Supplementary materials

Part 1. National surveys

The national surveys database at the International Center for Equity in Health (Federal University of Pelotas, Brazil) includes over 400 nationally representative demographic, health and nutrition surveys from 115 countries, carried out from 1995 onwards (www.equidade.org). The database is maintained by the Equity Technical Working Group of the Countdown to 2030 Initiative, funded by the Bill and Melinda Gates Foundation and the Wellcome Trust.

Most surveys are either Demographic and Health Surveys (DHS) or Multiple Indicator Cluster Survey (MICS). Further information on the methodology employed by these surveys is available elsewhere: DHS (https://dhsprogram.com/what-we-do/survey-Types/dHs.cfm) and MICS (http://mics.unicef.org/). Both types of survey programs are highly comparable in terms of sampling and questionnaires.[1,2] In Peru, data for 2018 were obtained from the ENDES (https://proyectos.inei.gob.pe/endes/) and in Ecuador the 2015 ENSANUT (https://www.ecuadorencifras.gob.ec/encuesta-nacional-de-salud-salud-reproductiva-y-nutricion-ensanut-2012/) was analyzed.

For the present analyses, the most recent survey from each country, carried out in 2010 or later, was selected. Table S.1 shows the number of surveys analyzed in each region and the availability of information for the five outcomes under study: underfive mortality rate (U5MR), stunting prevalence, not being on track for early child development (ECD), teen motherhood, and failure to complete primary school. The full list of countries and surveys is provided in table S.2.

Table S.1. Number of countries with available data on each outcome, by region.

			Number of countries with data on				
Regions	**Total number of countries**	**Number (%) of countries analyzed**	**U5MR**	**Stunting**	**Not on track for ECD**	**Teen mother-hood**	**Less than primary school**
East Asia & the Pacific	27	9 (33%)	8	7	5	9	9
Eastern & Southern Africa	21	17 (81%)	17	17	6	17	17
Eastern Europe & Central Asia	22	14 (64%)	7	12	11	11	14
Latin America & Caribbean	36	18 (50%)	11	14	13	15	17
Middle East & North Africa	20	8 (40%)	8	8	5	7	8
South Asia	8	7 (88%)	6	6	4	7	7
West & Central Africa	24	22 (92%)	21	22	18	22	22
Total	**158**	**95 (60%)**	**78**	**86**	**62**	**88**	**94**

23 **Table S.2. Countries included in the analyses, showing type of survey, year and number of households in the sample.**

ISO code	Country	Year	Survey	Households	Income group
AFG	Afghanistan	2015	DHS	24,395	Low
ALB	Albania	2017	DHS	15,823	Upper-middle
DZA	Algeria	2012	MICS	27,198	Upper-middle
AGO	Angola	2015	DHS	16,109	Upper-middle
ARG	Argentina	2011	MICS	23,791	Upper-middle
ARM	Armenia	2015	DHS	7,893	Lower-middle
BGD	Bangladesh	2014	DHS	17,300	Lower-middle
BLR	Belarus	2012	MICS	8,284	Upper-middle
BLZ	Belize	2015	MICS	4,636	Upper-middle
BEN	Benin	2017	DHS	14,156	Low
BTN	Bhutan	2010	MICS	14,676	Lower-middle
BIH	Bosnia and Herzegovina	2011	MICS	5,778	Upper-middle
BFA	Burkina Faso	2010	DHS	14,424	Low
BDI	Burundi	2016	DHS	15,977	Low
KHM	Cambodia	2014	DHS	15,825	Low
CMR	Cameroon	2014	MICS	10,213	Lower-middle
CAF	Central African Republic	2010	MICS	11,756	Low
TCD	Chad	2014	DHS	17,233	Low
COL	Colombia	2015	DHS	44,614	Upper-middle
COM	Comoros	2012	DHS	4,482	Low
COD	Congo Democratic Republic	2013	DHS	18,171	Low
COG	Congo Republic	2014	MICS	12,811	Lower-middle
CRI	Costa Rica	2011	MICS	5,561	Upper-middle
CIV	Côte d'Ivoire	2016	MICS	11,879	Lower-middle
DOM	Dominican Republic	2014	MICS	31,167	Upper-middle
ECU	Ecuador	2012	ENSANUT	19,866	Upper-middle

EGY	Egypt	2014	DHS	28,175	Lower-middle
SLV	El Salvador	2014	MICS	11,732	Lower-middle
SWZ	Eswatini	2014	MICS	4,865	Lower-middle
ETH	Ethiopia	2016	DHS	16,650	Low
GAB	Gabon	2012	DHS	9,755	Upper-middle
GMB	Gambia	2013	DHS	6,217	Low
GHA	Ghana	2014	DHS	11,835	Lower-middle
GTM	Guatemala	2014	DHS	21,383	Lower-middle
GIN	Guinea	2016	MICS	8,081	Low
GNB	Guinea-Bissau	2014	MICS	6,601	Low
GUY	Guyana	2014	MICS	5,077	Lower-middle
HTI	Haiti	2016	DHS	13,405	Low
HND	Honduras	2011	DHS	21,362	Lower-middle
IND	India	2015	DHS	601,509	Lower-middle
IDN	Indonesia	2017	DHS	47,963	Lower-middle
IRQ	Iraq	2018	MICS	20,214	Upper-middle
JAM	Jamaica	2011	MICS	5,960	Upper-middle
JOR	Jordan	2017	DHS	18,802	Upper-middle
KAZ	Kazakhstan	2015	MICS	15,464	Upper-middle
KEN	Kenya	2014	DHS	36,430	Lower-middle
XKX	Kosovo	2013	MICS	4,127	Lower-middle
KGZ	Kyrgyzstan	2018	MICS	6,968	Lower-middle
LAO	Lao PDR	2017	MICS	23,299	Lower-middle
LSO	Lesotho	2014	DHS	9,402	Lower-middle
LBR	Liberia	2013	DHS	9,333	Low
MWI	Malawi	2015	DHS	26,361	Low
MDV	Maldives	2016	DHS	6,050	Upper-middle
MLI	Mali	2015	MICS	11,830	Low

MRT	Mauritania	2015	MICS	11,765	Lower-middle
MEX	Mexico	2015	MICS	10,076	Upper-middle
MDA	Moldova	2012	MICS	11,354	Lower-middle
MNG	Mongolia	2013	MICS	14,805	Lower-middle
MNE	Montenegro	2013	MICS	4,052	Upper-middle
MOZ	Mozambique	2015	AIS	7,169	Low
MMR	Myanmar	2015	DHS	12,500	Lower-middle
NAM	Namibia	2013	DHS	9,849	Upper-middle
NPL	Nepal	2016	DHS	11,040	Low
NER	Niger	2012	DHS	10,750	Low
NGA	Nigeria	2016	MICS	33,901	Lower-middle
MKD	North Macedonia	2011	MICS	4,018	Upper-middle
PAK	Pakistan	2017	DHS	14,540	Lower-middle
PAN	Panama	2013	MICS	9,882	Upper-middle
PRY	Paraguay	2016	MICS	7,313	Upper-middle
PER	Peru	2018	DHS	35,388	Upper-middle
PHL	Philippines	2017	DHS	27,496	Lower-middle
RWA	Rwanda	2014	DHS	12,699	Low
STP	Sao Tome and Principe	2014	MICS	3,492	Lower-middle
SEN	Senegal	2017	DHS	8,380	Low
SRB	Serbia	2014	MICS	6,191	Upper-middle
SLE	Sierra Leone	2017	MICS	15,309	Low
ZAF	South Africa	2016	DHS	11,083	Upper-middle
SSD	South Sudan	2010	MICS	9,369	Lower-middle
LCA	St Lucia	2012	MICS	1,718	Upper-middle
PSE	State of Palestine	2014	MICS	10,182	Lower-middle
SDN	Sudan	2014	MICS	16,801	Lower-middle
SUR	Suriname	2018	MICS	7,915	Upper-middle

TJK	Tajikistan	2017	DHS	7,843	Low
TZA	Tanzania	2015	DHS	12,563	Low
THA	Thailand	2015	MICS	28,652	Upper-middle
TLS	Timor-Leste	2016	DHS	11,502	Lower-middle
TGO	Togo	2013	DHS	9,549	Low
TUN	Tunisia	2018	MICS	11,225	Lower-middle
TKM	Turkmenistan	2015	MICS	5,493	Upper-middle
UGA	Uganda	2016	DHS	19,588	Low
UKR	Ukraine	2012	MICS	11,321	Lower-middle
VNM	Vietnam	2013	MICS	9,979	Lower-middle
YEM	Yemen	2013	DHS	17,351	Lower-middle
ZMB	Zambia	2013	DHS	15,920	Lower-middle
ZWE	Zimbabwe	2015	DHS	10,534	Low

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National surveys: outcome variables

Underfive mortality rate per 1,000 live births (U5MR). Within each sampled household, women aged 15-49 years provided information on their birth histories. Under-five mortality rates were calculated using survival analyses based on deaths that took place in the 10 years preceding the surveys, which is the standard approach for stratified analyses (e.g. for wealth quintiles, maternal education, etc.).[3]

Stunting prevalence in children aged 0-59 months. All surveys collected employed standard methodology to measure children's weights, lengths (for children aged 0-23 months of age) or heights (for children aged 24-59 months). Z scores of height or length for age were calculated using the World Health Organization Child Growth Standards (https://www.who.int/childgrowth/en/). Stunting was defined as a Z score below -2 relative to the WHO median value for sex and age.

