ONLINE SUPPLEMENTARY APPENDIX

"Change of Pace: Accelerations and Advances During the Millennium Development Goal Era"

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Table of Contents

Appendix 1: Data description

A. Indicator list

Indicator name	Source	Years	Countries in sample[2]	Countries in acceleration tests[3]
Life and death				
Under-5 mortality rate, median mortality	U.N.-IGME (2015)	1990-2015	154	154
Maternal mortality ratio (modeled estimate, per 100,000 live births)	World Bank (2016c)[4]	1990-2015	147	147
Antiretroviral therapy coverage (% of people living with HIV)	World Bank (2016c)[4]	2000-2015	99	99
Deaths averted due to antiretroviral therapy	UNAIDS (2016b)	2000-2015	Global	n.a.
Estimated number of deaths due to HIV/AIDS (only for sub-Saharan Africa)	UNAIDS (2016c) WHO (2016a)	2000, 2005, 2015	45	n.a.
Estimated number of deaths from TB (all forms, excluding HIV)	WHO (2016b)	2000-2015	151	151
Estimated number of malaria deaths, total	WHO (2016a)	2000, 2005, 2010, 2013	101	60
Basic needs				
Improved water source (% of population with access)	World Bank (2016c)[4]	1990-2015[1]	147	138
Improved sanitation facilities (% of population with access	World Bank (2016c)[4]	1990-2015[1]	142	139
Prevalence of undernourishment (% of population)	World Bank (2016c)[4]	1991-2015	111	92
Primary completion rate total, both sexes (% of relevant age group)	World Bank (2016c)[4]	1990-2015[1]	94	78
Gender parity index, school enrollment, primary (gross)	World Bank (2016c)[4]	1990-2014[1]	123	53
Gender parity index, school enrollment, secondary (gross)	World Bank (2016c)[4]	1990-2014[1]	90	35
Gender parity index, school enrollment, tertiary (gross)	World Bank (2016c)[4]	1990-2014[1]	67	35
Extreme income poverty				
Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)[5]	World Bank (2016b, c[4])	1990-2013[1]	40/Global	36
Natural capital				
Forest area (% of land area)	World Bank (2016c)[4]	1990-2015	150	150
Terrestrial protected areas (% of total land areas)	World Bank (2016c)[4]	1990, 2000, 2014	154	154

[1] *Due to missing and irregular data, year ranges are constructed from first available observation for each country, up to 1995, through to the most recent available data point from 2010 onward.*

[2] *Core sample is based on developing country income groups as classified by World Bank for calendar year 2000. Montenegro, Serbia, South Sudan, Tuvalu and Timor-Leste are included whenever data are available. South Sudan classified as LIC (same as Sudan in 2000); Timor-Leste as LIC (as designated in 2001); Serbia and Montenegro both as MIC (as designated in 2006); Tuvalu as MIC (as designated in 2009).*

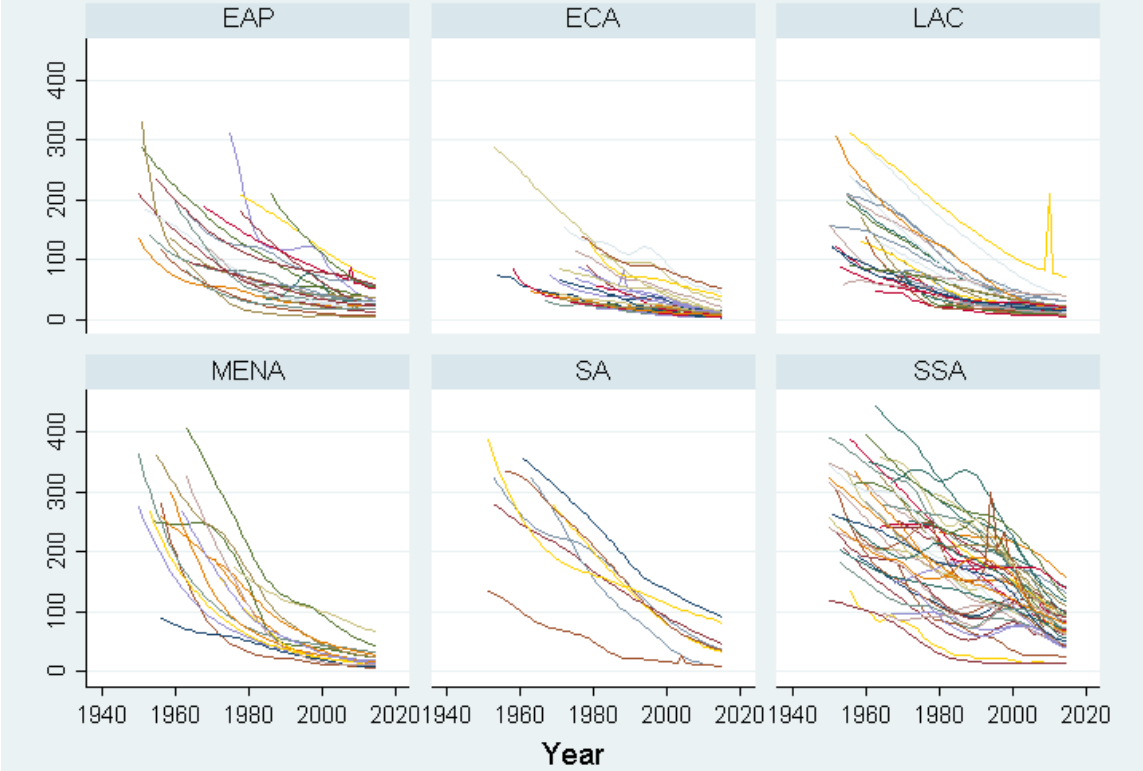
[3] *For acceleration tests, countries are excluded if within 1 percentage point of a target or data ceiling in 2000 (≥99% for water, sanitation, and primary completion rate; ≤6% undernourishment; ≥0.96 for gender parity index; and ≤1% for extreme income poverty). Countries excluded from acceleration tests for malaria if they had <100 deaths in 2000.*

[4] *Data sourced from August 2016 version of World Development Indicators online database.*

[5] *Country-level acceleration tests use data reported in World Bank (2016c). Calculations of lives improved use (interpolated) data for major regions, plus China and India, sourced from PovcalNet (World Bank, 2016b).*

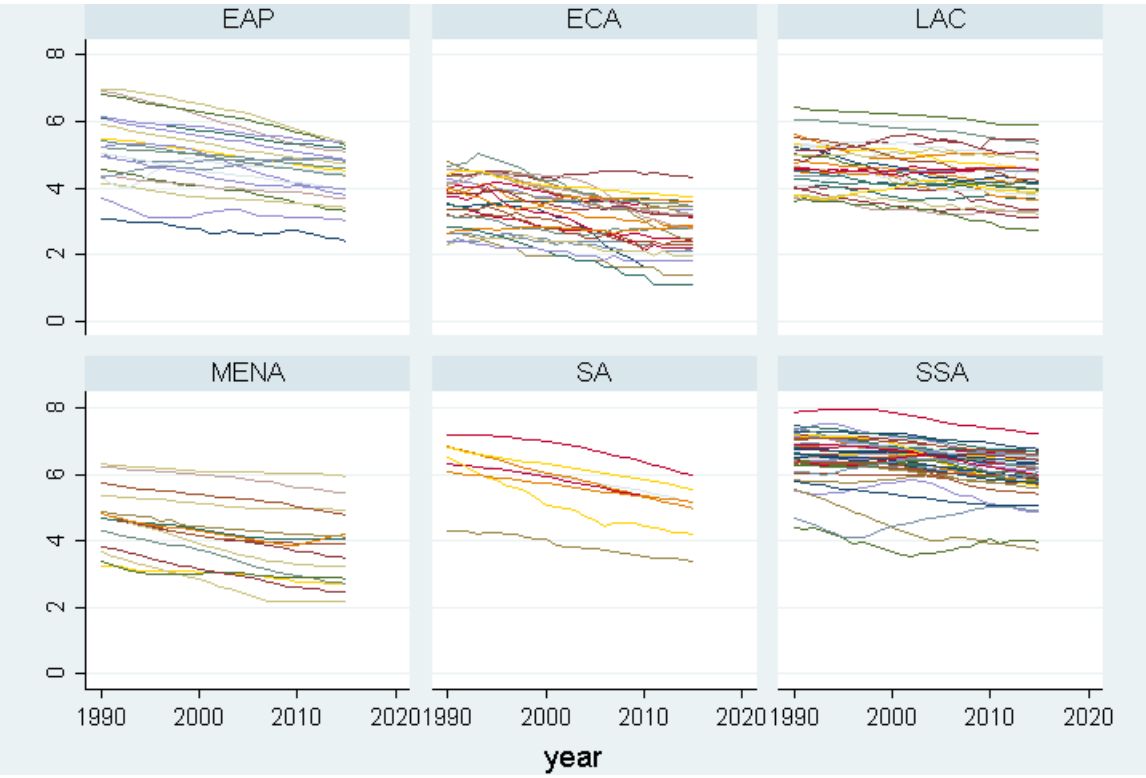
1B. Indicator visualization

Under-5 child mortality rate (deaths per 1,000 live births)



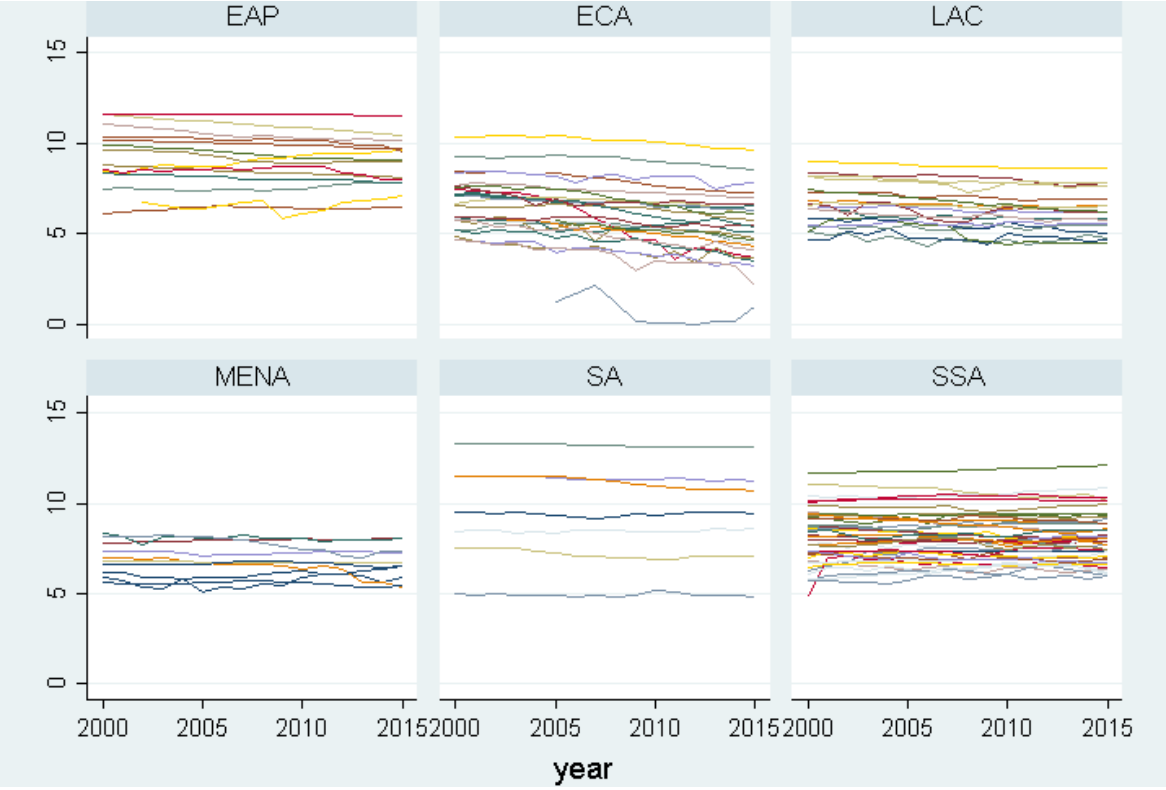
Source: U.N.-IGME (2015).

