the individual's age, sex, and relationship to household head, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S17. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies for children aged 12 to 16 in Central America and the Caribbean based on early life climate z-score and whether the country is hurricane prone

	Hurricane-prone countries	**Non-hurricane-prone countries**
Temperature z-score	0.882**	-0.169*
	(0.311)	(0.0672)
Temperature z-score^2	0.0989	-0.00300
	(0.193)	(0.0446)
Rainfall z-score	-0.123*	-0.0261
	(0.0541)	(0.0461)
Rainfall z-score^2	-0.142***	-0.0187
	(0.0338)	(0.0230)
Sex [1=female]	0.382***	0.242***
	(0.0603)	(0.0211)
Relationship to household head [1=child]	0.179***	0.374***
	(0.0524)	(0.0695)
Age [12 years is baseline]		
13	0.733***	0.794***
	(0.120)	(0.0621)
14	1.519***	1.475***
	(0.132)	(0.0699)
15	2.197***	2.073***
	(0.150)	(0.0988)
16	2.882***	2.607***
	(0.168)	(0.118)
Head's education [below primary is baseline]		
Primary	1.231***	1.104***
	(0.107)	(0.0888)
Secondary or higher	1.833***	1.637***
	(0.113)	(0.111)
Joint test		
Climate variables	50.80***	49.50***
R^2	0.542	0.325
Weighted N	5,605,114	3,574,010
Number of provinces	81	28

Notes: Hurricane-prone countries (Dominican Republic, Haiti, Jamaica, Nicaragua, and Trinidad and Tobago) are those that have experienced a minimum of five hurricane landfalls according to the NOAA hurricane tracking site (https://coast.noaa.gov/hurricanes/). Non-hurricane-prone countries include Costa Rica, El Salvador, and Panama.
Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.
* p<0.05 ** p<0.01 *** p<0.001