Not on track for early child development (ECD). Development was assessed using the early childhood development index (ECDI) created by UNICEF for cross-cultural comparisons. This multidimensional index includes ten questions directed to the child's mother or primary caregiver designed to assess the development of children aged 36 to 59 months. The ECDI covers four domains. The literacy-numeracy and social-emotional domains include three questions each, and a child is considered as "on track" if at least two questions are positive. The physical and learning domains include two questions, and one positive answer defines a child as being on track. Overall, the child is considered developmentally on track if at least three of the four domains were considered on track. The complete description of the ECDI questions and its operationalization to determine whether the child is developmentally on track in each domain is available elsewhere.[4]

Teenage motherhood. Information from the full birth histories of women aged 20-29 years was used to identify those who had delivered a child before the age of 20 years.

Less than primary schooling. This indicator was assessed as the proportion of girls aged 15-19 years who reported that they did not complete primary school.

National surveys: stratification variables

Wealth deciles. All surveys provided the information for calculating asset indices, obtained from information on household appliances, characteristics of the building materials, presence of electricity, water supply and sanitary facilities, among other variables[5,6]. Because relevant assets may vary in urban and rural households, separate principal component analyses are carried out in each area, which are later combined into a single score using a scaling procedure to allow comparability between urban and rural households. This score was then divided into deciles.[7]

Women's empowerment. Maternal empowerment was measured by the Survey-based Women's emPowERment (SWPER) global index.[8] This is an individual level measure which assesses three domains of empowerment: attitude to violence, social independence and decision making, based on the women's responses to 14 questions, in the same surveys used to measure the child and adolescent outcomes. Earlier analyses suggested that the social independence domain is most closely associated with child health. This domain is derived through principal component analyses within each country, based on women's responses to questions on education, information (frequency of reading newspaper or magazine), age at first child birth and at first cohabitation, and differences between the woman and her husband in terms of education and age. The first component resulting from the analyses was divided into terciles, according to its distribution within each country. Full details on the construction of the index and its validity are presented elsewhere.[8]

National surveys: data analyses

Data analyses were carried out with Stata 16.0 (Statacorp, College Station, TX, USA). All analyses considered the complex survey design.

The initial set of analyses included obtaining estimates of the five outcome indicators by wealth decile for 98 countries. The results were then aggregated by region of the world using their estimated underfive population in 2015 as weights (https://www.who.int/nutgrowthdb/estimates2018/en/).

The **slope index of inequality (SII)** was used as a summary measure of absolute inequalities. The index is typically derived through linear (or logistic) regression of the health outcome on the midpoints of the ranks obtained by ordering the sample by the explanatory variable when using grouped data. The ranks are scaled so that the values represent the midpoints of the cumulative distribution of wealth. For example, the midpoint of the poorest decile is 0.05 (as this decile ranges from 0 to 0.1), whereas the midpoint for the richest decile is 0.95 (as this decile ranges from 0.9 to 1.0). The SII is the slope of the resulting regression line, and represents the absolute difference in the fitted value of the health indicator between the highest (score of 1) and the lowest (score of 0) values of the socioeconomic indicator rank.[9,10] For indicators of poor health or human capital, the SII is typically negative, because the inverse association with wealth results in lower values at the top than at the bottom of the wealth range.

National surveys: ecological analyses with countries as the units

National level analyses (Table S.3) were based on 62 to 94 countries with information on each indicator (Table S.1), using unweighted Pearson correlation coefficients. There were strong inverse associations between log per ca[ota gross domestic product (GDP) and all five outcomes, thus confirming the importance of between-country inequalities. Furthermore, all five outcomes were positively and significantly associated with one another, showing the detrimental outcomes for children and adolescents are clustered at national level.

Table S.3. Pearson correlation coefficients between the national per capita gross national product and the five outcomes. Each country is one unit of analysis.

Indicator	Statistic	GDP (log)	U5MR	Stunting	Not on track	Teen motherhood
U5MR	**P**	-0.696				
	p-value	< 0.001				
Stunting	**P**	-0.686	0.652			
	p-value	< 0.001	< 0.001			
Not on track	**P**	-0.797	0.776	0.748		
	p-value	< 0.001	< 0.001	< 0.001		
Teen motherhood	**P**	-0.625	0.688	0.591	0.765	
	p-value	< 0.001	< 0.001	< 0.001	< 0.001	
Incomplete primary	**P**	-0.490	0.636	0.458	0.632	0.495
	p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Next, we investigated whether income inequality at national level, measured by the Gini index, was associated with inequality in the distribution of the five outcomes within each country, based upon the values of the slope index of inequality (Table S.4). The Gini index was significantly associated with the SIIs for stunting, not being on track for development and teen motherhood. Associations were inverse because smaller values of the SII indicate lower wealth-related inequality in the outcome. Associations between the Gini index and U5MR or incomplete primary schooling were weak and non-significant.

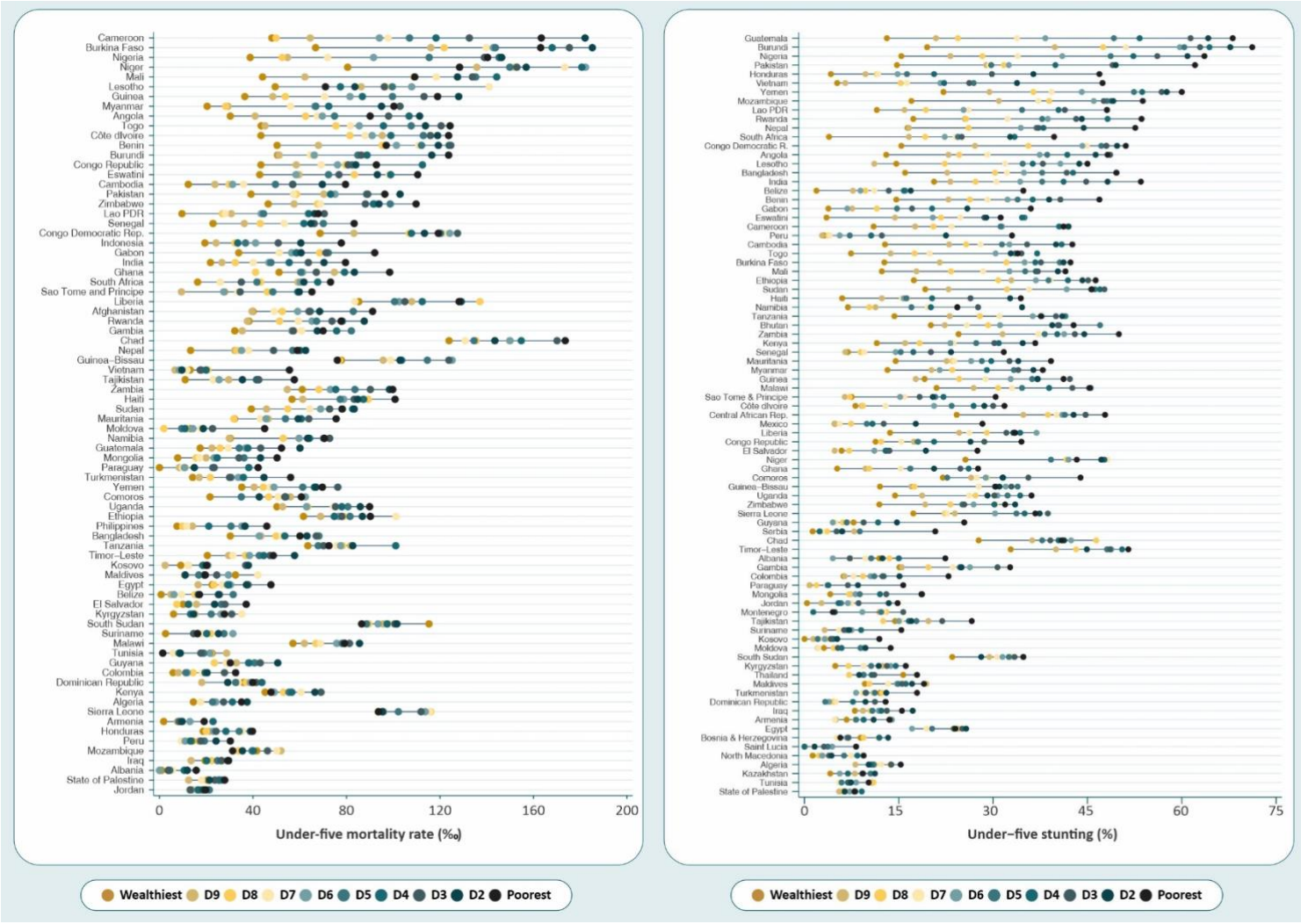
Table S.4. Pearson correlation coefficients between the national Gini index for income distribution and the slope index of inequality for the five outcomes. Each country is one unit of analysis.