Maternal mortality ratio (deaths per 100,000 live births), logged



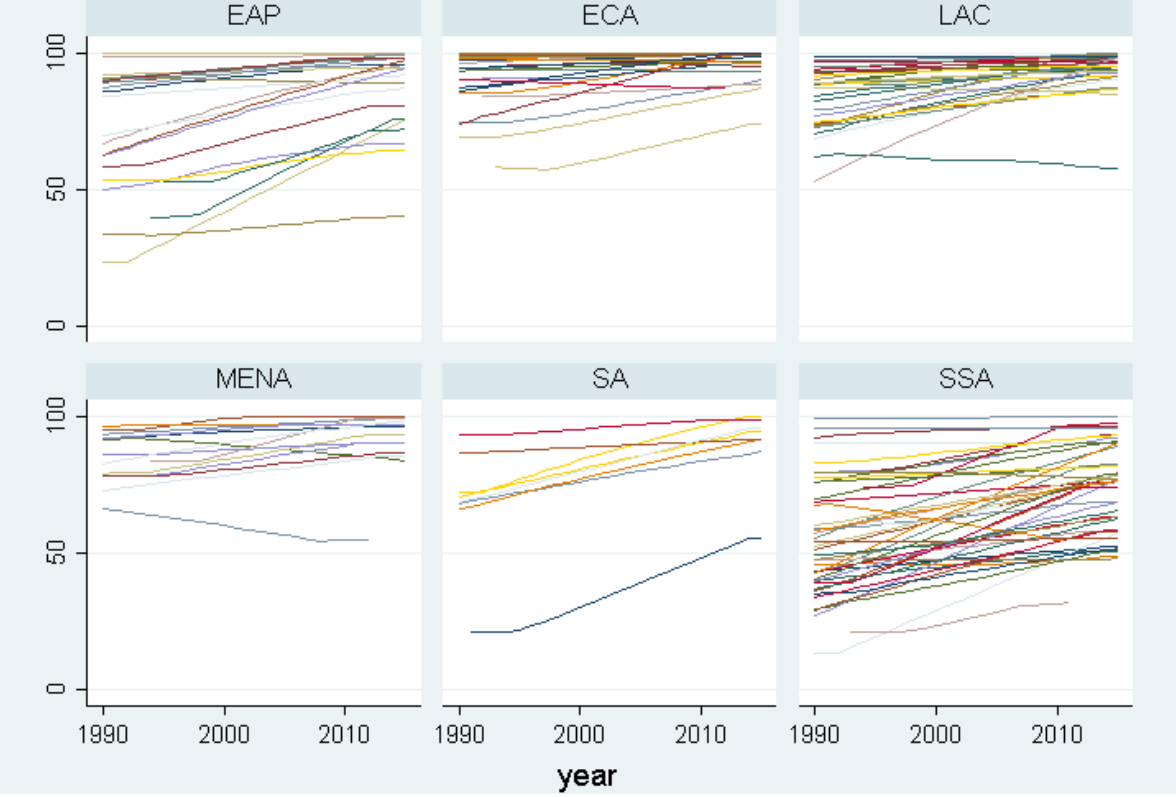
Source: World Bank (2016c).

Estimated number of deaths from Tuberculosis, excluding HIV
(countries with > 100 TB deaths in 2000), logged



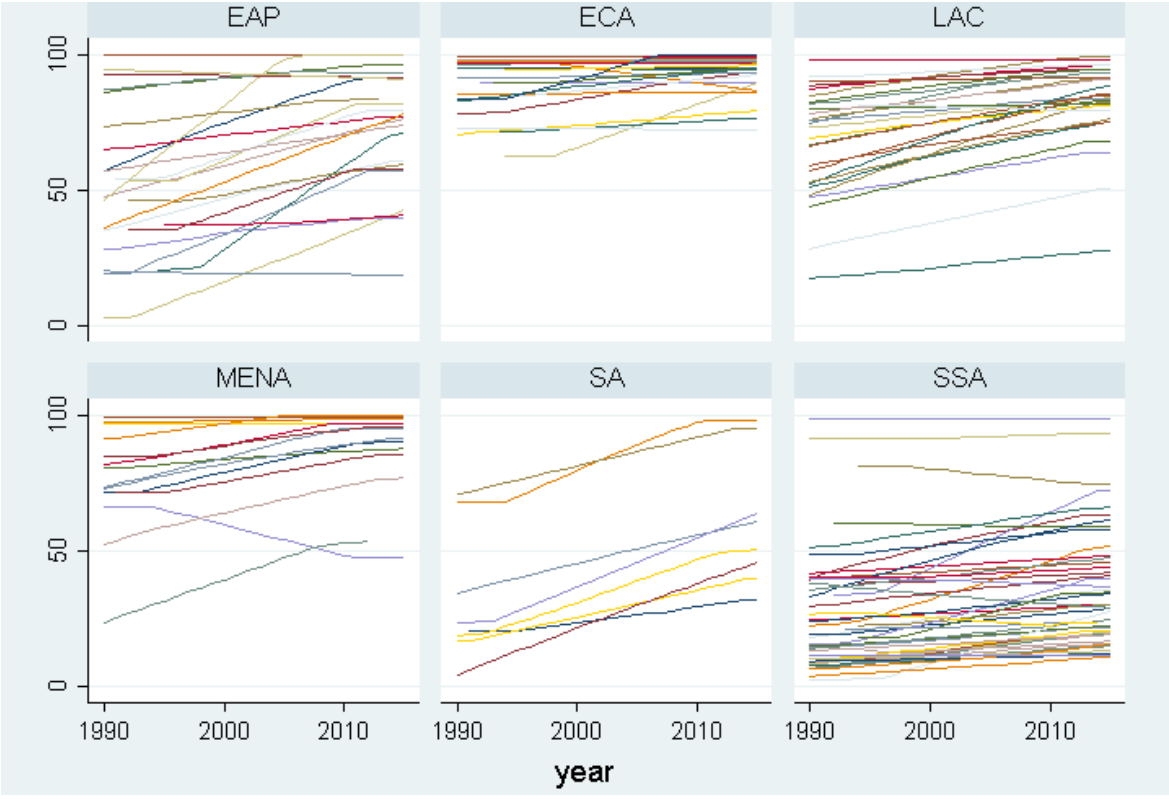
Source: WHO (2016b).

Access to improved water, percent of population



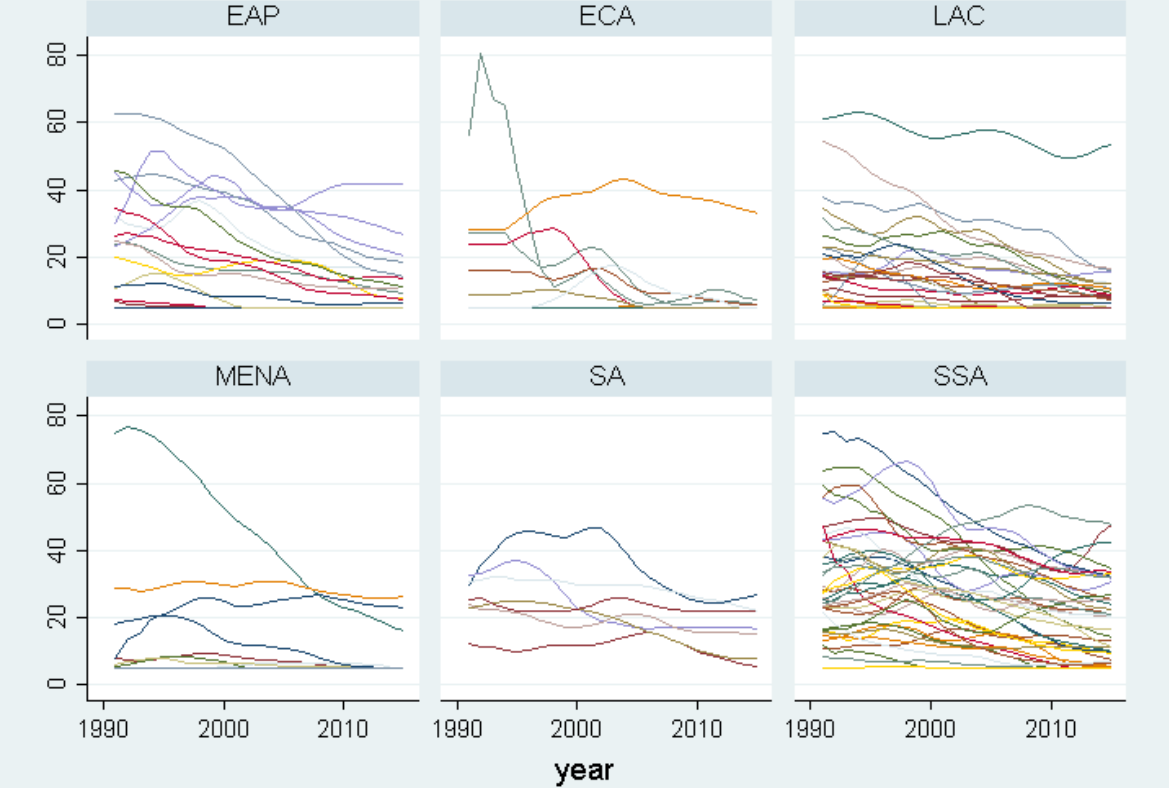
Source: World Bank (2016c).

Access to sanitation, percent of population



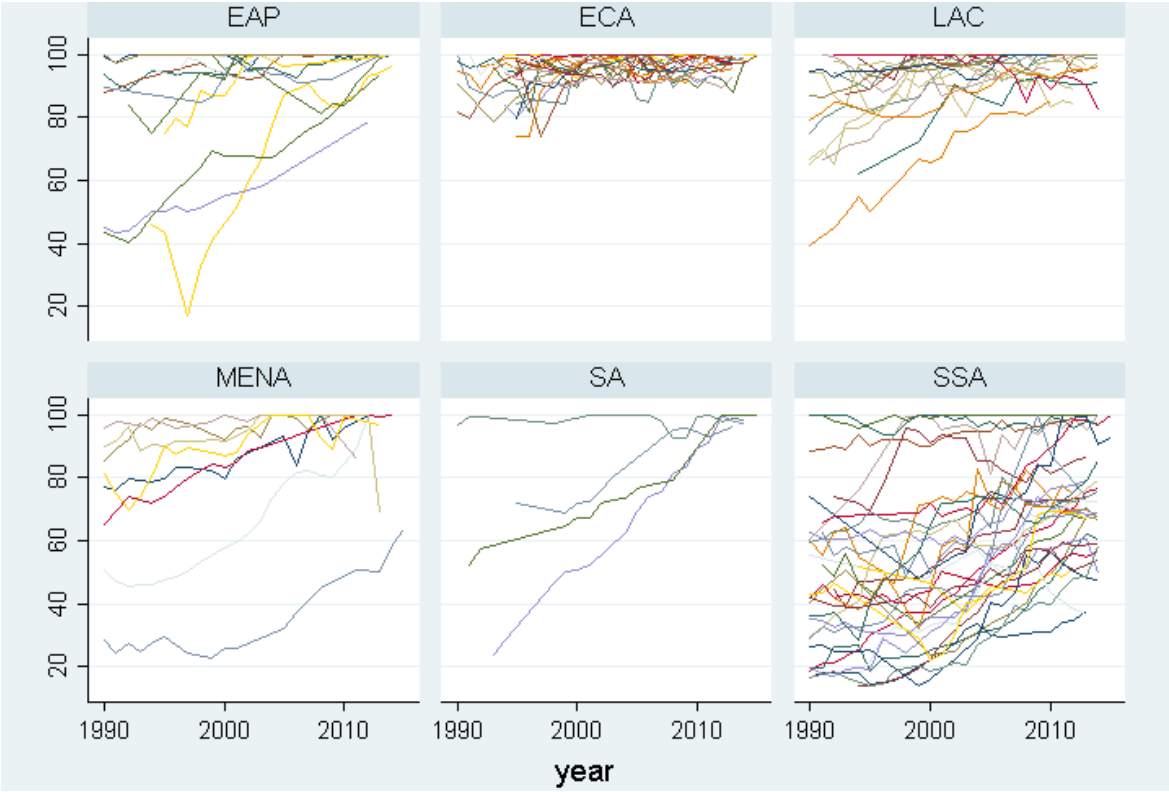
Source: World Bank (2016c).

Undernourishment, percent of population



Source: World Bank (2016c).

Primary school completion rate, percent of relevant age group



Source: World Bank (2016c).