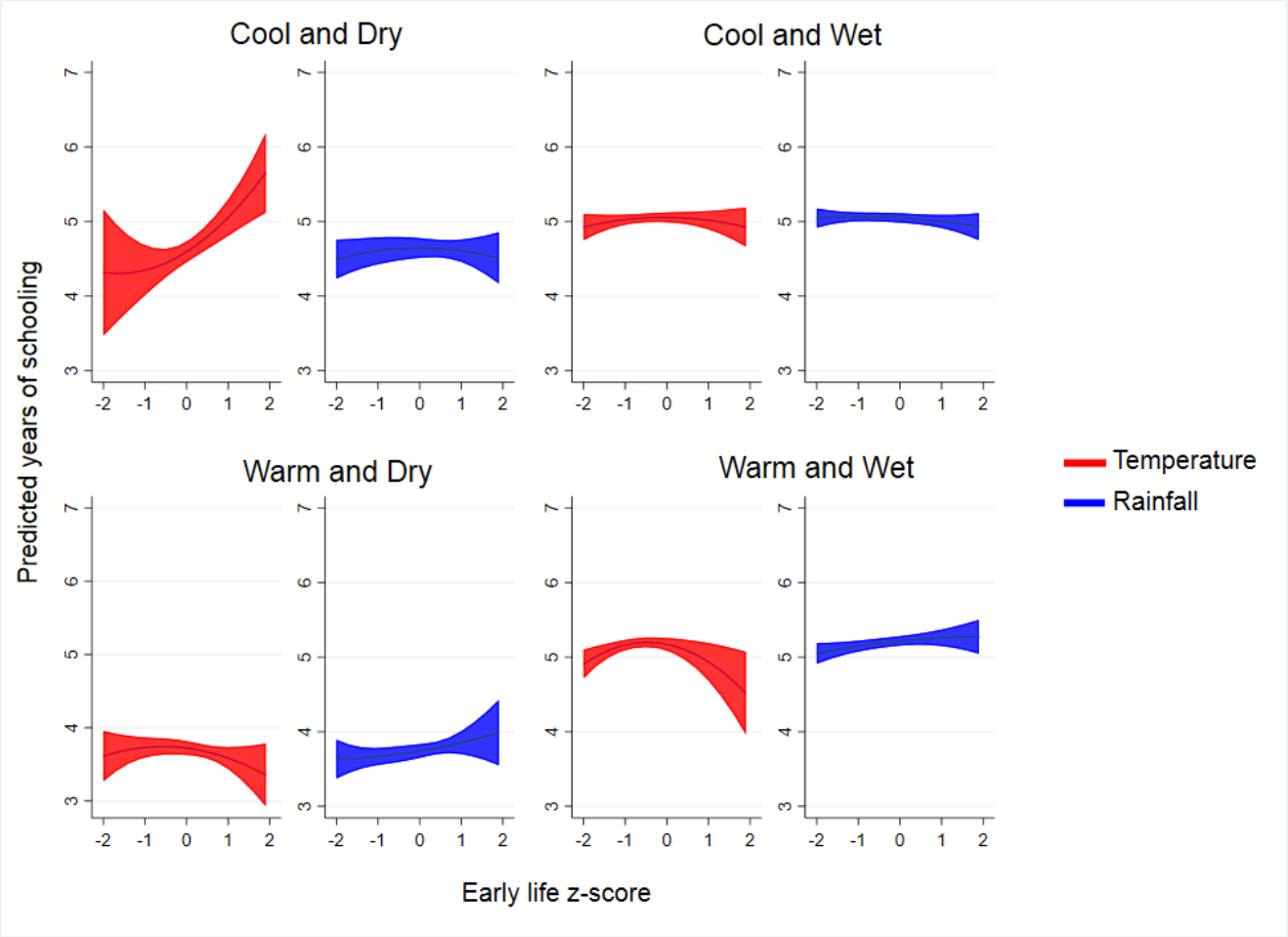

Figure S13. Predicted years of schooling among children aged 12 to 16 based on early life climate z-score, stratified by historical climatic conditions, including cluster-robust 95% confidence intervals.
Notes: Provinces with a historic mean annual temperature below the median of 24.74 °C are considered cool and above the median are considered warm. Provinces with a historic mean annual rainfall below the median of 1241.27 mm are considered dry and above the median are considered wet.
Models also include controls for the individual's age, sex, and relationship to household head, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S18. Results from OLS regressions predicting years of schooling completed based on early life temperature and precipitation anomalies for children aged 12 to 16 stratified by province historical climatic conditions

	Cool and dry	**Cool and wet**	**Warm and dry**	**Warm and wet**
Temperature z-score	0.353*	-0.00378	-0.0725	-0.113
	(0.142)	(0.0385)	(0.0495)	(0.0729)
Temperature z-score^2	0.107	-0.0343	-0.0637	-0.123**
	(0.0727)	(0.0251)	(0.0499)	(0.0420)
Rainfall z-score	0.000433	-0.0312	0.0930+	0.0557+
	(0.0539)	(0.0247)	(0.0512)	(0.0312)
Rainfall z-score^2	-0.0374	-0.0162	0.0194	-0.0141
	(0.0318)	(0.0190)	(0.0470)	(0.0193)
Sex [1=female]	0.194***	0.225***	0.0902	-0.0228
	(0.0483)	(0.0275)	(0.0980)	(0.0476)
Relationship to household head [1=child]	0.293***	0.401***	0.328***	0.282***
	(0.0332)	(0.0447)	(0.0324)	(0.0352)
Age [12 years is baseline]				
13	0.745***	0.731***	0.530***	0.812***
	(0.0557)	(0.0587)	(0.0862)	(0.0846)
14	1.400***	1.425***	1.001***	1.497***
	(0.0710)	(0.0651)	(0.0933)	(0.0848)
15	2.005***	1.980***	1.359***	1.965***
	(0.0869)	(0.0781)	(0.114)	(0.105)
16	2.596***	2.512***	1.808***	2.537***
	(0.118)	(0.111)	(0.148)	(0.128)
Head's education [below primary is baseline]				
Primary	1.068***	1.066***	1.367***	1.055***
	(0.0773)	(0.0705)	(0.103)	(0.0748)
Secondary or higher	1.740***	1.652***	2.115***	1.688***
	(0.117)	(0.0920)	(0.124)	(0.0983)
Joint test:				
Climate variables	12.13*	3.99	6.52	18.55***
R^2	0.414	0.373	0.391	0.385
Weighted N	41,807,255	67,408,764	30,699,459	106,264,260
Number of provinces	329	196	124	379