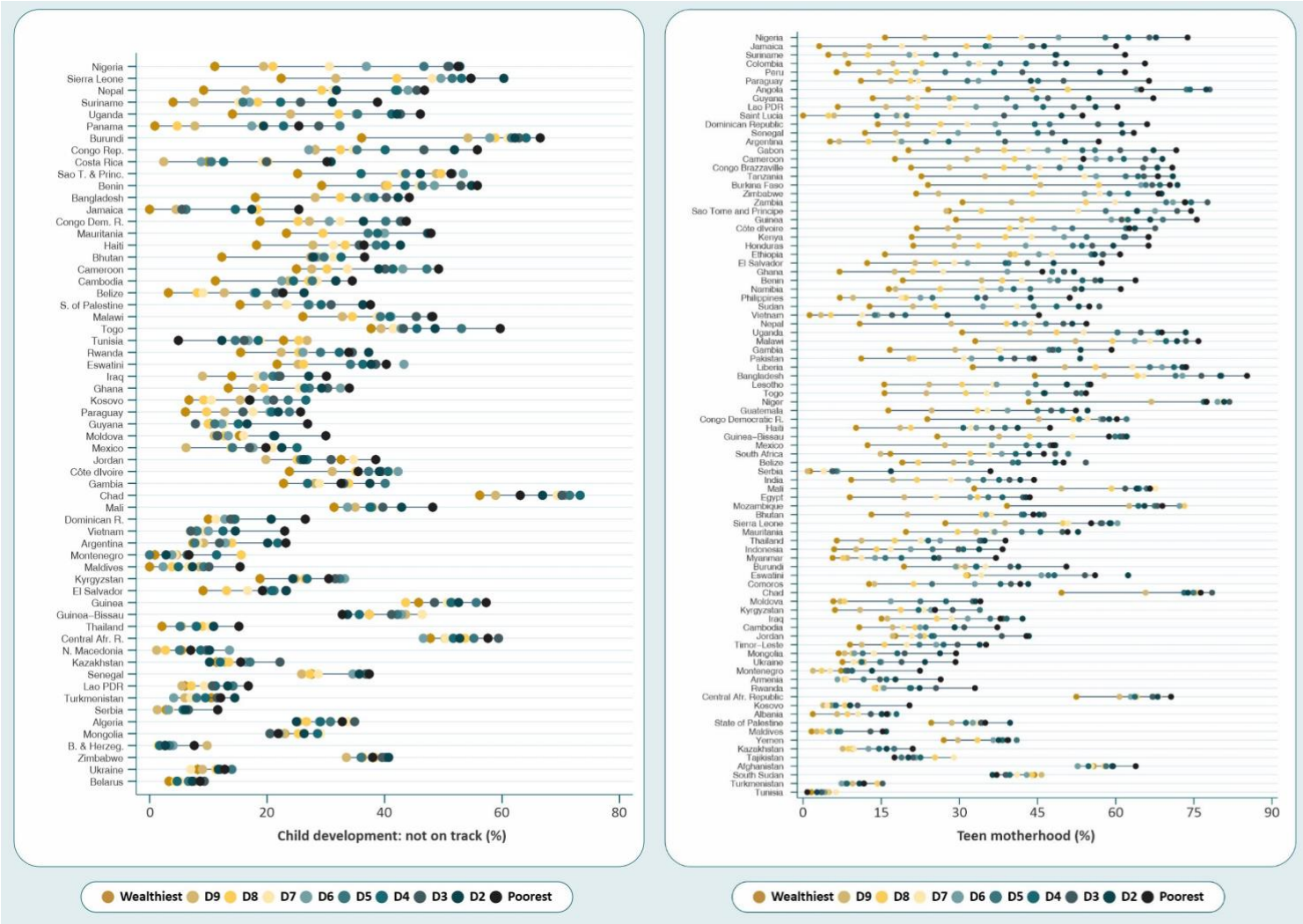
Indicator	Statistic	Gini index	Slope index of inequality (SII) for outcomes			
			U5MR	Stunting	Not on track	Teen motherhood
U5MR	**ρ** **P level**	- 0.089 0.478				
Stunting	**ρ** **P level**	-0.321 0.004	0.496 < 0.001			
Not on track	**ρ** **P level**	- 0.305 0.022	0.312 0.035	0.546 < 0.001		
Teen motherhood	**ρ** **P level**	- 0.359 0.001	0.237 0.038	0.457 < 0.001	0.444 < 0.001	
Incomplete primary	**ρ** **P level**	0.107 0.375	0.366 0.002	0.266 0.024	0.099 0.513	- 0.009 0.937

In the following sections, figures S.1 and S.2, and Table S.5 present results by wealth deciles and sex of the child.

National surveys: results by country and wealth deciles

Figure S.1(a-e): Results for the five outcomes by wealth decile, by country.