Appendix 2: Methodology overview

Variables:
r = rate of progress
m = actual indicator value
c = counterfactual indicator value
s = incremental lives saved / improved
x = incremental land area affected

Subscripts:
pre = prior to MDG period
post = after adoption of MDGs
t = index year
n = number of years since *t*

	Rate of Progress	Acceleration	Counterfactual
Mortality *m = child mortality rate per 1,000 births, maternal mortality ratio per 100,000 births*	$r = 1 - (m_{t+n}/m_t)^{(1/n)}$ r_{pre} = 1990 to 2000 or 1996 to 2001 r_{post} = 2000 to 2015 or 2001 to 2015	Any: if $r_{post} > r_{pre}$ Real: if $r_{post} - r_{pre} >= .01$	$c_{t+n} = m_t * (1 - r_{pre})^n$ $s_{t+n} = deaths_{t+n} * ((c_{t+n}/m_{t+n}) - 1)$ *Total lives saved equals cumulative value of s_{t+n} during period after adoption of MDGs.*
Infectious Diseases - deaths *m = malaria total number of deaths, tuberculosis total number of deaths, HIV/AIDS total number of deaths*	$r = 1 - (m_{t+n}/m_t)^{(1/n)}$ Malaria: r_{pre} = 2000 to 2005 r_{post} = 2005 to 2013 TB: *no calculation* HIV/AIDS: r_{pre} = 2000 to 2005 r_{post} = 2005 to 2015	Any: if $r_{post} > r_{pre}$ Real: if $r_{post} - r_{pre} >= .01$ Malaria: *Exclude countries from acceleration tests if <100 total deaths in 2000* TB and HIV/AIDS: *No acceleration test*	$c_{t+n} = m_t * (1 - r_{pre})^n$ $s_{t+n} = c_{t+n} - m_{t+n}$ TB: *Counterfactual assumes 2001 level remains constant. Total lives saved equals cumulative value of s_{t+n} from 2002 to 2015.* Malaria & HIV/AIDS: *no counterfactual calculation.*
Infectious Diseases - treatment *m = antiretroviral access (% of people living with HIV)*	$r = (m_{t+n} - m_t)/n$ r_{pre} = 2000 to 2002 r_{post} = 2002 to 2015	Any: if $r_{post} > r_{pre}$ Real: if $r_{post} - r_{pre} >= .0033$	*Lives saved calculation uses UNAIDS (2016b) "deaths averted due to treatment." Estimated geographic disaggregation is based on access to treatment from UNAIDS (2016c).*

<u>Indicators with 50% targets</u> *m = access to improved water, access to sanitation, undernourishment, extreme income poverty (% of population)*	$r = (m_{t+n}-m_t)/n$ Water, sanitation, income poverty at country level: r_{pre} = 1990 to 2000 r_{post} = 2000 to 2015 Undernourishment: r_{pre} = 1991 to 2000 or 1996 to 2001 r_{post} = 2000 to 2015 or 2001 to 2015 Income poverty at regional/aggregate level: r_{pre} = 1990 to 2002 or 1996 to 2002 r_{post} = 2002 to 2013 *If country reaches natural data ceiling (100% for water and sanitation; 5% for undernourishment; 0% for income poverty) before final year, use year of achievement to calculate rate of progress.*	Any: $r_{post} > r_{pre}$ Real: $r_{post} – r_{pre} >= .0033$ *Exclude country from acceleration test if 2000 value ≥99% for water and sanitation, ≤6% for undernourishment, or ≤1% for income poverty.*	$c_{t+n} = m_t + (r_{pre} * n)$ $s_{t+n} = (m_{t+n} - c_{t+n}) * population_{t+n}$ *Lives improved calculated only for final year. For undernourishment and extreme income poverty: (1) Use World Bank developing country aggregate, as classified in 2016, sub-Saharan Africa regional aggregate, plus country-level data for China and India to calculate "rest of developing world" (RODW). (2) Extrapolate and sum estimated lives improved in China, India, sub-Saharan Africa, and RODW to estimate total lives improved across "all developing." (3) For other regions presented in Appendix 4, use World Bank regional aggregates to calculate independently for EAP, ECA, LAC, MENA, SA, and SSA.*
<u>Indicators with 100% targets</u> *m = primary completion rate (% of relevant age group), gender parity index (GPI) in education*	$r = (m_{t+n}-m_t)/n$ Set *m* values > 1 to equal 1 r_{pre} = 1990 to 2000 or 1996 to 2001 r_{post} = 2000 to 2015 or 2001 to 2015 *If country reaches target or natural data ceiling (100% for primary completion rate; 0.97 for GPI) before final year, use year of achievement to calculate rate of progress.*	Any: $r_{post} > r_{pre}$ Real: $r_{post} – r_{pre} >= .0033$ *Exclude country from acceleration test if 2000 value ≥99% for primary completion rate or ≥0.96 for GPI*	$c_{t+n} = m_t + (r_{pre} * n)$ $s_{t+n} = (m_{t+n} - c_{t+n}) * PrimaryPopulation_{t+n}$ GPI: *No counterfactual calculation* Primary completion: *Lives improved calculated as cumulative value of s_{t+n} from 2000/2001 to 2013. Use total population aged 10-14 (divided by 5) to estimate average school-age population. Use World Bank developing country aggregate, as classified in 2016, to estimate value for "all developing." Use regional value to estimate for sub-Saharan Africa.*
<u>Natural Capital</u> *m = area under forest cover, terrestrial protected area (% of total land area)*	$r = (m_{t+n} – m_t)/n$ r_{pre} = 1990 to 2000 forest: r_{post} = 2000 to 2015 protected area: r_{post} = 2000 to 2014	Any: $r_{post} > r_{pre}$ Real: $r_{post} – r_{pre} >= .0033$	$c_{t+n} = m_t + (r_{pre} * n)$ $x_{t+n} = (m_{t+n} - c_{t+n}) * LandArea_{t+n}$ Area affected: *Only calculated for final year*

Appendix 3: The challenge of testing for MDG causality

While noting that the inherent complexity within each MDG issue area merits its own in-depth analysis, there are two main challenges to constructing statistical tests for MDG causality. First, it is not clear how the MDGs should be defined or measured as an explanatory (right-hand side) variable. In empirical terms the Goals are merely a set of non-binding words agreed by heads of state and government regarding outcomes they committed to achieve over a specified time period. The Goals were launched without any specific budget, agreed interventions, or allocations of formal institutional responsibilities. It is possible that the best one can do quantitatively is test for differences in rates of progress before and after the Goals were established, while also examining the ways in which individual goals came to be adopted and promulgated among specific governments and policy communities. It is a fully separate exercise to assess the efficacy of specific interventions that might, over time, have become directly associated with – or motivated by – the MDGs, such as mass distribution of insecticide-treated anti-malaria nets or protocols to eliminate mother-to-child transmission of HIV, even if those interventions were not originally articulated under the MDGs themselves.

Second, it is challenging to discern between cases in which the articulation of the MDGs might have been a direct input or an intermediate output related to broader policy efforts, or even the efforts of specific individuals. It is also difficult to unpack when the MDGs might have played a direct versus indirect role in policymaking. For example, the advent of funding mechanisms for international HIV/AIDS treatment programs during the 2001-2003 period played a key role in reducing AIDS mortality. But AIDS treatment advocates were already pushing for greater investments in global health prior to the launch of the MDGs, and many of the same advocates were also MDG advocates. The MDGs provided a common reference point for a diverse range of efforts, potentially a blend of both cause and effect.

As another illustration of the empirical challenge, the World Bank was the leading multilateral funder for development efforts in low-income countries during the MDG period, but its internal operating procedures were not generally aligned around the MDGs, and many mid-level officials felt disconnected from MDG processes (McArthur 2013, McArthur and Zhang 2015). However, MDG-linked global advocacy efforts in 2005 played an important role in motivating donor politicians to increase the IDA-14 (International Development Association) replenishment by roughly 25 percent in 2005, which was, at the time, its largest expansion of IDA resources in two decades. Thus the MDGs likely boosted IDA's capacity to contribute to development outcomes, even if IDA operations and staff were not explicitly focusing on the MDGs.

At the other end of the spectrum, there are cases where confusion around the interpretation of the MDGs might further complicate potential assessments of causality. For example, the United States' Millennium Challenge Account (and later Corporation) was launched in March 2002 on the eve of the UN's Monterrey Conference on Financing for Development. Even the though the initiative's name drew inspiration from the Millennium Declaration, the organization took years to begin country-level programming and did not pursue practical connections to the international MDG agenda amid protracted disagreement between the Bush Administration and the UN regarding the substance and even label of the MDGs, a tension amplified by disagreements over the Iraq War. In Washington circles this led to extended confusion regarding what the "millennium" objectives even referred to.

Appendix 4: Results supplement

A. Number of countries that experienced post-2000 acceleration, by region

East Asia & Pacific		*n*	Any acceleration		"Real" acceleration	
Category	*Indicator name*		*yes*	*%*	*yes*	*%*
Life and death	Under-5 child mortality rate	24	12	50%	6	25%
	Estimated number of malaria deaths	10	5	50%	5	50%
	Maternal mortality ratio	21	6	29%	5	24%
	Antiretroviral therapy coverage	9	9	100%	9	100%
Basic needs	Access to improved water source	22	8	36%	3	14%
	Access to improved sanitation facilities	22	11	50%	4	18%
	Undernourishment, prevalence	14	7	50%	7	50%
	Primary school completion rate, both sexes (%)	9	7	78%	6	67%
	Gender parity index (GPI), gross enrollment ratio in primary	6	4	67%	2	33%
Extreme income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	4	1	n.a.	0	n.a.
Natural capital	Forest area	21	5	24%	2	10%
	Protected land area	24	5	21%	0	0%
Europe & Central Asia						
Life and death	Under-5 child mortality rate	28	19	68%	17	61%
	Estimated number of malaria deaths	0				
	Maternal mortality ratio	28	13	46%	12	43%
	Antiretroviral therapy coverage	11	11	100%	11	100%
Basic needs	Access to improved water source	19	10	53%	3	16%
	Access to improved sanitation facilities	22	12	55%	2	9%
	Undernourishment, prevalence	7	6	86%	6	86%
	Primary school completion rate, both sexes (%)	17	9	53%	9	53%
	Gender parity index (GPI), gross enrollment ratio in primary	2	2	100%	2	100%
Extreme income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	9	8	n.a.	6	n.a.
Natural capital	Forest area	28	15	54%	1	4%
	Protected land area	28	16	57%	7	25%
Latin America & Caribbean						
Life and death	Under-5 child mortality rate	31	6	19%	2	6%
	Estimated number of malaria deaths	3	3	100%	2	67%
	Maternal mortality ratio	28	13	46%	10	36%
	Antiretroviral therapy coverage	24	20	83%	19	79%
Basic needs	Access to improved water source	30	3	10%	0	0%
	Access to improved sanitation facilities	28	3	11%	0	0%
	Undernourishment, prevalence	20	11	55%	8	40%
	Primary school completion rate, both sexes (%)	12	5	42%	4	33%
	Gender parity index (GPI), gross enrollment ratio in primary	4	3	75%	1	25%
Extreme income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	14	11	n.a.	7	n.a.
Natural capital	Forest area	31	4	13%	1	3%
	Protected land area	31	11	35%	4	13%
Middle East & North Africa						
Life and death	Under-5 child mortality rate	15	8	53%	3	20%
	Estimated number of malaria deaths	1	0	0%	0	0%
	Maternal mortality ratio	15	4	27%	2	13%
	Antiretroviral therapy coverage	8	7	88%	7	88%
Basic needs	Access to improved water source	14	5	36%	1	7%
	Access to improved sanitation facilities	13	5	38%	0	0%
	Undernourishment, prevalence	7	6	86%	3	43%
	Primary school completion rate, both sexes (%)	7	5	71%	4	57%
	Gender parity index (GPI), gross enrollment ratio in primary	7	3	43%	2	29%
Extreme income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	1	0	n.a.	0	n.a.
Natural capital	Forest area	15	4	27%	0	0%
	Protected land area	15	8	53%	1	7%

South Asia

Life and death	Under-5 child mortality rate	8	6	75%	2	25%
	Estimated number of malaria deaths	4	3	75%	3	75%
	Maternal mortality ratio	8	6	75%	4	50%
	Antiretroviral therapy coverage	6	6	100%	6	100%
Basic needs	Access to improved water source	8	2	25%	1	13%
	Access to improved sanitation facilities	8	5	63%	1	13%
	Undernourishment, prevalence	7	4	57%	4	57%
	Primary school completion rate, both sexes (%)	3	2	67%	2	67%
	Gender parity index (GPI), gross enrollment ratio in primary	5	3	60%	3	60%
Extreme income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	2	1	n.a.	0	n.a.
Natural capital	Forest area	8	1	13%	0	0%
	Protected land area	8	3	38%	0	0%

Sub-Saharan Africa

Life and death	Under-5 child mortality rate	48	43	90%	35	73%
	Estimated number of malaria deaths	42	19	45%	18	43%
	Maternal mortality ratio	47	35	74%	28	60%
	Antiretroviral therapy coverage	41	41	100%	40	98%
Basic needs	Access to improved water source	45	21	47%	4	9%
	Access to improved sanitation facilities	46	32	70%	5	11%
	Undernourishment, prevalence	37	25	68%	22	59%
	Primary school completion rate, both sexes (%)	30	25	83%	23	77%
	Gender parity index (GPI), gross enrollment ratio in primary	29	20	69%	16	55%
Extreme income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	6	2	n.a.	2	n.a.
Natural capital	Forest area	47	8	17%	2	4%
	Protected land area	48	33	69%	10	21%

Notes: (1) Sample includes up to 154 UN member states classified as low- or middle-income by the World Bank in 2000. (2) Progress for under-5 child mortality, maternal mortality, and malaria deaths measured in proportional rate of change. All other variables measured in percentage point. (3) "Any acceleration": Yes if countries have positive acceleration toward the goal. Countries excluded from test if they are within 1 percentage point from a target or data ceiling as of 2000 (≥99% for water, sanitation, and primary completion rate; ≤6% undernourishment; ≥0.96 for GPI and ≤1% extreme income poverty). Countries excluded for malaria if they had <100 deaths in 2000. (4) "'Real' acceleration": > 1 percentage point annual acceleration for under-5 mortality, maternal mortality, and malaria, and > 0.33 percentage point annual acceleration for other indicators. (5) "n.a." indicates calculation not applicable due to small sample size.