Note: models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

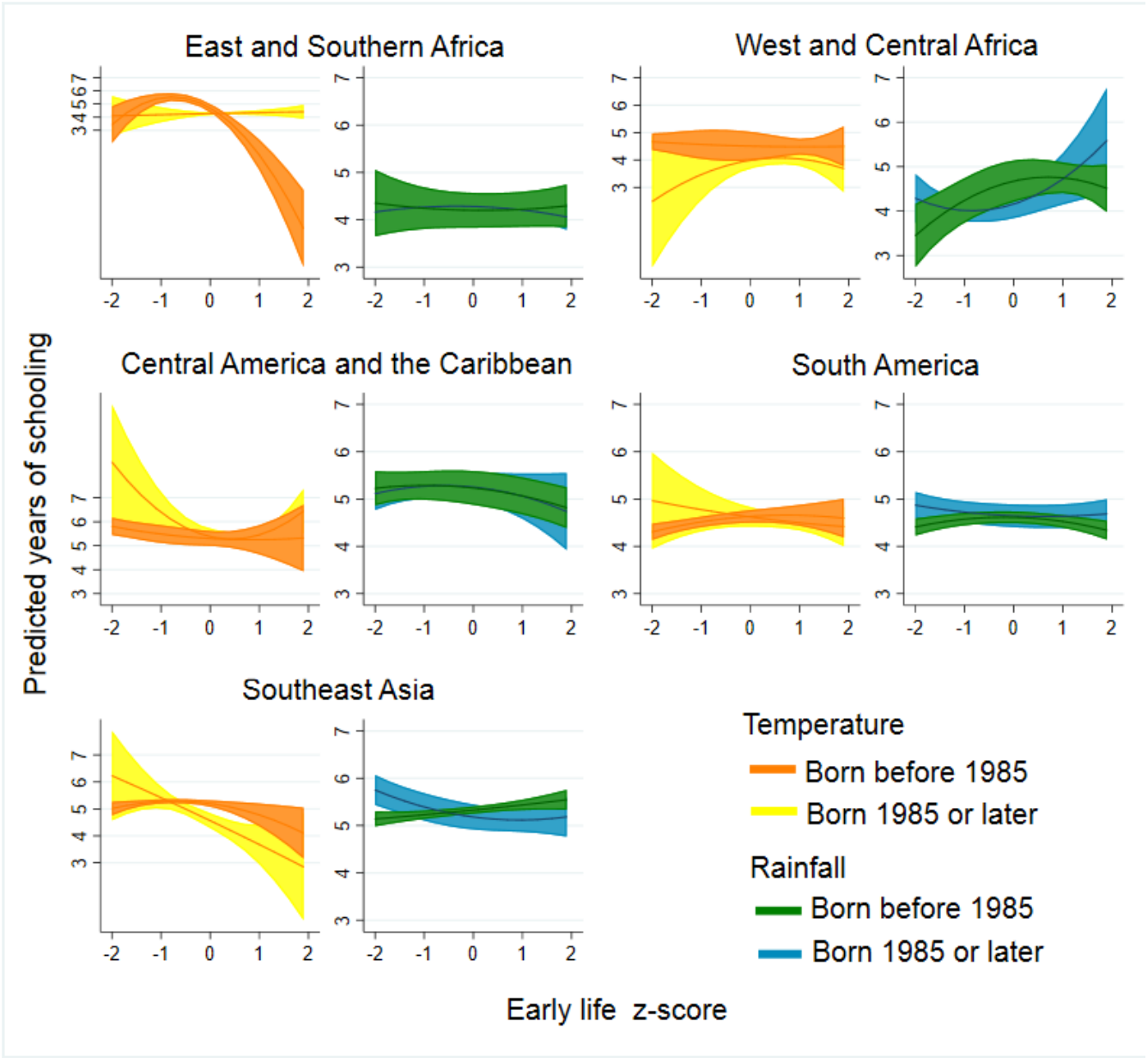

Figure S14. Predicted years of schooling among children aged 12 to 16 based on early life temperature and precipitation anomalies, with climate-born pre-1985 interactions, including cluster-robust 95% confidence intervals. Note: Models also include controls for the individual's age, sex, and relationship to household head, province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels.

Table S19. Results from OLS regressions predicting years of schooling completed based on temperature and precipitation anomalies, with climate-born pre-1985 interactions