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Gambia
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Vietnam
Argentina
Montenegro
Maldives
Kyrgyzstan
El Salvador
Guinea
Guinea–Bissau
Thailand
Central Afr. R.
N. Macedonia
Kazakhstan
Senegal
Lao PDR
Turkmenistan
Serbia
Algeria
Mongolia
B. & Herzeg.
Zimbabwe
Ukraine
Belarus
0
20
40
60
80
Child development: not on track (%)
Wealthiest D9 D8 D7 D6 D5 D4 D3 D2 Poorest
Nigeria
Jamaica
Suriname
Colombia
Peru
Paraguay
Angola
Guyana
Lao PDR
Saint Lucia
Dominican Republic
Senegal
Argentina
Gabon
Cameroon
Congo Brazzaville
Tanzania
Burkina Faso
Zimbabwe
Zambia
Sao Tome and Principe
Guinea
Côte dIvoire
Kenya
Honduras
Ethiopia
El Salvador
Ghana
Benin
Namibia
Philippines
Sudan
Vietnam
Nepal
Uganda
Malawi
Gambia
Pakistan
Liberia
Bangladesh
Lesotho
Togo
Niger
Guatemala
Congo Democratic R.
Haiti
Guinea–Bissau
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Belize
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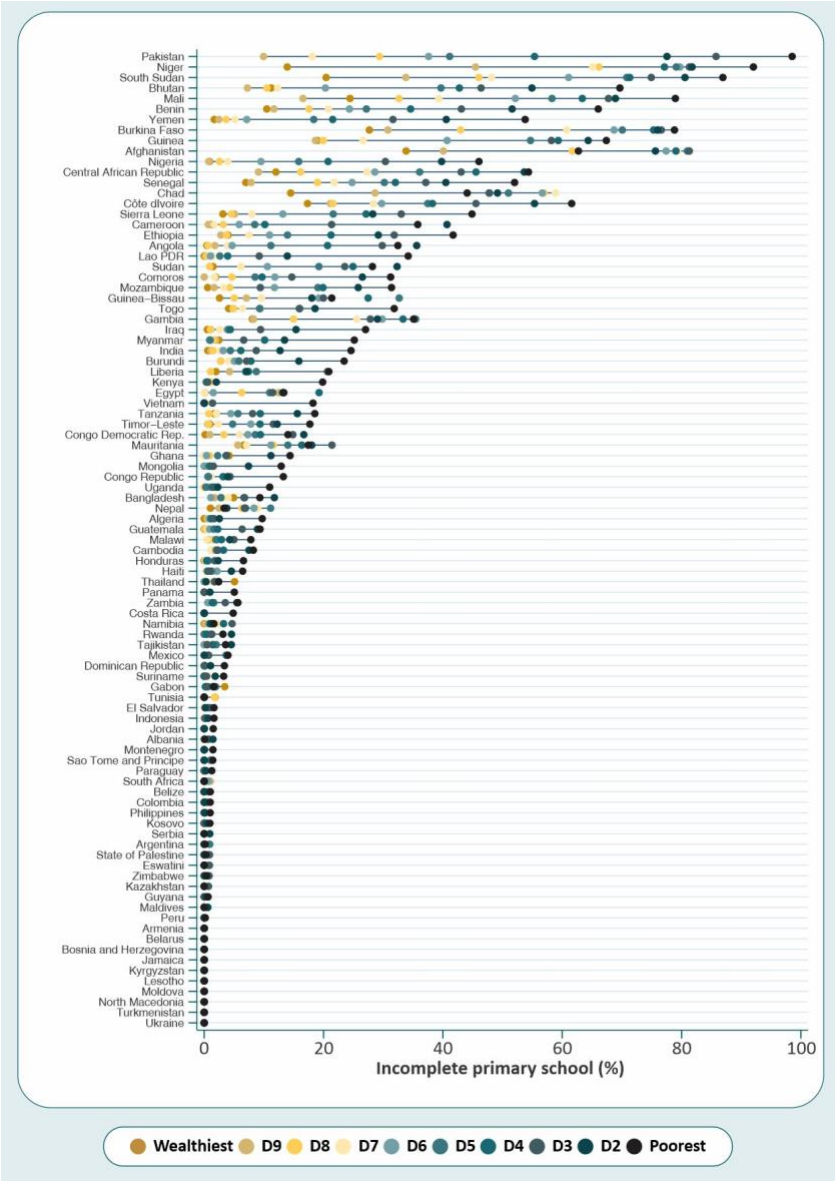
Mozambique
Bhutan
Sierra Leone
Mauritania
Thailand
Indonesia
Myanmar
Burundi
Eswatini
Comoros
Chad
Moldova
Kyrgyzstan
Iraq
Cambodia
Jordan
Timor–Leste
Mongolia
Ukraine
Montenegro
Armenia
Rwanda
Central Afr. Republic
Kosovo
Albania
State of Palestine
Maldives
Yemen
Kazakhstan
Tajikistan
Afghanistan
South Sudan
Turkmenistan
Tunisia
0
15
30
45
60
75
90
Teen motherhood (%)
Wealthiest D9 D8 D7 D6 D5 D4 D3 D2 Poorest

96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Sudan
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Guinea-Bissau
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Mauritania
Ghana
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Panama
Zambia
Costa Rica
Namibia
Rwanda
Tajikistan
Mexico
Dominican Republic
Suriname
Gabon
Tunisia
El Salvador
Indonesia
Jordan
Albania
Montenegro
Sao Tome and Principe
Paraguay
South Africa
Belize
Colombia
Philippines
Kosovo
Serbia
Argentina
State of Palestine
Eswatini
Zimbabwe
Kazakhstan
Guyana
Maldives
Peru
Armenia
Belarus
Bosnia and Herzegovina
Jamaica
Kyrgyzstan
Lesotho
Moldova
North Macedonia
Turkmenistan
Ukraine
0
20
40
60
80
100
Incomplete primary school (%)
Wealthiest
D9
D8
D7
D6
D5
D4
D3
D2
Poorest

National surveys: results by region and wealth deciles

Table S.5. Results for the five outcomes by world region and wealth deciles, also showing the slope index of inequality (SII).

UNDERFIVE MORTALITY	**Poorest**	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**	**D8**	**D9**	**Richest**	**SII**
East Asia & the Pacific	68.8	50.8	47.5	33.3	35.8	36.7	28.7	24.8	19.8	15.3	-54.4
Eastern & Southern Africa	78.9	82.0	73.1	78.1	70.6	68.2	72.6	65.0	60.7	50.8	-26.2
Eastern Europe & Central Asia	42.7	28.1	31.8	27.4	27.7	24.3	26.0	20.0	18.4	9.3	-26.2
Latin America & Caribbean	42.8	35.0	33.5	30.2	27.2	24.5	25.9	24.3	19.2	17.3	-25.3
Middle East & North Africa	48.1	45.4	43.1	40.2	38.8	36.6	33.5	30.5	24.6	25.0	-25.7
South Asia	80.3	74.4	67.5	58.3	56.8	50.8	44.1	38.5	35.2	25.6	-58.6
West & Central Africa	129.1	132.0	128.8	127.0	113.5	103.9	93.6	77.1	72.6	51.9	-85.7
STUNTING	**Poorest**	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**	**D8**	**D9**	**Richest**	**SII**
East Asia & the Pacific	38.3	30.5	26.6	24.2	25.6	20.4	17.8	17.0	12.7	10.5	-27.3
Eastern & Southern Africa	43.1	40.5	39.1	38.9	36.3	34.5	32.0	28.0	24.9	14.9	-24.5
Eastern Europe & Central Asia	15.9	11.9	11.6	10.2	11.3	9.2	8.5	8.4	10.7	7.1	-6.6
Latin America & Caribbean	31.1	22.4	17.5	15.0	13.0	12.2	8.7	8.9	6.5	5.5	-25.8
Middle East & North Africa	28.2	28.1	27.7	26.2	24.5	21.9	21.4	21.6	18.7	17.4	-12.3
South Asia	54.4	48.5	45.0	41.1	36.5	34.0	30.6	28.2	24.0	19.2	-35.8
West & Central Africa	50.1	47.6	45.5	43.5	40.2	36.4	32.3	27.2	22.4	14.7	-35.9

NOT ON TRACK FOR DEVELOPMENT	**Poorest**	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**	**D8**	**D9**	**Richest**	**SII**
East Asia & the Pacific	22.0	15.9	11.6	13.1	10.4	11.3	12.4	11.7	9.3	7.0	-11.7
Eastern & Southern Africa	46.2	44.6	44.1	42.6	38.5	38.3	38.5	35.7	30.1	22.1	-21.4
Eastern Europe & Central Asia	15.8	12.7	16.6	12.7	16.0	14.6	11.4	12.2	11.3	10.0	-5.4
Latin America & Caribbean	22.4	23.3	17.3	24.1	15.2	17.5	18.2	15.0	9.1	13.8	-12.2
Middle East & North Africa	30.7	25.9	27.4	25.0	24.7	23.6	25.4	22.5	17.2	22.0	-10.1
South Asia	44.5	40.5	41.0	38.7	36.1	38.1	36.0	31.9	26.3	16.5	-23.6
West & Central Africa	48.8	46.6	46.7	46.3	44.5	38.1	34.8	28.0	26.6	19.8	-30.6
TEEN MOTHERHOOD	**Poorest**	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**	**D8**	**D9**	**Richest**	**SII**
East Asia & the Pacific	42.1	34.5	29.5	28.5	23.4	20.2	16.7	14.1	9.4	5.7	-36.2
Eastern & Southern Africa	62.7	62.3	61.4	59.5	57.8	52.3	50.4	44.4	37.4	23.4	-43.0
Eastern Europe & Central Asia	23.6	19.6	19.8	15.0	17.5	15.1	13.9	13.0	10.5	9.4	-13.4
Latin America & Caribbean	55.2	50.7	46.0	41.5	38.2	32.1	31.0	27.4	20.8	10.8	-42.6
Middle East & North Africa	42.7	42.8	42.6	38.8	36.7	31.9	30.2	29.2	20.2	13.7	-30.1
South Asia	48.8	47.6	43.9	42.1	40.2	36.3	33.2	27.0	22.6	14.2	-34.9
West & Central Africa	67.2	65.1	63.7	60.3	59.2	53.4	48.7	43.4	33.9	21.4	-47.3
LESS THAN PRIMARY SCHOOL	**Poorest**	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**	**D8**	**D9**	**Richest**	**SII**
East Asia & the Pacific	6.5	2.0	1.2	1.2	0.5	0.3	1.0	0.2	0.2	0.6	-4.7
Eastern & Southern Africa	23.0	16.4	13.7	11.2	8.1	6.1	3.9	2.7	2.4	2.0	-22.9
Eastern Europe & Central Asia	0.5	0.7	0.2	0.2	0.3	0.0	0.1	0.2	0.1	0.0	-0.7
Latin America & Caribbean	3.0	0.9	0.9	1.5	0.5	0.4	0.1	0.1	0.1	0.0	-3.0
Middle East & North Africa	21.4	17.5	13.4	14.2	10.0	3.9	2.2	3.1	5.1	0.6	-23.7
South Asia	35.0	24.1	22.2	15.8	12.2	10.5	7.5	7.7	3.7	1.9	-33.0
West & Central Africa	44.0	39.5	33.4	27.0	23.9	19.7	15.0	12.3	7.5	5.7	-41.6