Sources: Authors' calculations based on U.N.-IGME (2015), WHO (2016a), World Bank (2016c).

B. Number of countries that experienced post-2000 acceleration, by income group

Low-income countries		n	Any acceleration		"Real" acceleration	
Category	*Indicator name*		*yes*	*%*	*yes*	*%*
Life and death	Under-5 mortality rate	65	56	86%	42	65%
	Estimated number of malaria deaths	51	25	49%	24	47%
	Maternal mortality ratio	65	46	71%	35	54%
	Antiretroviral therapy coverage	54	54	100%	53	98%
Basic needs	Access to improved water source	61	29	48%	11	18%
	Access to improved sanitation facilities	62	45	73%	11	18%
	Undernourishment prevalence	55	36	65%	33	60%
	Primary school completion rate, both sexes	40	31	78%	29	73%
	Gender parity index (GPI), gross enrollment ratio in primary	37	25	68%	20	54%
Extreme Income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	11	6	n.a.	4	n.a.
Natural capital	Forest area	64	12	19%	3	5%
	Protected land area	65	37	57%	9	14%
Middle-income countries						
Life and death	Under-5 mortality rate	89	38	43%	23	26%
	Estimated number of malaria deaths	9	5	56%	4	44%
	Maternal mortality ratio	82	31	38%	26	32%
	Antiretroviral therapy coverage	45	40	89%	39	87%
Basic needs	Access to improved water source	77	20	26%	1	1%
	Access to improved sanitation facilities	77	23	30%	1	1%
	Undernourishment prevalence	37	23	62%	17	46%
	Primary school completion rate, both sexes	38	22	58%	19	50%
	Gender parity index (GPI), gross enrollment ratio in primary	16	10	63%	6	38%
Extreme Income poverty	Poverty head-count ratio at US$1.90 (2011 PPP)	25	17	n.a.	11	n.a.
Natural capital	Forest area	86	25	29%	3	3%
	Protected land area	89	39	44%	13	15%

Notes: (1) Sample includes up to 154 UN member states classified as low- or middle-income by the World Bank in 2000. (2) Progress for under-5 mortality, maternal mortality, and malaria deaths measured in proportional rate of change. All other variables measured in percentage point. (3) "Any acceleration": Yes if countries have positive acceleration toward the goal. Countries excluded from test if they are within 1 percentage point from the target as of 2000 (≥99% for water, sanitation, and primary completion rate; ≤6% undernourishment; ≥0.96 for GPI; and ≤1% extreme income poverty). Countries excluded for malaria if they had <100 deaths in 2000. (4) "'Real' acceleration": > 1 percentage point annual acceleration for under-5 mortality, maternal mortality, and malaria, and > 0.33 percentage point annual acceleration for other indicators. (5) "n.a." indicates calculation not applicable due to small sample size.

Sources: Authors' calculations based on U.N.-IGME (2015), WHO (2016a), World Bank (2016c).

C. Difference in mean rates of progress (t-test), by region separately

Life and Death - difference in annual proportional rate of progress pre- and post-MDGs (%)

Under-5 mortality rate

		Counterfactual A			Counterfactual B		
	n	Mean rate 1990-2000	Mean rate 2000-2015	Difference of mean	Mean rate 1996-2001	Mean rate 2001-2015	Difference of mean
East Asia and Pacific	24	2.69	3.23	0.54	3.04	3.20	0.17
		(1.85)	(2.24)	[0.59]	(2.38)	(2.24)	[0.48]
Europe and Central Asia	28	3.53	5.16	1.63***	5.05	5.14	0.09
		(2.38)	(1.45)	[0.52]	(1.73)	(1.51)	[0.40]
Latin America and Caribbean	31	3.75	2.87	-0.88***	3.76	2.81	-0.95***
		(1.54)	(1.41)	[0.20]	(1.72)	(1.43)	[0.23]
Middle East and North Africa	15	4.37	3.95	-0.42	4.35	3.93	-0.43
		(1.94)	(1.19)	[0.54]	(1.85)	(1.21)	[0.47]
South Asia	8	4.14	4.91	0.77*	4.78	4.90	0.12
		(1.77)	(2.58)	[0.37]	(2.47)	(2.54)	[0.19]
Sub-Saharan Africa	48	1.15	3.99	2.84***	2.08	4.05	1.97***
		(2.33)	(1.74)	[0.42]	(2.61)	(1.78)	[0.42]

Maternal mortality ratio

		Counterfactual A			Counterfactual B		
	n	Mean rate 1990-2000	Mean rate 2000-2015	Difference of mean	Mean rate 1996-2001	Mean rate 2001-2015	Difference of mean
East Asia and Pacific	21	3.24	3.71	0.47	3.36	3.66	0.29
		(2.82)	(2.35)	[0.60]	(3.01)	(2.39)	[0.59]
Europe and Central Asia	28	2.98	3.72	0.74	5.22	3.64	-1.58**
		(2.60)	(3.16)	[0.74]	(3.56)	(3.26)	[0.75]
Latin America and Caribbean	28	1.91	1.95	0.04	2.43	1.97	-0.46
		(3.42)	(1.83)	[0.76]	(4.35)	(1.86)	[0.94]
Middle East and North Africa	15	4.56	2.86	-1.71***	3.97	2.82	-1.15*
		(2.00)	(1.77)	[0.48]	(2.45)	(1.76)	[0.58]
South Asia	8	5.16	5.24	0.08	5.71	5.12	-0.58
		(3.71)	(1.10)	[1.25]	(3.15)	(1.31)	[1.19]
Sub-Saharan Africa	47	1.75	2.77	1.02**	1.70	2.83	1.12**
		(2.42)	(1.82)	[0.43]	(3.42)	(1.90)	[0.50]

Notes: p-values: *<0.1, **<0.05, ***<0.01. Parentheses indicate standard deviation. Square brackets indicate standard error. Values are rounded and may not sum.

Sources: Authors' calculations based on U.N.-IGME (2015), World Bank (2016c).

Difference in annual absolute rate of progress pre- and post-MDGs (pct. point)

Antiretroviral access

	n	Mean rate 2000-2002	Mean rate 2002-2015	Difference of mean
East Asia and Pacific	9	0.22	3.22	3.00***
		(0.44)	(1.54)	[0.52]
Europe and Central Asia	11	0.05	2.00	1.95***
		(0.15)	(0.49)	[0.17]
Latin America and Caribbean	24	1.65	3.40	1.76***
		(3.02)	(0.84)	[0.62]
Middle East and North Africa	8	0.88	2.30	1.42
		(1.81)	(1.99)	[1.03]
South Asia	6	0.00	1.53	1.53**
		(0.00)	(1.14)	[0.47]
Sub-Saharan Africa	41	0.10	3.13	3.03***
		(0.26)	(1.47)	[0.22]

Notes: p-values: *<0.1, **<0.05, ***<0.01. Parentheses indicate standard deviation. Square brackets indicate standard error. Values are rounded and may not sum.

Source: Authors' calculations based on World Bank (2016c).

Basic needs - difference in annual absolute rate of progress pre- and post-MDGs (percentage point)

	Access to water[+]				Access to sanitation[+]				Undernourishment			
	n	Mean rate pre-MDG	Mean rate post-MDG	Difference of mean	n	Mean rate pre-MDG	Mean rate post-MDG	Difference of mean	n	Mean rate 1991-2000	Mean rate 2000-2015	Difference of mean
East Asia and Pacific	22	0.61	0.67	0.06	22	0.88	0.93	0.06	14	(0.46)	0.85	0.39
		(0.51)	(0.62)	[0.07]		(0.80)	(0.83)	[0.10]		(0.94)	(0.68)	[0.26]
Europe and Central Asia	19	0.23	0.34	0.11**	22	0.14	0.21	0.07	7	0.5	1.02	0.51
		(0.30)	(0.38)	[0.05]		(0.24)	(0.45)	[0.06]		(1.92)	(1.11)	[0.87]
Latin America and Caribbean	30	0.46	0.36	-0.10***	28	0.66	0.53	-0.13***	20	0.42	0.6	0.18
		(0.46)	(0.38)	[0.03]		(0.44)	(0.36)	[0.02]		(0.62)	(0.54)	[0.19]
Middle East and North Africa	14	0.24	0.28	0.03	13	0.56	0.45	-0.11*	7	0.11	0.7	0.59*
		(0.34)	(0.37)	[0.05]		(0.58)	(0.49)	[0.06]		(1.29)	(0.83)	[0.28]
South Asia	8	0.84	0.86	0.03	8	1.09	1.17	0.08	7	0.08	0.54	0.45
		(0.40)	(0.49)	[0.09]		(0.40)	(0.39)	[0.07]		(0.90)	(0.43)	[0.47]
Sub-Saharan Africa	45	0.70	0.74	0.04	46	0.32	0.40	0.08**	37	0.27	0.64	0.37**
		(0.59)	(0.57)	[0.03]		(0.36)	(0.43)	[0.03]		(1.02)	(0.65)	[0.17]

Notes: p-values: *<0.1, **<0.05, ***<0.01. Parentheses indicate standard deviation. Square brackets indicate standard error. Values are rounded and may not sum. [(+)] Sample years adjusted to account for data availability where needed.

Source: Authors' calculations based on World Bank (2016c).

	Primary school completion rate[+]			
	n	Mean rate pre-MDG	Mean rate post-MDG	Difference of mean
East Asia and Pacific	9	0.85	2.03	1.18**
		(1.06)	(1.35)	[0.46]
Europe and Central Asia	17	0.43	0.56	0.13
		(1.70)	(0.69)	[0.42]
Latin America and Caribbean	12	1.12	0.63	-0.50
		(1.26)	(0.58)	[0.35]
Middle East and North Africa	7	0.57	1.51	0.94
		(0.66)	(1.61)	[0.64]
South Asia	3	1.83	2.63	0.81
		(1.95)	(0.71)	[0.73]
Sub-Saharan Africa	30	0.34	1.6	1.27***
		(1.63)	(0.96)	[0.42]

Notes: p-values: *<0.1, **<0.05, ***<0.01. Parentheses indicate standard deviation. Square brackets indicate standard error. Values are rounded and may not sum.

[(+)] Sample years adjusted to account for data availability where needed.

Source: Authors' calculations based on World Bank (2016c).