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
Temperature z-score	0.0796	0.284	-0.469*	-0.138	-0.868***
	(0.183)	(0.235)	(0.209)	(0.126)	(0.169)
Temperature z-score^2	-0.00378	-0.233	0.541*	0.0166	-0.0173
	(0.115)	(0.198)	(0.227)	(0.0781)	(0.236)
Rainfall z-score	-0.0307	0.355*	-0.105	-0.0437	-0.138
	(0.0394)	(0.146)	(0.0847)	(0.0391)	(0.0752)
Rainfall z-score^2	-0.0450*	0.210*	-0.0880	0.0344	0.0733
	(0.0224)	(0.103)	(0.0511)	(0.0270)	(0.0381)
Born before 1985	0.430**	0.565	-0.0844	0.0171	0.735***
	(0.159)	(0.393)	(0.131)	(0.147)	(0.137)
Climate*born before 1985 interactions:					
Temperature z-score*born before 1985	-2.248***	-0.326	0.352	0.208	0.618***
	(0.289)	(0.283)	(0.293)	(0.119)	(0.188)
Temperature z-score2*born before 1985	-1.399***	0.252	-0.473*	-0.0634	-0.155
	(0.318)	(0.191)	(0.234)	(0.0949)	(0.240)
Rainfall z-score*born before 1985	0.0187	-0.101	-0.00553	0.0199	0.242**
	(0.0841)	(0.145)	(0.100)	(0.0557)	(0.0884)
Rainfall z-score^2*born before 1985	0.0772	-0.389**	0.0307	-0.0977**	-0.0680
	(0.0487)	(0.139)	(0.0624)	(0.0308)	(0.0413)
Sex [1=female]	0.137***	-0.445***	0.325***	0.331***	-0.0845*
	(0.0319)	(0.0693)	(0.0400)	(0.0328)	(0.0377)
Relationship to household head [1=child]	0.216***	0.330***	0.245***	0.477***	0.229***
	(0.0281)	(0.0383)	(0.0425)	(0.0404)	(0.0510)
Age [12 years is baseline]					
13	0.806***	0.503***	0.753***	0.690***	0.841***
	(0.0659)	(0.126)	(0.0915)	(0.0937)	(0.103)
14	1.539***	0.970***	1.464***	1.349***	1.485***
	(0.0723)	(0.136)	(0.104)	(0.0962)	(0.105)
15	2.104***	1.283***	2.076***	1.900***	1.912***
	(0.0932)	(0.186)	(0.131)	(0.112)	(0.130)
16	2.768***	1.809***	2.631***	2.437***	2.472***
	(0.0939)	(0.232)	(0.146)	(0.141)	(0.153)
Head's education [below primary is baseline]					
Primary	0.956***	1.267***	1.188***	1.228***	1.016***
	(0.0772)	(0.110)	(0.0737)	(0.0804)	(0.0908)
Secondary or higher	1.798***	1.968***	1.762***	1.763***	1.615***
	(0.109)	(0.151)	(0.0833)	(0.106)	(0.128)
Joint test:					

Climate variables	4.64	9.43	7.60	7.85	51.83***
Interactions	64.21***	9.54*	5.67	59.47***	30.98***
R^2	0.313	0.385	0.491	0.451	0.351
Weighted N	35,853,156	14,785,210	9,179,124	92,213,320	94,148,929
Number of provinces	169	157	109	339	254

Table S20. Results from OLS regressions predicting years of schooling completed based on temperature and precipitation anomalies three years before the year of birth as well as during early life.

	East and Southern Africa	West and Central Africa	Central America and Caribbean	South America	Southeast Asia
3 years before birth temperature z-score	-0.156***	-0.161**	0.113**	-0.0335	0.00738
	(0.0423)	(0.0546)	(0.0423)	(0.0254)	(0.0565)
3 years before birth temperature z-score2	-0.0337	-0.0557	0.0500	-0.0232	-0.0127
	(0.0318)	(0.0505)	(0.0609)	(0.0162)	(0.0449)
Early life temperature z-score	-0.503*	-0.0264	-0.00347	0.0312	-0.291*
	(0.215)	(0.0913)	(0.109)	(0.0424)	(0.139)
Early life temperature z-score^2	0.484***	0.0673	0.174*	-0.0719**	-0.201**
	(0.0728)	(0.0555)	(0.0736)	(0.0256)	(0.0768)
3 years before birth rainfall z-score	-0.0596	-0.0148	-0.0213	-0.0140	-0.0426
	(0.0311)	(0.0387)	(0.0321)	(0.0171)	(0.0241)
3 years before birth rainfall z-score2	-0.0287	0.0209	0.000673	0.00213	-0.0108
	(0.0176)	(0.0153)	(0.0211)	(0.0101)	(0.0138)
Early life rainfall z-score	0.0250	0.210**	-0.0853*	-0.0363	0.0831*
	(0.0420)	(0.0780)	(0.0376)	(0.0285)	(0.0333)
Early life rainfall z-score^2	-0.0392	-0.0223	-0.0727**	-0.0344*	0.000291
	(0.0273)	(0.0731)	(0.0243)	(0.0166)	(0.0187)
Sex [1=female]	0.138***	-0.446***	0.325***	0.331***	-0.0836*
	(0.0319)	(0.0693)	(0.0401)	(0.0328)	(0.0376)
Relationship to household head [1=child]	0.223***	0.330***	0.244***	0.477***	0.233***
	(0.0282)	(0.0380)	(0.0425)	(0.0406)	(0.0506)
Age [12 years is baseline]					
13	0.753***	0.389**	0.774***	0.680***	0.832***
	(0.0707)	(0.124)	(0.0941)	(0.103)	(0.0975)
14	1.447***	0.879***	1.469***	1.360***	1.516***
	(0.0806)	(0.138)	(0.0996)	(0.0960)	(0.106)
15	2.073***	1.174***	2.116***	1.941***	1.933***
	(0.0883)	(0.165)	(0.124)	(0.114)	(0.122)
16	2.676***	1.721***	2.686***	2.430***	2.511***
	(0.101)	(0.213)	(0.141)	(0.142)	(0.151)
Head's education [below primary is baseline]					
Primary	0.953***	1.268***	1.190***	1.229***	1.011***
	(0.0772)	(0.110)	(0.0732)	(0.0804)	(0.0915)
Secondary or higher	1.795***	1.968***	1.761***	1.765***	1.609***
	(0.109)	(0.152)	(0.0836)	(0.107)	(0.129)
Joint test					
Climate variables	64.95***	26.41***	41.84***	17.15*	53.99***
R^2	0.310	0.385	0.491	0.451	0.351
Weighted N	35,853,156	14,785,210	9,179,124	92,213,320	93,899,748
Number of provinces	169	157	109	339	254