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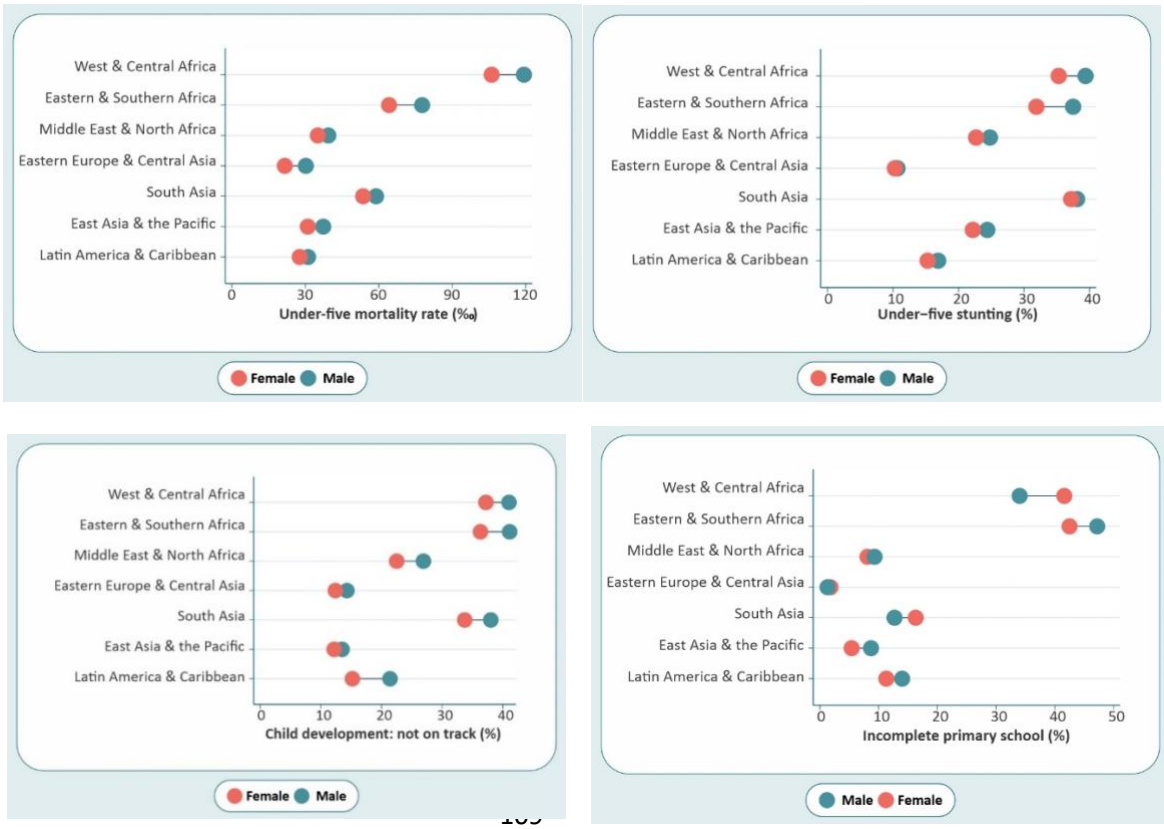
National surveys: results by region and sex of the child

Figure S.2. Results for U5MR, stunting and child development by region and sex of the child.



Part 2. COHORTS analyses

The COHORTS consortium includes the six largest population-based birth cohorts from LMICs with at least 20 years of follow up,[11] from five countries: Brazil, Guatemala, India, Philippines and South Africa.

Table S.6. Characteristics of the six birth cohorts.

Study	Cohort inception	Who was enrolled?	Ages (sample size) at the adult analyses visit
Pelotas Birth Cohorts, Brazil	1982	All hospital births in the city. **All social classes.**	30 (3642)
	1993	All hospital births in the city. **All social classes.**	22 (3805)
INCAP Nutrition Trial Cohort, Guatemala	1969-77	Nutrition trial in 4 villages. **Rural poor.**	47-57 (1334)
New Delhi Birth Cohort Study, India	1969-72	Defined area of Delhi. **Mainly middle-class.**	35-39 (1526)
Cebu Longitudinal Health & Nutrition Survey, Philippines	1983-84	33 randomly selected communities of Metro Cebu; 75% urban. **All social classes.**	34 (1327)
Birth to 20, South Africa	1990	Soweto, Johannesburg. **Predominantly urban poor, "Black".**	24 (1394)

(*) Sample sizes reflect the number of subjects with information on the outcome variable with the largest sample size in the most recent follow-up visit.

Ethical approval for data collection and analyses was obtained at each site, prior to each wave of data collection. Ethical clearance for the current pooled analyses was granted by the Research Ethics Committee of the School of Medicine, Federal University of Pelotas.

COHORTS analyses: stratification variables

Early-life poverty was assessed using family income in Cebu, Delhi and Pelotas (1982 and 1993) cohorts. In Guatemala and Soweto, wealth indices were calculated on the basis of household assets and building characteristics, as described above for national surveys. All analyses were also stratified by sex.

COHORTS analyses: outcome variables

Childhood outcomes

Length-for-age (*Z* scores) at 2 years: children were measured by the research teams at around 2 years of age (1 year of age in the 1993 Pelotas cohort), and their height (in South Africa) or

recumbent length (other sites) were converted into *Z* scores with the WHO Growth Standards.(www.who.int/childgrowth)

Height-for-age (*Z* scores) at 4 years: children were measured by the research teams at 4 years of age (except in Cebu where the age was 8.5 years), and their heights were converted into *Z* scores with the WHO Growth Standards.(www.who.int/childgrowth)

Development quotient or DQ (Z scores) at 4-8.5 years: children were examined by the research teams between the ages of 4 and 8.5 years, and their scores were standardized to Z scores. The Cebu cohort (average age of 8.5 years) used the Philippine Nonverbal Intelligence Test (PNIT), modelled on the Raven's Coloured Progressive Matrices. The Guatemala cohort (between 4 and 7 years of age) used a Preschool Battery consisting of 22 sub-test tests, drawn from a variety of sources including the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). The 1982 and 1993 Pelotas cohort (4 years of age in both) used the Griffiths Scales and the WPPSI, respectively. The Soweto cohort (average age of 5 years) used 32 items from the Revised Denver Pre-screening Questionnaire (R-DPDQ) covering personal-social, fine motor, gross motor, and language abilities. DQ data were not available for the Delhi cohort.

Adult outcomes

Attained schooling (years): number of years of schooling completed with a pass grade.

IQ (harmonized units) – Wechsler Adult Intelligence Scale (Pelotas 1982 and 1993 cohorts) and Ravens Scale (Cebu, Guatemala and Soweto), standardized by sex with a mean of 100 and standard deviation of 15 points. Not available for the Delhi cohort.

Height (cm).

Teenage parenthood (yes/no): having had a child before their 20th birthday. Not available for the Soweto cohort.