D. Difference in mean rates of progress (t-test), gender parity, extreme income poverty, and natural capital

Gender parity in primary education - difference in annual absolute rate of progress pre- and post-MDGs (percentage point)[+]

	n	Mean rate pre-MDG	Mean rate post-MDG	Difference of mean
All developing countries	53	0.57	1.19	0.62
		(1.27)	(1.22)	[0.26]
Middle-income countries	16	0.13	0.71	0.57
		(0.77)	(1.25)	[0.45]
Low-income countries	37	0.76	1.40	0.64
		(1.41)	(1.16)	[0.32]
East Asia and Pacific	6	0.21	0.49	0.28
		(0.55)	(0.16)	[0.20]
Europe and Central Asia	2	-0.27	0.61	0.88*
		(0.41)	(0.24)	[0.12]
Latin America and Caribbean	4	-0.09	0.16	0.25
		(0.37)	(0.22)	[0.13]
Middle East and North Africa	7	0.7	0.58	-0.13
		(0.54)	(0.32)	[0.27]
South Asia	5	0.4	3.23	2.83
		(3.38)	(1.50)	[2.04]
Sub-Saharan Africa	29	0.79	1.31	0.52*
		(1.02)	(1.12)	[0.29]

Notes: p-values: *<0.1, **<0.05, ***<0.01. Parentheses indicate standard deviation. Square brackets indicate standard error. Values are rounded and may not sum. [(+)] Sample years adjusted to account for data availability where needed.

Source: Authors' calculations based on World Bank (2016c).

Extreme income poverty - difference in annual absolute rate of progress pre- and post-MDGs (percentage point)[+]

	n	Mean rate pre-MDG	Mean rate post-MDG	Difference of mean
All developing countries	36	0.29	1.02	0.73**
		(1.41)	(1.04)	[0.29]
Middle-income countries	25	0.08	0.70	0.62**
		(1.09)	(0.66)	[0.26]
Low-income countries	11	0.77	1.76	0.99
		(1.93)	(1.36)	[0.76]
East Asia and Pacific	4	1.63	1.38	-0.25
		(0.99)	(1.23)	[0.19]
Europe and Central Asia	9	-0.58	1.01	1.59**
		(0.93)	(1.20)	[0.59]
Latin America and Caribbean	14	-0.06	0.7	0.76*
		(1.15)	(0.53)	[0.43]
Middle East and North Africa	1	0.45	0.33	-0.12
South Asia	2	2.07	1.94	-0.13
		(0.99)	(0.43)	[0.40]
Sub-Saharan Africa	6	0.90	1.37	0.46
		(1.84)	(1.61)	[1.07]

Notes: p-values: *<0.1 **<0.05 ***<0.01. Parentheses indicate standard deviation. Square brackets indicate standard error. Values are rounded and may not sum.

[+]sample years adjusted to account for data availability where needed.

Source: Authors' calculations based on World Bank (2016c).

Natural capital - difference in annual absolute rate of progress pre- and post-MDGs (percentage point)

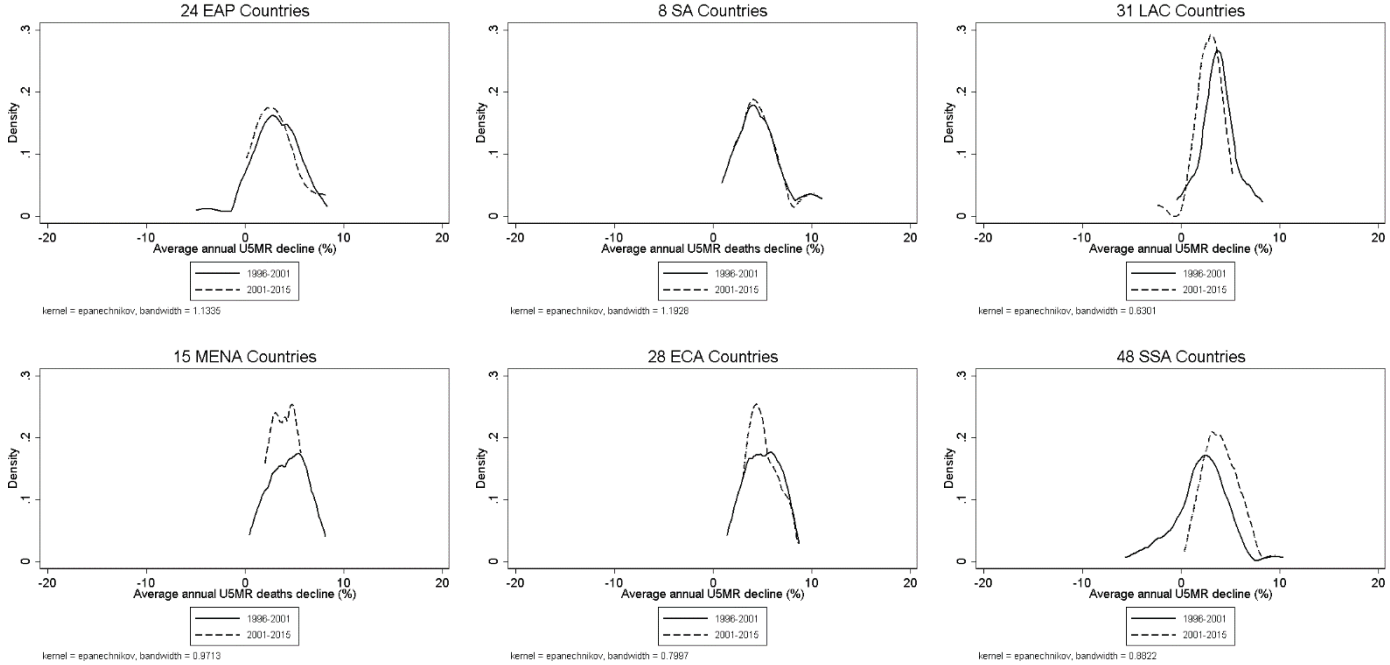
	Forest cover					Protected land area			
	n	Mean rate 1990-2000	Mean rate 2000-2015	Difference of mean		n	Mean rate 1990-2000	Mean rate 2000-2014	Difference of mean
All developing countries	150	-0.08 (0.35)	-0.05 (0.29)	0.03 [0.02]	All developing countries	154	0.30 (0.47)	0.28 (0.47)	-0.02 [0.05]
Middle-income countries	86	-0.01 (0.32)	0.00 (0.25)	0.01 [0.03]	Middle-income countries	89	0.32 (0.42)	0.31 (0.53)	0.00 [0.07]
Low-income countries	64	-0.18 (0.36)	-0.13 (0.31)	0.05* [0.03]	Low-income countries	48	0.27 (0.54)	0.23 (0.37)	-0.04 [0.08]
East Asia and Pacific	21	-0.09 (0.61)	-0.09 (0.43)	0.00 [0.10]	East Asia and Pacific	24	0.45 (0.56)	0.15 (0.16)	-0.29** [0.11]
Europe and Central Asia	28	0.04 (0.07)	0.11 (0.19)	0.07* [0.04]	Europe and Central Asia	28	0.32 (0.39)	0.48 (0.65)	0.15 [0.14]
Latin America and Caribbean	31	-0.15 (0.40)	-0.10 (0.33)	0.05 [0.04]	Latin America and Caribbean	31	0.39 (0.50)	0.23 (0.36)	-0.16 [0.11]
Middle East and North Africa	15	0.01 (0.03)	0.02 (0.03)	0.01 [0.01]	Middle East and North Africa	15	0.29 (0.64)	0.24 (0.60)	-0.06 [0.24]
South Asia	8	0.05 (0.51)	0.03 (0.19)	-0.01 [0.12]	South Asia	8	0.46 (0.75)	0.18 (0.30)	-0.29 [0.17]
Sub-Saharan Africa	47	-0.15 (0.24)	-0.13 (0.24)	0.02 [0.02]	Sub-Saharan Africa	48	0.13 (0.26)	0.29 (0.47)	0.16** [0.07]

Notes: p-values: *<0.1, **<0.05, ***<0.01. Parentheses indicate standard deviation. Square brackets indicate standard error. Values are rounded and may not sum.

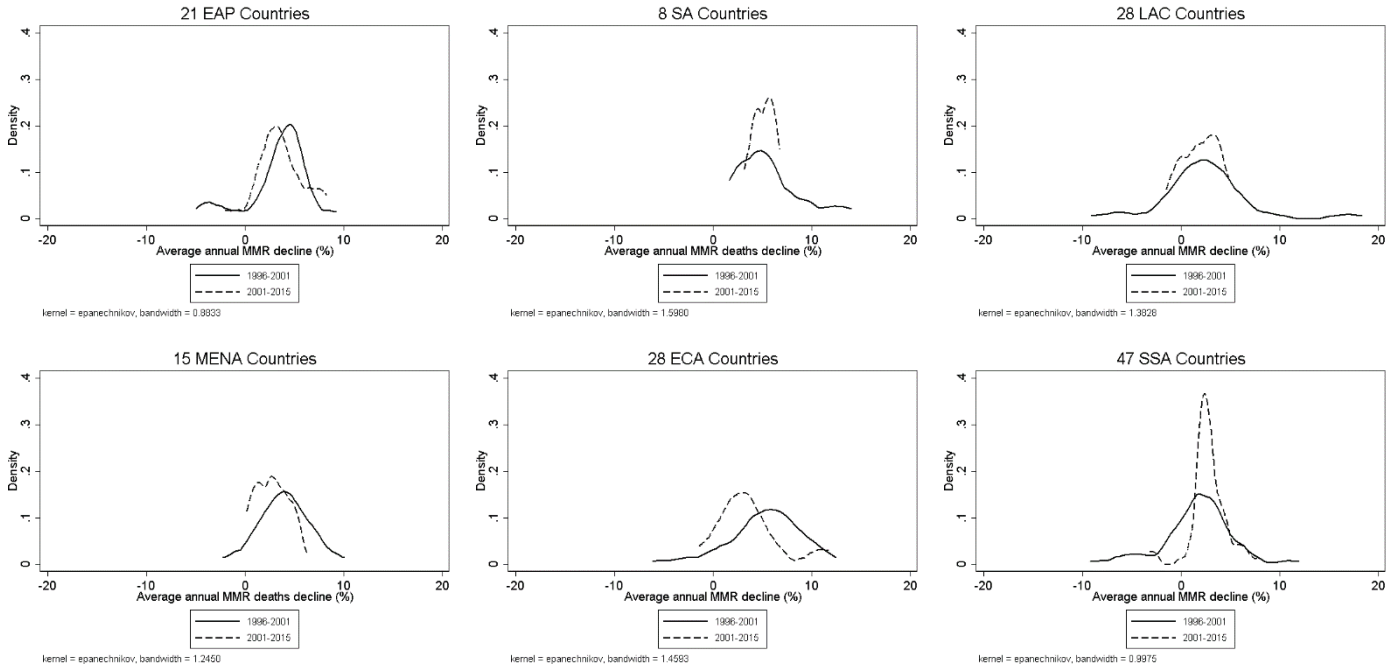
Source: Authors' calculations based on World Bank (2016c).