Notes: Models include province fixed-effects, country-specific linear time trends, and two-way clustering at the birth province and country-birth year levels. Robust standard errors in parentheses.

* p<0.05 ** p<0.01 *** p<0.001

REFERENCES

1. Minnesota Population Center (2017) Integrated Public Use Microdata Series, International: Version 6.5 [dataset]. doi:http://doi.org/10.18128/D020.V6.5.
2. Harris I, Jones PD, Osborn TJ, Lister DH (2014) Updated high-resolution grids of monthly climatic observations - the CRU TS3.10 Dataset. *Int J Climatol* 34(3):623–642.
3. Gray C, Wise E (2016) Country-specific effects of climate variability on human migration. *Clim Change* 135(3):555–568.
4. Shah M, Steinberg BM (2017) Drought of opportunities: contemporaneous and long-term impacts of rainfall shocks on human capital. *J Polit Econ* 125(2):527–561.
5. Randell H, Gray C (2016) Climate variability and educational attainment: Evidence from rural Ethiopia. *Glob Environ Chang* 41:111–123.
6. Björkman-Nyqvist M (2013) Income shocks and gender gaps in education: evidence from Uganda. *J Dev Econ* 105:237–253.
7. Mani S, Hoddinott J, Strauss J (2013) Determinants of schooling: empirical evidence from rural Ethiopia. *J Afr Econ* 22(5):693–731.
8. Currie J, Vogl T (2013) Early-life health and adult circumstance in developing countries. *Annu Rev Econom* 5(1):1–36.
9. Burke M, Hsiang SM, Miguel E (2015) Global non-linear effect of temperature on economic production. *Nature* 527(7577):235–239.
10. Di Falco S, Veronesi M, Yesuf M (2011) Does Adaptation to Climate Change Provide Food Security? A Micro-Perspective from Ethiopia. *Am J Agric Econ* 93(3):829–846.
11. Schlenker W, Roberts MJ (2009) Nonlinear temperature effects indicate severe damages to U.S. crop yields under climate change. *Proc Natl Acad Sci U S A* 106(37):15594–8.
12. Shively GE (2017) Infrastructure mitigates the sensitivity of child growth to local agriculture and rainfall in Nepal and Uganda. *Proc Natl Acad Sci U S A* 114(5):903–908.
13. Nordkvelle J, Rustad SA, Salmivalli M (2017) Identifying the effect of climate variability on communal conflict through randomization. *Clim Change* 141(4):627–639.
14. Gakidou E, Cowling K, Lozano R, Murray CJ (2010) Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: A systematic analysis. *Lancet* 376(9745):959–974.
15. Pufall E, et al. (2016) The relationship between parental education and children's schooling in a time of economic turmoil: The case of East Zimbabwe, 2001 to 2011. *Int J Educ Dev* 51:125–134.
16. Lee CH, Steigerwald DG (2017) Inference for Clustered Data. (1):1–19.
17. Hsiang SM (2010) Temperatures and cyclones strongly associated with economic production in the Caribbean and Central America. *Proc Natl Acad Sci U S A* 107(35):15367–72.
18. Sherwood SC, Huber M (2010) An adaptability limit to climate change due to heat stress. *Proc Natl Acad Sci U S A* 107(21):9552–5.
19. Sherwood SC (2018) How Important Is Humidity in Heat Stress? *J Geophys Res Atmos* 123(21):11,808-11,810.