Psychological symptoms score (points) – number of symptoms reported in the Self-Reported Questionnaire (SRQ) scale.[12] Not available for the Delhi cohort.

Overweight/obesity (yes/no) –body mass index equal to or above 25 kg/m^2.

Metabolic syndrome score (0-5 points) – number of signs presented by each subject, including: abdominal adiposity (waist circumference ≥102 cm for males or ≥89 cm for females), raised blood pressure (systolic blood pressure ≥130 mmHg or diastolic blood pressure ≥85 mmHg or taking hypotensive medication), raised triglycerides (≥150 mg/dL or taking triglyceride-lowering medication), raised plasma glucose (≥100 mg/dL for fasting glucose [all but the Pelotas cohorts] or ≥200 mg/dL for random glucose or taking diabetes medication) and reduced HDL (<40 mg/dL for males or <50 mg/dL for females).

COHORTS analyses: statistical methods

For data description, central tendency (mean and median) and dispersion (minimum, maximum, range and interquartile range) measures were calculated for continuous variables and proportions for categorical variables for each cohort separately. Associations between early life poverty (expressed as quintiles) and the adult outcomes were performed using regression models: linear

regression for continuous or quasi-continuous outcomes (height, IQ, schooling in years and psychological symptoms) and Quasi-Poisson regression for binary (motherhood and overweight/obesity) and count (metabolic syndrome signs) outcomes. Details on these analyses and results are available upon request.

All association analyses were performed for each cohort separately, and for both sexes (all of which included sex as a covariate), males only and females only. For Guatemala, all analyses were also adjusted for year at birth and a binary indicator of intervention group. Covariate adjustment was performed via multivariable regression.

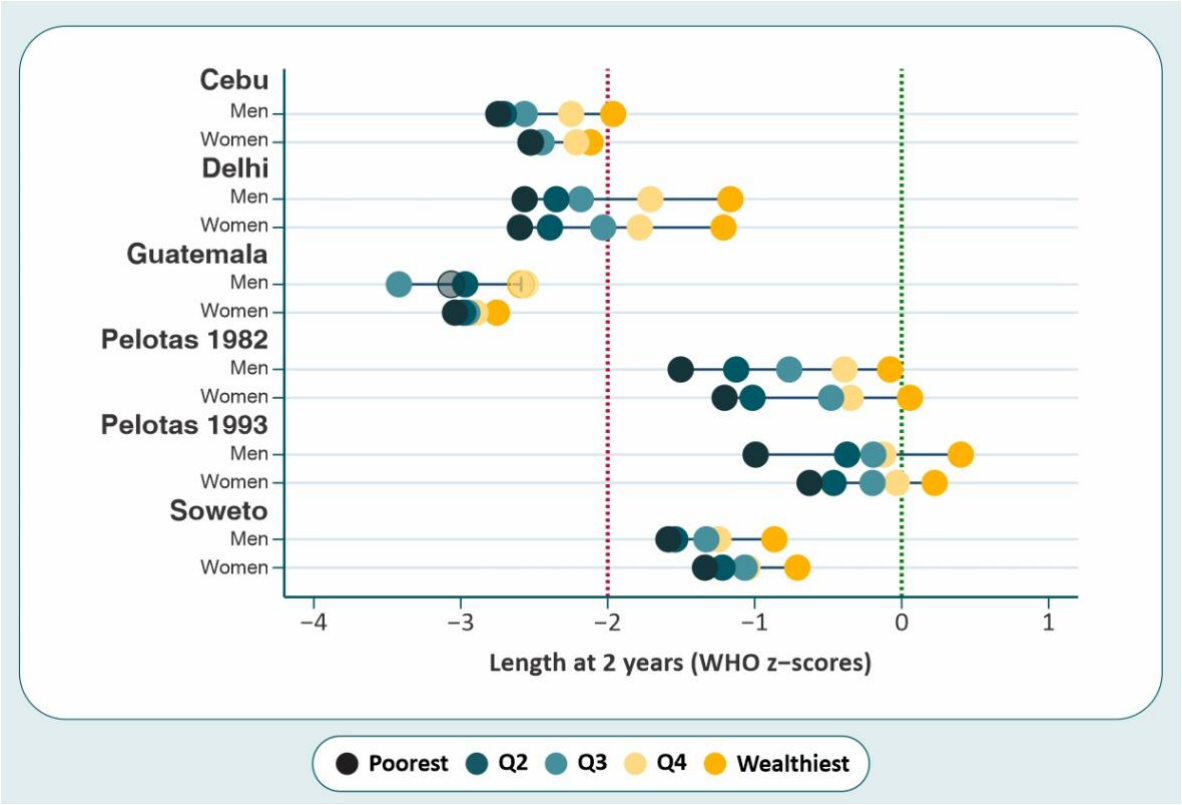
To account for the fact that the 1993 Pelotas Birth Cohort collected data in subsamples enriched for low birth weight cases at ages 1 and 4 years, all analyses in this cohort involving one or more variables collected at one or more of these ages (more specifically, length-for-age and BMI-for-age, and cognitive scores in childhood) were weighted using inverse sampling weights.

The cohort-specific results were combined using random effects meta-analysis. The I^2 statistic and Cochran's Q test were used to quantify between-cohort variation. Effect modification by sex was quantified via random effects meta-regression. As a sensitivity analysis, pooled estimates were also generated using weighted fixed effects meta-analysis. This method only differs from the conventional fixed effects method because we ensured that each cohort has the same weight regardless of sample size. The exception was the two Pelotas cohorts, which had weights that add to 1. Since the random and weighted fixed effects meta-analysis results were generally similar, we only presented pooled results based on random effects meta-analysis. Details on these analyses and findings are available upon request.

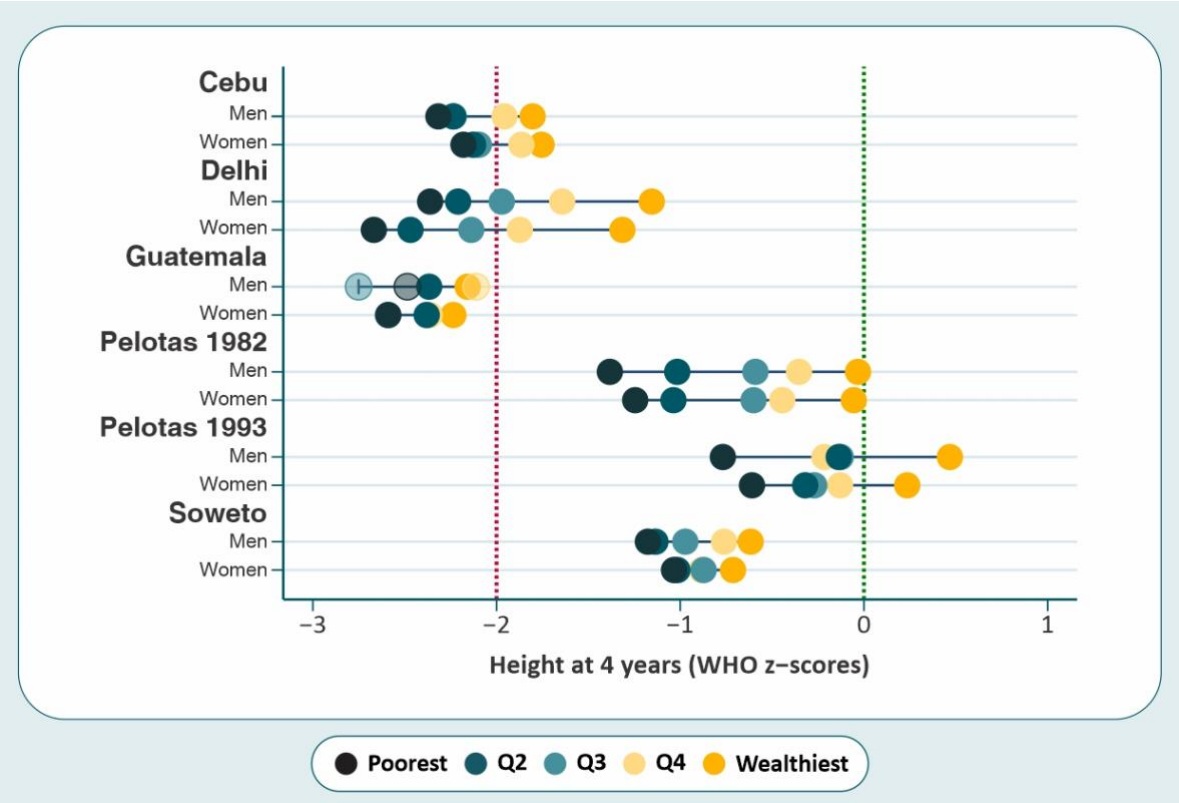
COHORTS analyses: additional findings

Figure S.2(a-g): Selected early-life and adult outcomes in the six cohorts, stratified by wealth quintiles and sex.