E. Kernel density, by region

Annual progress in reducing under-5 child mortality rate (deaths per 1,000 live births)
1996-2001 and 2001-2015



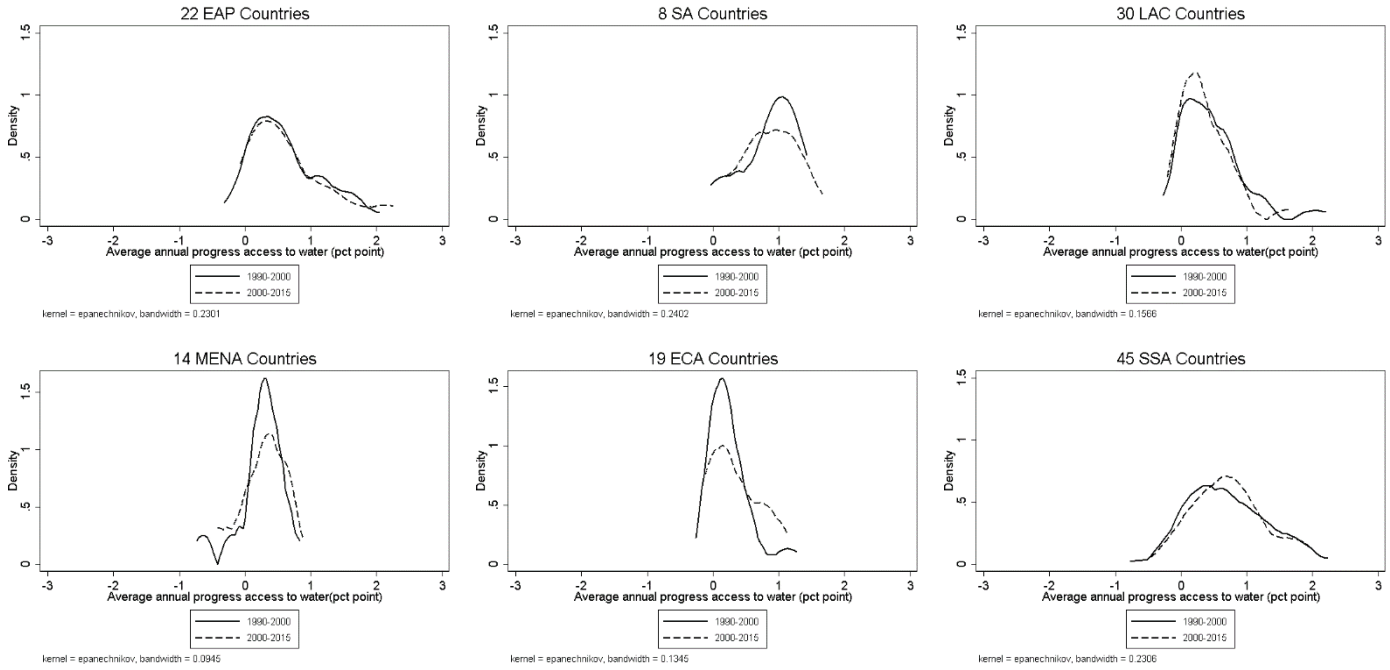
Annual progress in reducing maternal mortality ratio (deaths per 100,000 live births)
1996-2001 and 2001-2015



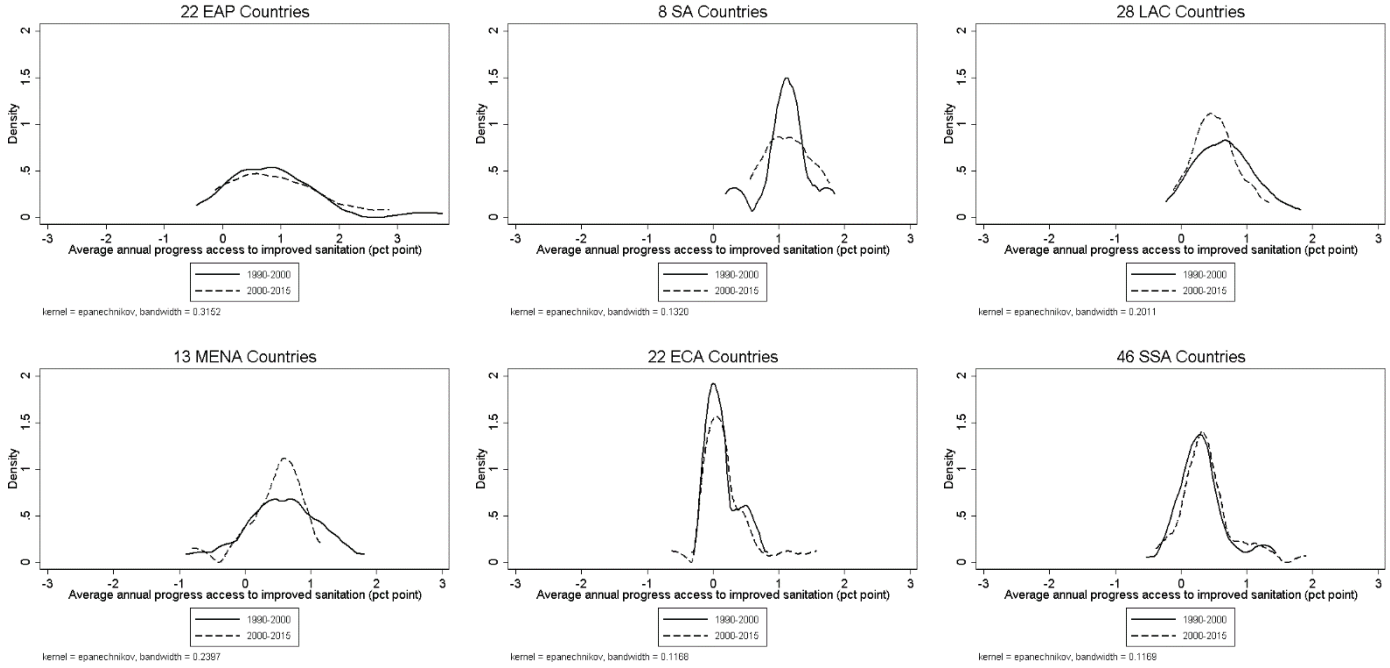
Notes: EAP=East Asia and the Pacific; SA=South Asia; LAC=Latin America and the Caribbean; MENA=Middle East and North Africa; ECA=Europe and Central Asia; SSA=Sub-Saharan Africa.

Sources: Authors' calculations based on U.N.-IGME (2015), World Bank (2016c).

Annual progress in increasing access to improved water source, 1990-2000 and 2000-2015*

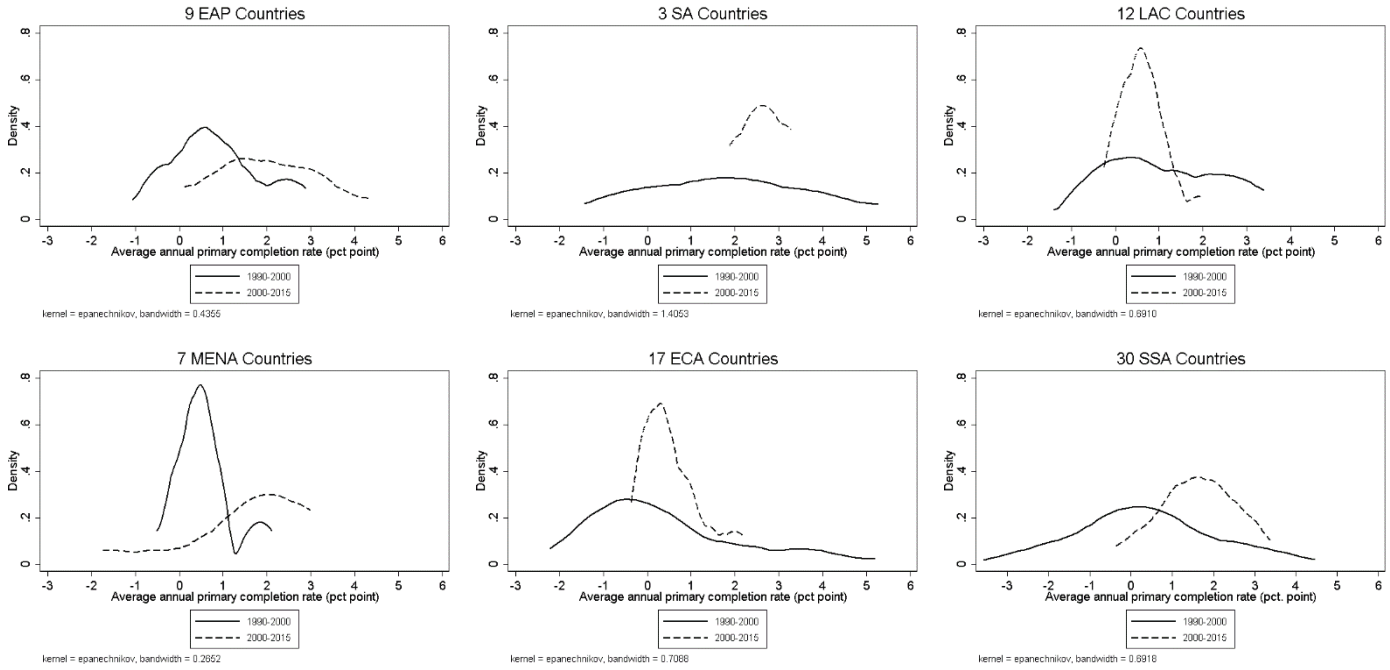


Annual progress in increasing access to improved sanitation facilities, 1990-2000 and 2000-2015*

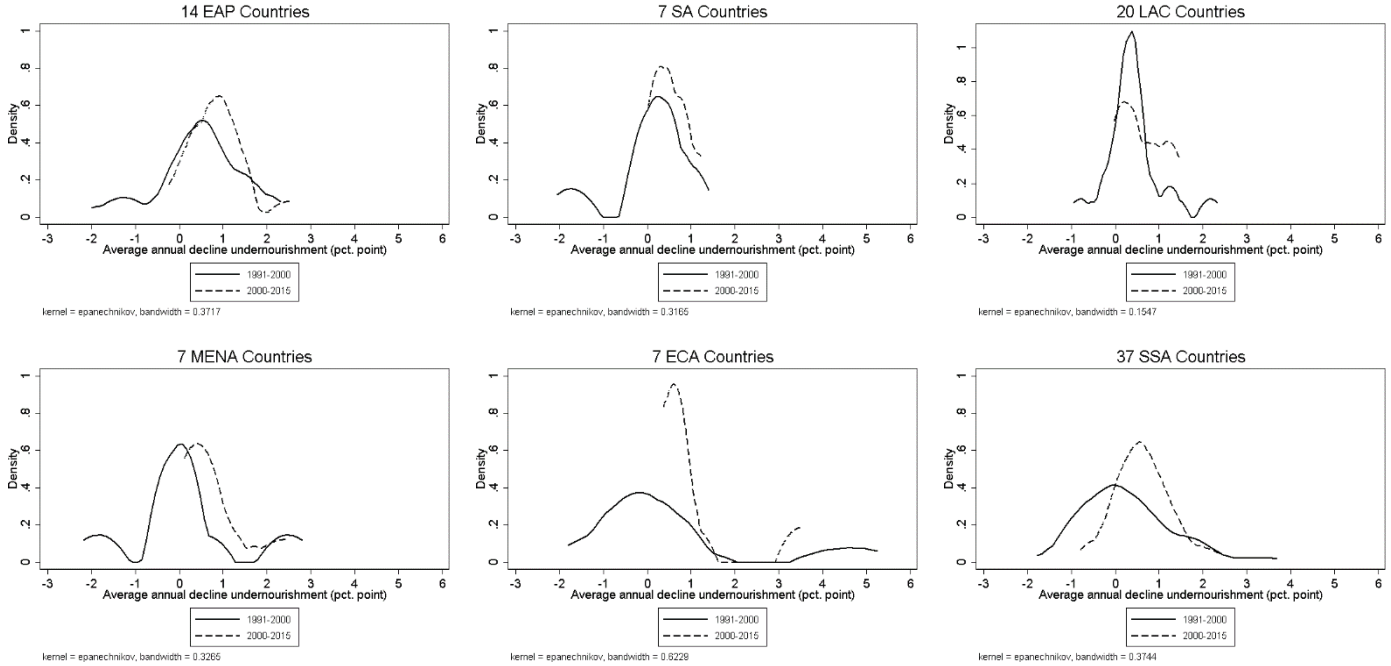


Notes: * Time periods adjusted where needed based on data gaps. EAP=East Asia and the Pacific; SA=South Asia; LAC=Latin America and the Caribbean; MENA=Middle East and North Africa; ECA=Europe and Central Asia; SSA=Sub-Saharan Africa.
Source: Authors' calculations based on World Bank (2016c).

Primary school completion rate, 1990-2000 and 2000-2015*



Annual progress in reducing undernourishment, 1991-2000 and 2000-2015



Notes: * Time periods adjusted where needed based on data gaps. EAP=East Asia and the Pacific; SA=South Asia; LAC=Latin America and the Caribbean; MENA=Middle East and North Africa; ECA=Europe and Central Asia; SSA=Sub-Saharan Africa. *Source:* Authors' calculations based on World Bank (2016c).

F. Incremental lives saved and improved, by region

Incremental lives saved due to acceleration in progress

	Cumulative (2001-2015)						
	All Developing	East Asia & Pacific	South Asia	Latin America & Caribbean	Middle East & North Africa	Europe & Central Asia	Sub-Saharan Africa
Child mortality	8,834,000 to 17,264,000	890,000 to 2,145,000	991,000 to 2,055,000	(269,000) to (177,000)	14,000 to 97,000	162,000 to 541,000	7,047,000 to 12,603,000
Maternal mortality	396,000 to 648,000	(7,000) to 20,000	73,000 to 172,000	(8,000) to (1,000)	(12,000) to (11,000)	6,000 to 10,000	316,000 to 486,000
Tuberculosis deaths	3,133,000	1,228,000	1,557,000	95,000	26,000	223,000	4,000
HIV/AIDS deaths	8,750,000	602,000	532,000	569,000	20,400	198,000	6,828,000
TOTAL LIVES SAVED	**21,113,000** to **29,795,000**	**2,713,000** to **3,995,000**	**3,153,000** to **4,316,000**	**387,000** to **486,000**	**48,400** to **132,400**	**589,000** to **972,000**	**14,195,000** to **19,921,000**

Notes: Calculations based on extrapolations of pre-MDG trends compared to actual values from 2001 to 2015. Parentheses denote negative (fewer) lives saved compared to trend. Child and maternal mortality ranges based on Counterfactual A (trend extrapolated from 1990 to 2000) and Counterfactual B (extrapolated from 1996 to 2001). Values for TB assume deaths in each country remained constant from 2001 onward. HIV/AIDS based on deaths averted due to antiretroviral therapy (ART), with disaggregation weighted by distribution of people with access to ART.

Sources: Authors' calculations based on U.N.-IGME (2015), World Bank (2016c), WHO (2016b), UNAIDS (2016b, c).

Incremental lives improved due to acceleration in progress

	In 2015 (or most recent available year)						
	All Developing	East Asia & Pacific	South Asia	Latin America & Caribbean	Middle East & North Africa	Europe & Central Asia	Sub-Saharan Africa
Improved water	(98,832,000)	(69,522,000)	(21,625,000)	(10,142,000)	(1,294,000)	1,129,000	2,622,000
Improved sanitation	18,693,000	2,551,000	21,578,000	(16,642,000)	(7,008,000)	1,287,000	16,928,000
Undernourishment	(168,699,000) to (100,465,000)	(73,342,000) to 35,676,000	(131,487,000) to (127,395,000)	(4,171,000) to 7,808,000	4,722,000 to 16,396,000	N/A	(15,916,000) to 2,726,000

Notes: Calculations based on extrapolations of pre-MDG trends compared to actual values up to 2015. Parentheses denote negative (fewer) lives improved compared to trend. Totals for water and sanitation based on country-level extrapolation from appoximately 1990 to 2000/2001. Ranges for undernourishment based on Counterfactual A (trends extrapolated from 1991 to 2000) and Counterfactual B (extrapolated from 1996 to 2001) using World Bank regional and developing country aggregates, as classified in 2016. For undernourishment, "all developing" and sub-Saharan Africa match totals reported in paper. Regions calculated separately and do not sum to "all developing". See Appendix 2 for details. "N/A" indicates data not available for calculation.

Source: Authors' calculations based on World Bank (2016c).

	In 2013 (or most recent available year)						
	All Developing	East Asia & Pacific	South Asia	Latin America & Caribbean	Middle East & North Africa	Europe & Central Asia	Sub-Saharan Africa
Extreme income poverty	470,580,000 to 610,172,000	(65,470,000) to 126,160,000	301,250,000 to 340,630,000	30,960,000 to 33,070,000	N/A	6,220,000 to 29,150,000	101,680,000 to 149,660,000

Notes: Calculations based on extrapolations of pre-MDG trends compared to actual reported values up to 2013. Parentheses denote negative (fewer) lives improved compared to trends. Ranges based on Counterfactual A (trends extrapolated from 1990 to 2002) and Counterfactual B (extrapolated from 1996 to 2002) using World Bank regional and developing country aggregates, as classified in 2016. "All developing" and sub-Saharan Africa match totals reported in paper. Regions calculated separately and do not sum to "all developing". See Appendix 2 for details. "N/A" indicates data not available for calculation.

Source: Authors' calculations based on World Bank (2016b).

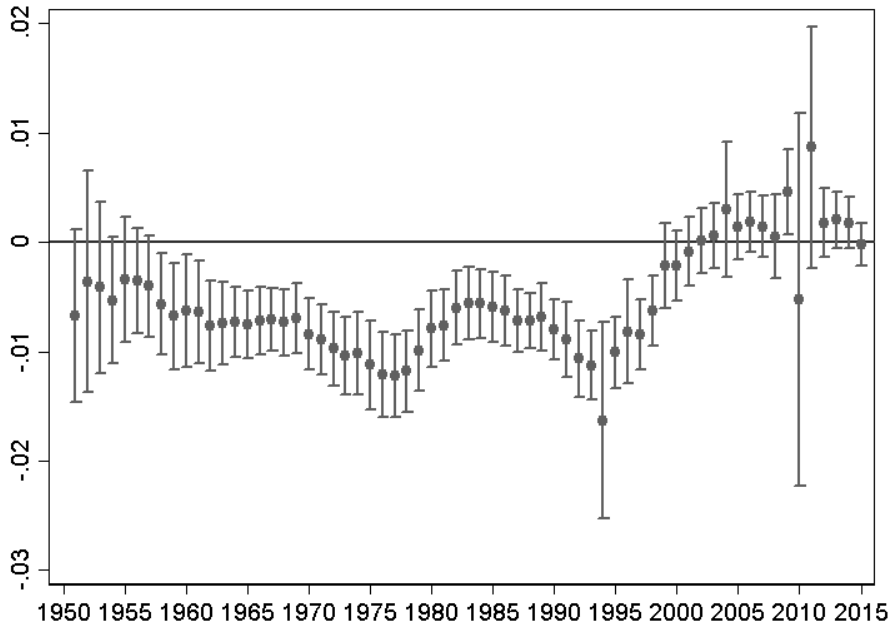
Appendix 5: Testing for unconditional convergence in child mortality

McArthur (2014) presented tests for unconditional convergence in under-5 child mortality rates (CMR) through to 2013. The results are updated here using more recent UG-IGME (2015) data, which include updates up to 2015. The estimate of convergence is based on a simple regression of the following form:

$$\textit{Proportional rate of change in } CMR_{i,t-1 \text{ to } t} = alpha + Beta * ln(CMR)_{i,t-1} + epsilon_{i,t} \qquad (1)$$

where the *i* subscript represents country observations, *t* represents time periods, *alpha* is an intercept term, and *epsilon* is a normally distributed random error term. The Beta coefficient is applied to the natural log of the CMR in the previous year. If Beta is negative and statistically significant then this means that, on average, countries' CMRs are divergent and not on track ever to become equal. Note that, when Beta is negative, average absolute CMR differences between high and low-mortality countries might still be declining, but the ratio between the high and low mortality rates is growing. When Beta is zero, average proportionate rates of change are similar across countries and the ratio between high and low-mortality countries remains constant. When Beta is positive, countries with high CMR values are on average seeing faster annual rates of progress than countries with low CMR, implying convergence – their CMR trajectories are on course to cross paths at some point in the future, and the ratio between high and low-mortality countries is shrinking.

Year-to-year test for unconditional convergence in child mortality rates: regression coefficient & 95% confidence intervals

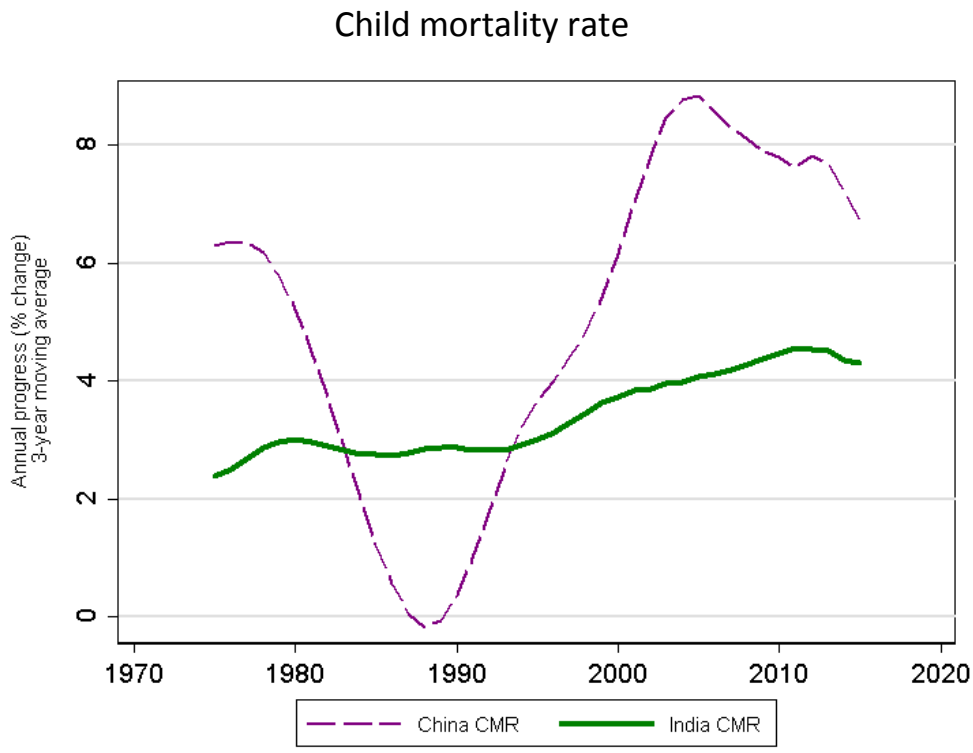


Source: Authors' calculations based on McArthur (2014) and U.N.-IGME (2015).

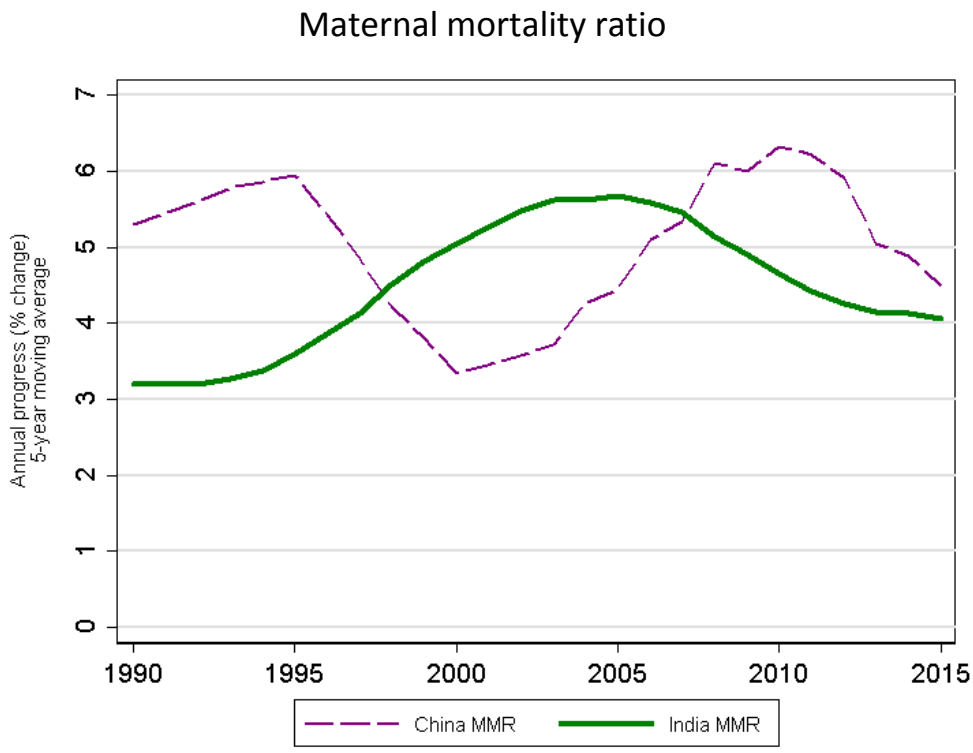
The above figure presents the results for Beta from a series of annual regressions for the period from 1950 to 2015, where the sample is 173 UN member states with population greater than 200,000 in 2000. The circles represent the point estimates for Beta and the vertical bars represent 95 percent confidence intervals. Prior to the late-1990s, Beta was consistently negative, meaning that countries with higher child mortality experienced slower average progress. In *t* = 1999, Beta was still negative but became statistically indistinguishable from zero, meaning that average rates of progress are similar at all levels of mortality. But Beta then becomes slightly positive as of *t* = 2002, although not statistically significant until *t* = 2009, marking the first year on record to exhibit a trend of formal U5MR convergence. The regression for *t* = 2010 shows a negative shock due to the earthquake in Haiti, and then the following years through to 2014 again show a positive Beta, although slightly short of 95 percent statistical significance.