5.2 (a) Length at 2 years (mean WHO Z scores)



198 5.2 (b) Height at 4 years (mean WHO Z scores)



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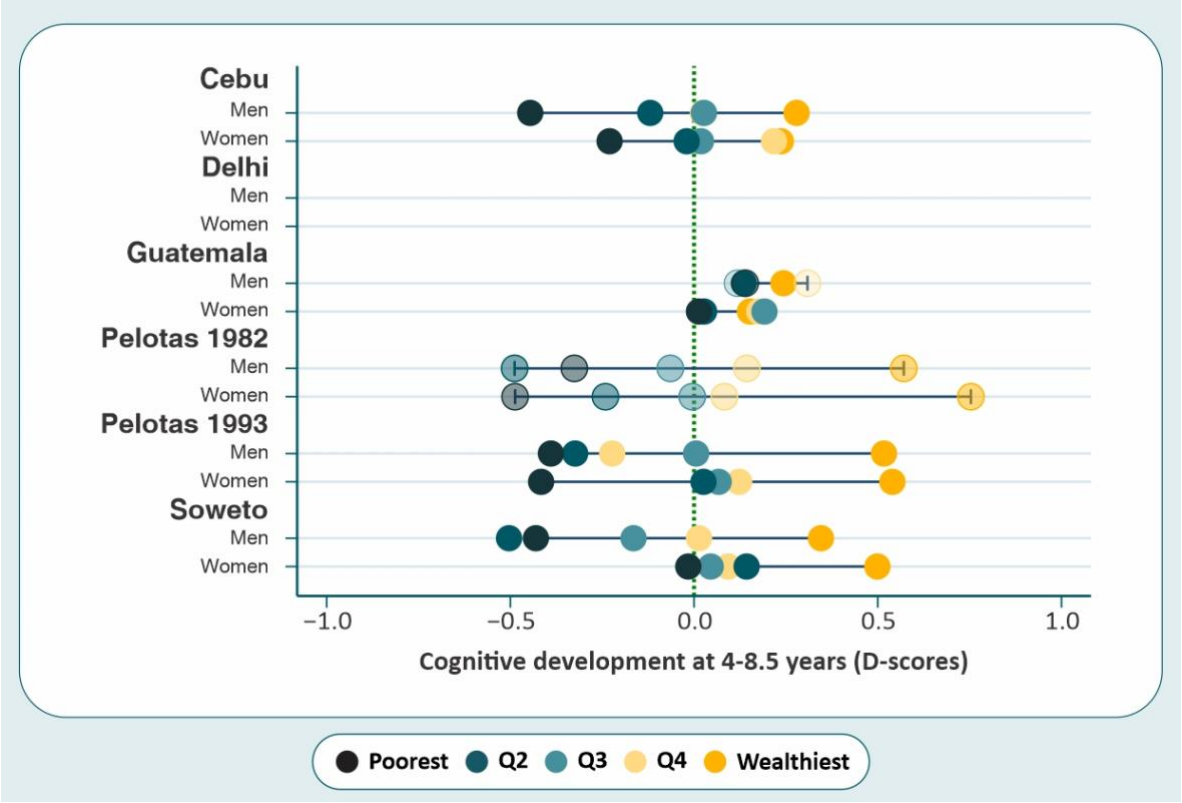
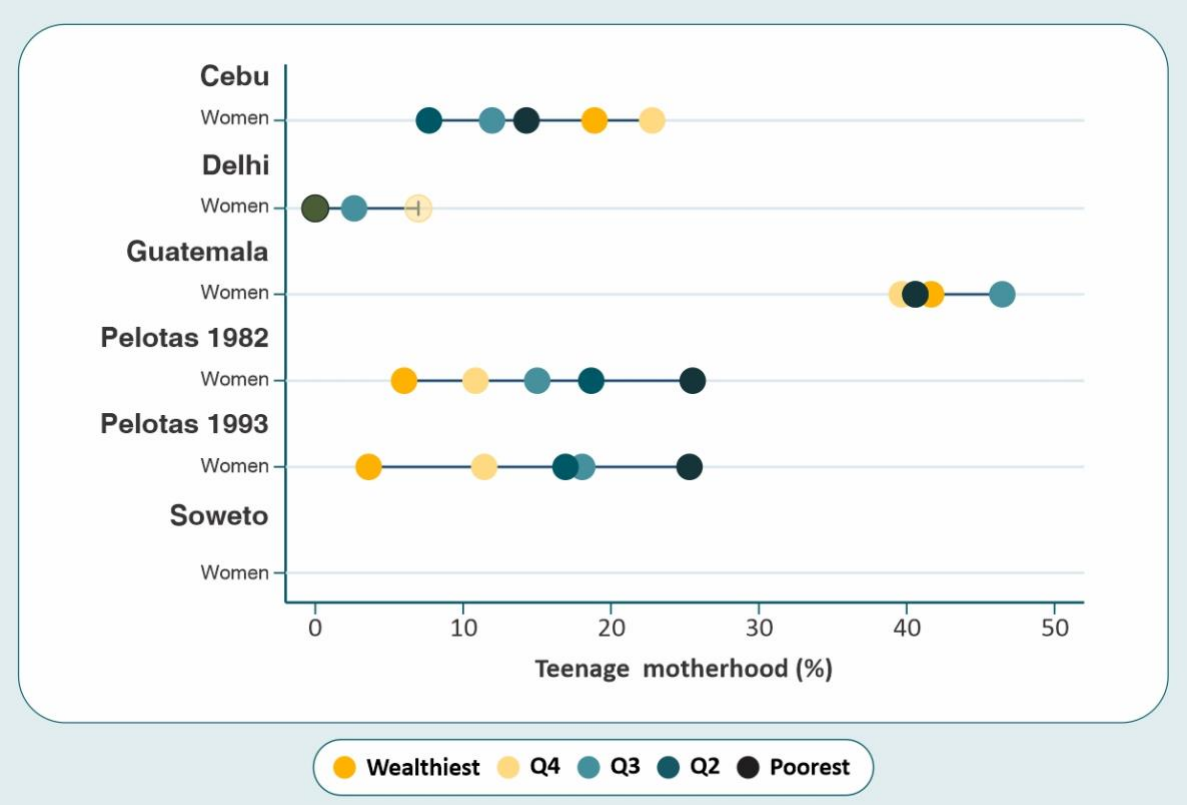
5.2 (c) Cognitive development at 4-8.5 years (Z scores)

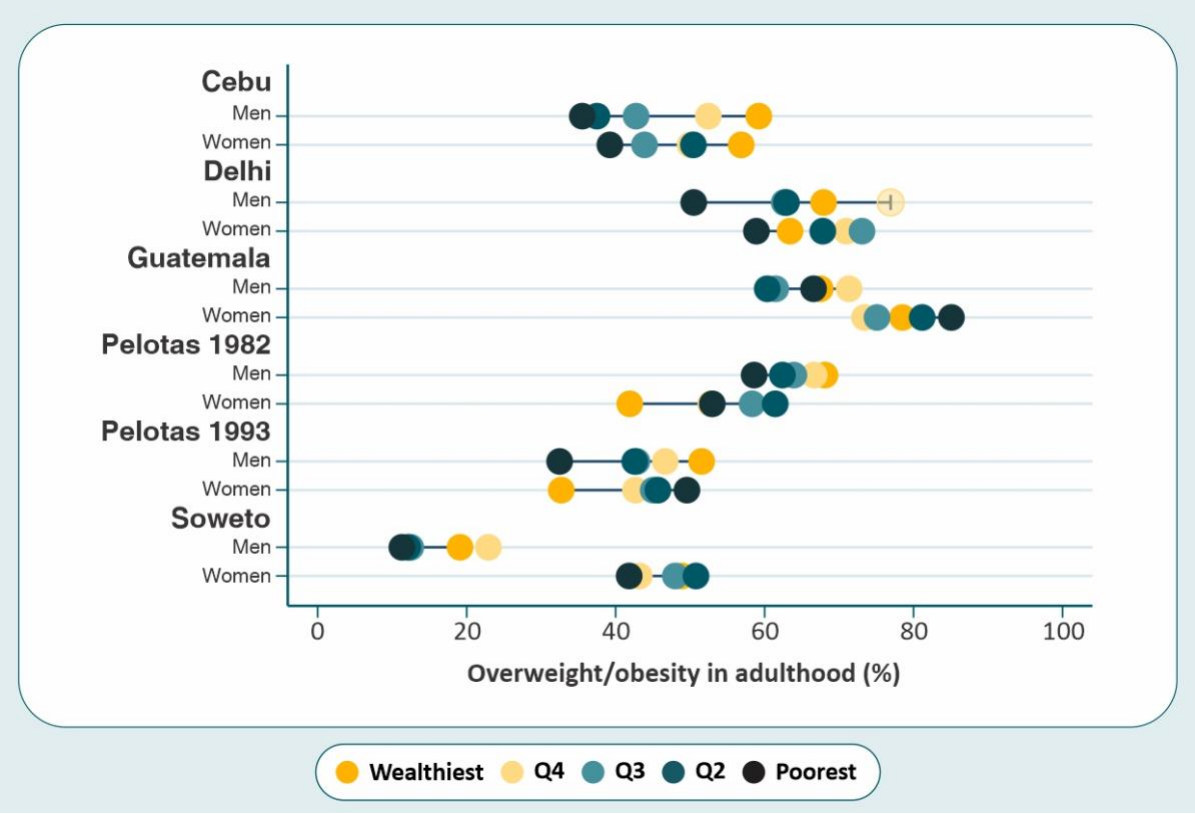
at



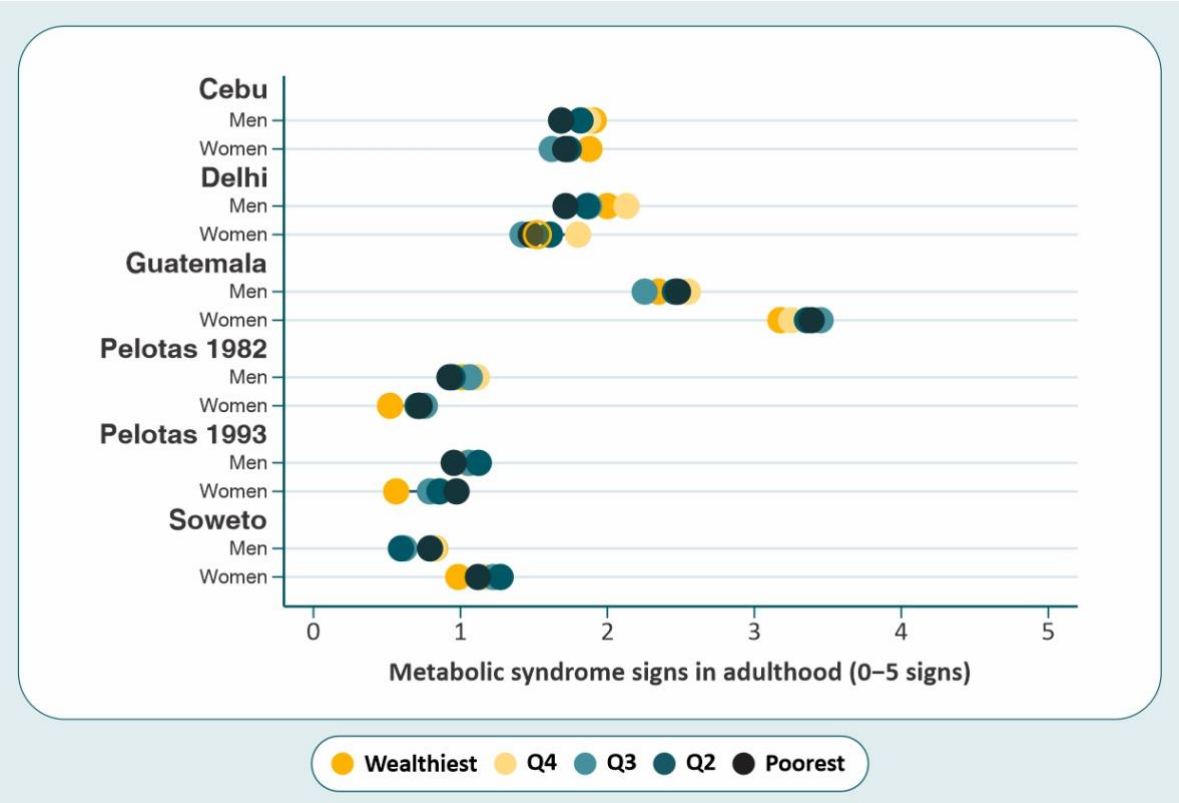
5.2 (d) Teenage motherhood (%)



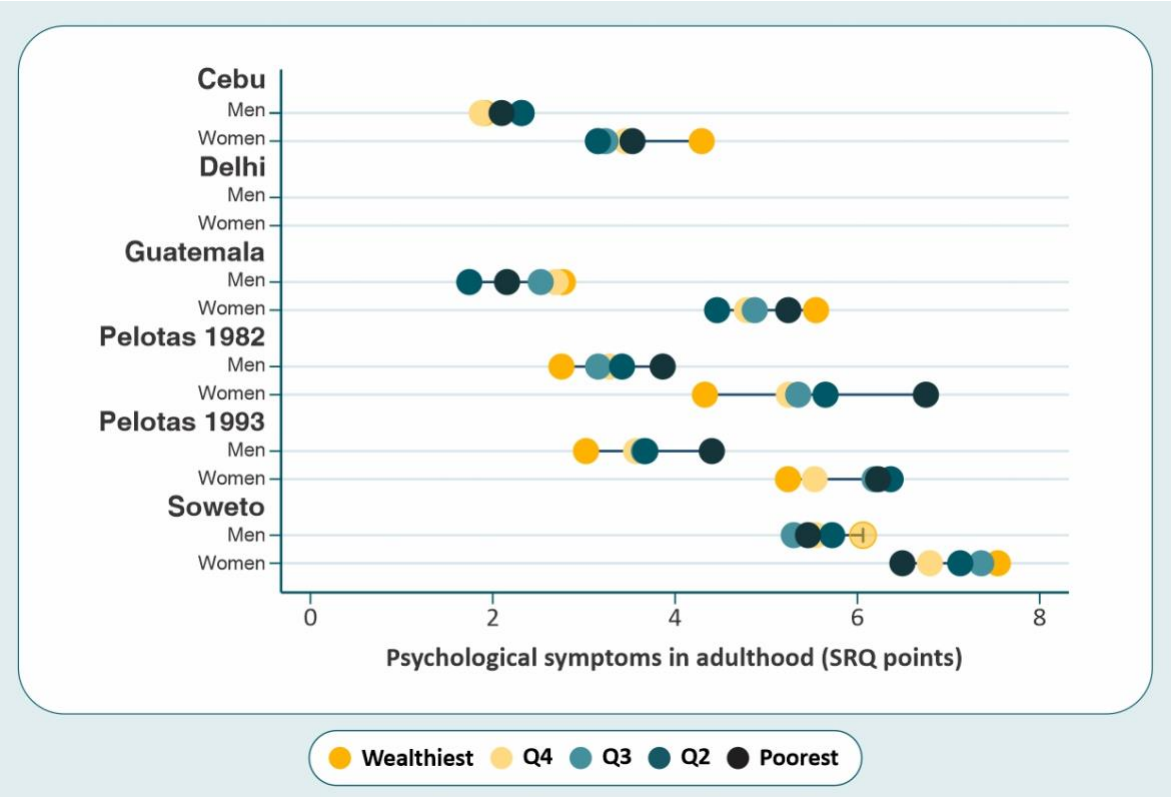
5.2 (e) Overweight/obesity prevalence in adulthood



5.2 (f) Metabolic signs in adulthood (average of up to 5 signs)



5.2 (g) Psychological symptoms in adulthood (average of up to 20 symptoms)



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