Appendix 6: Supplementary Figures

A. Child and maternal mortality: annual proportional rate of progress in China and India

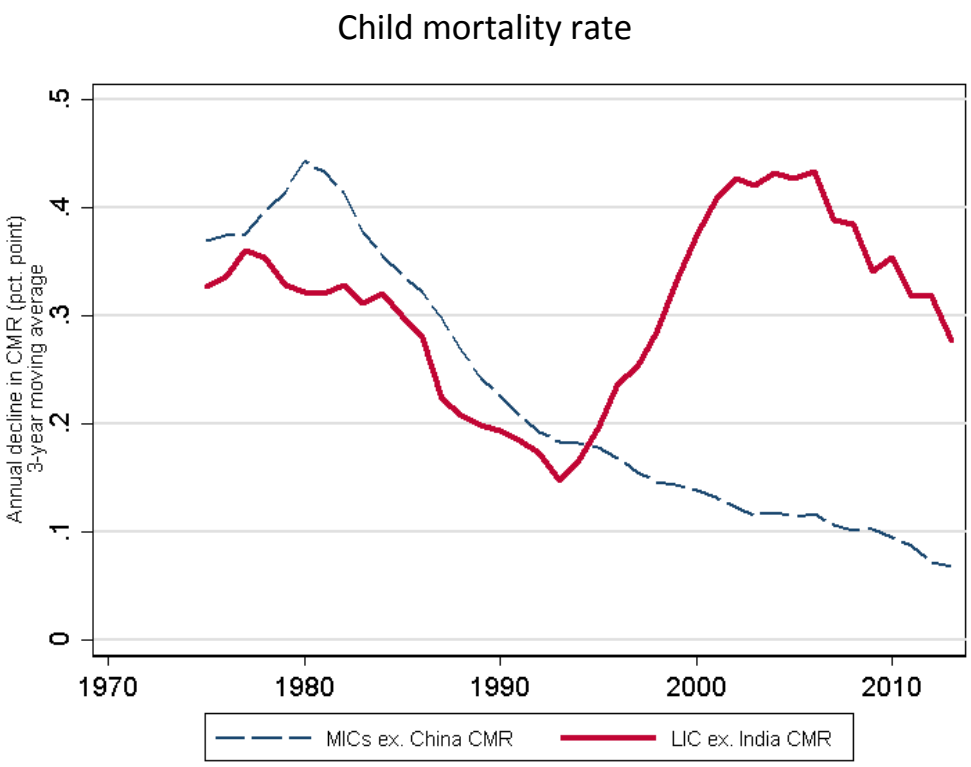


Source: Authors' calculations based on U.N.-IGME (2015).

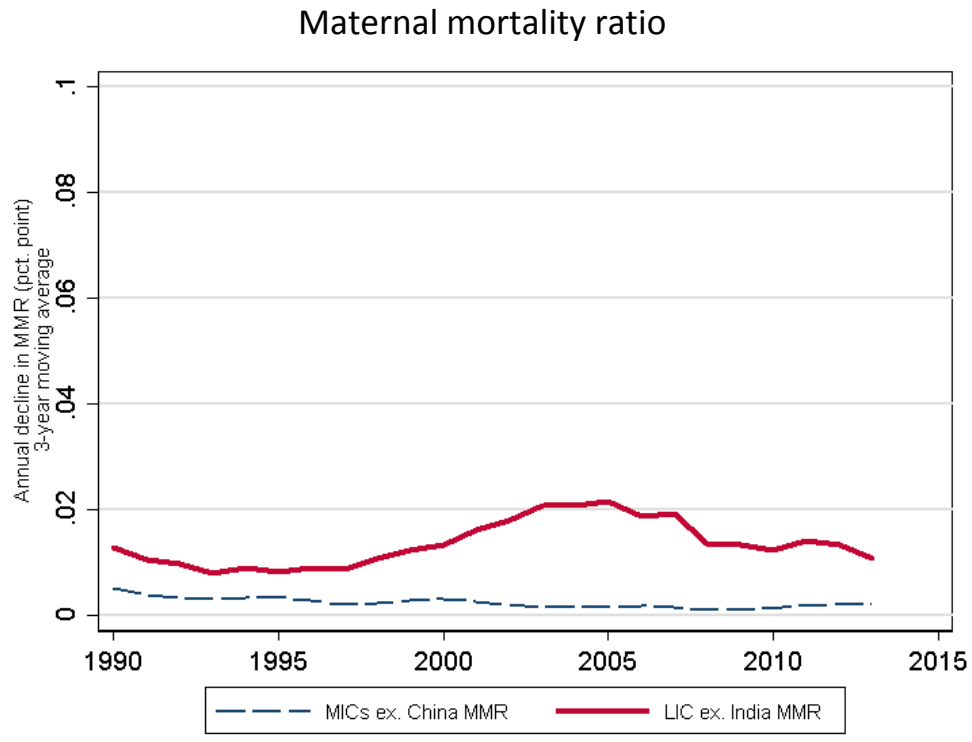


Source: Authors' calculations based on World Bank (2016c).

B. Child and maternal mortality: absolute percentage point rate of progress

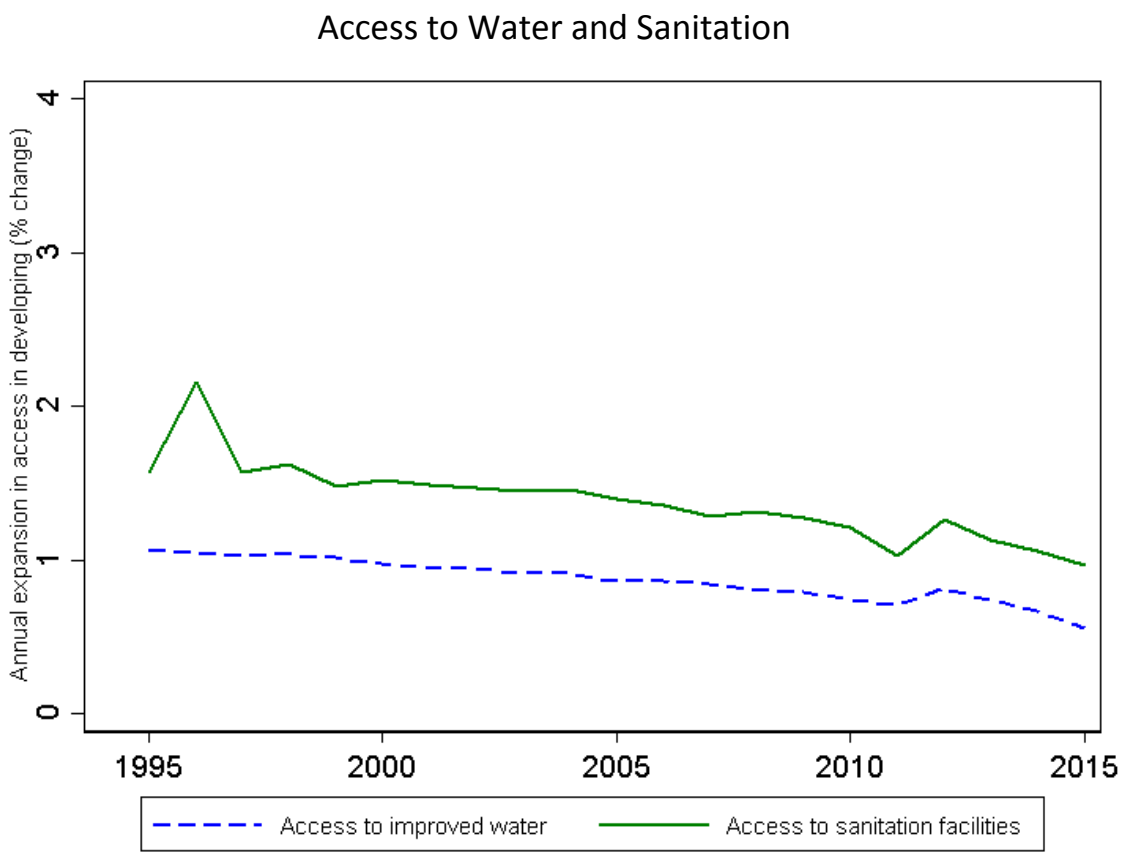


Source: Authors' calculations based on U.N.-IGME (2015).



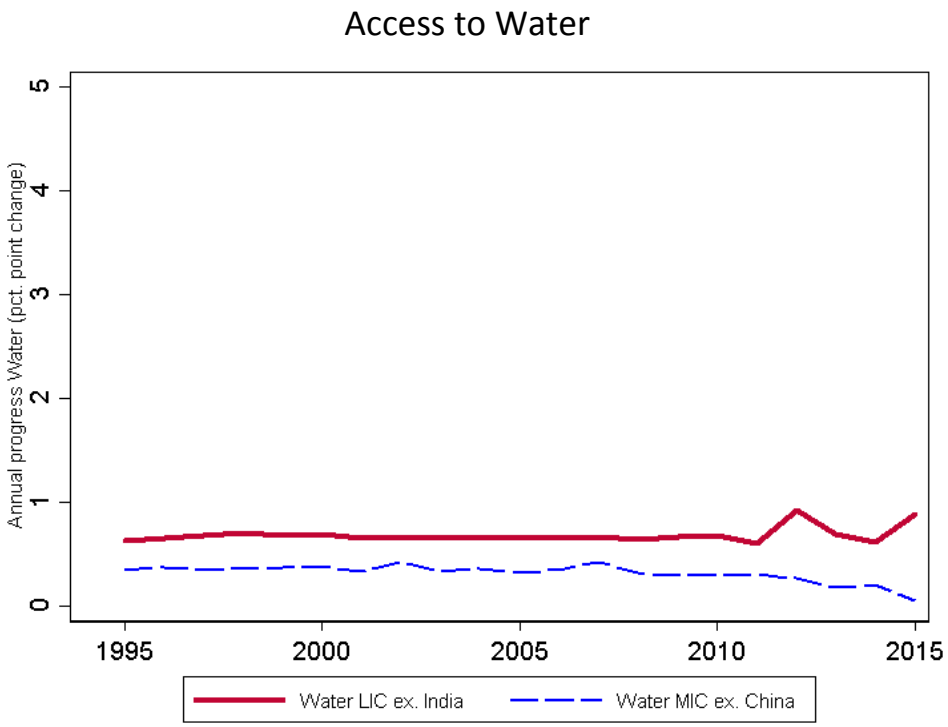
Source: Authors' calculations based on World Bank (2016c).

C. Water and sanitation: annual proportional rate of change

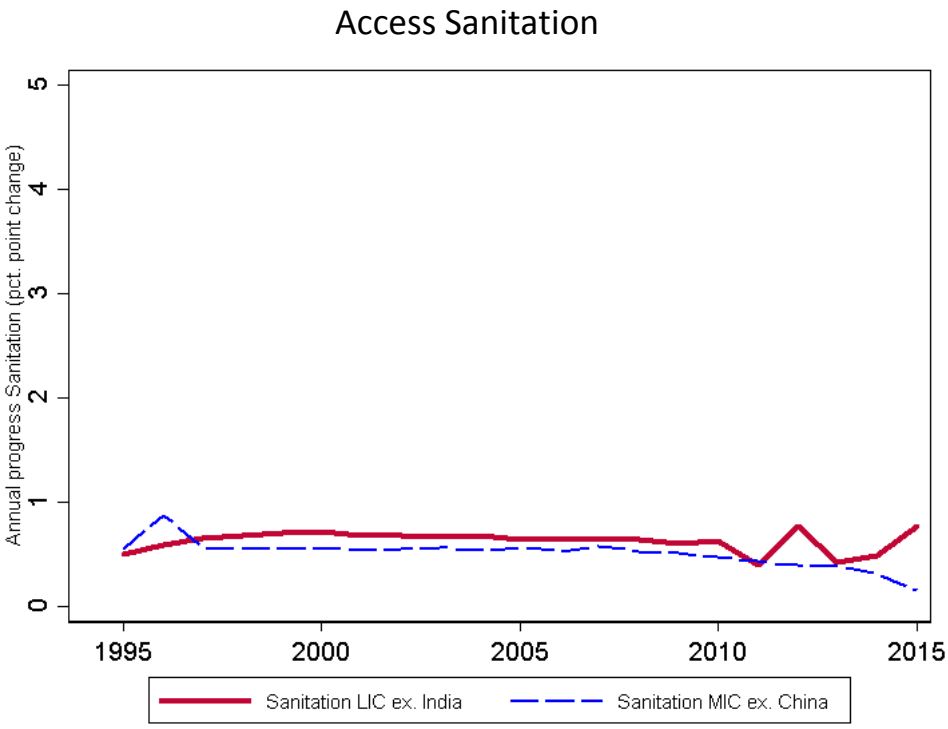


Source: Authors' calculations based on World Bank (2016c).

D. Water and sanitation: annual absolute rate of change, by income group

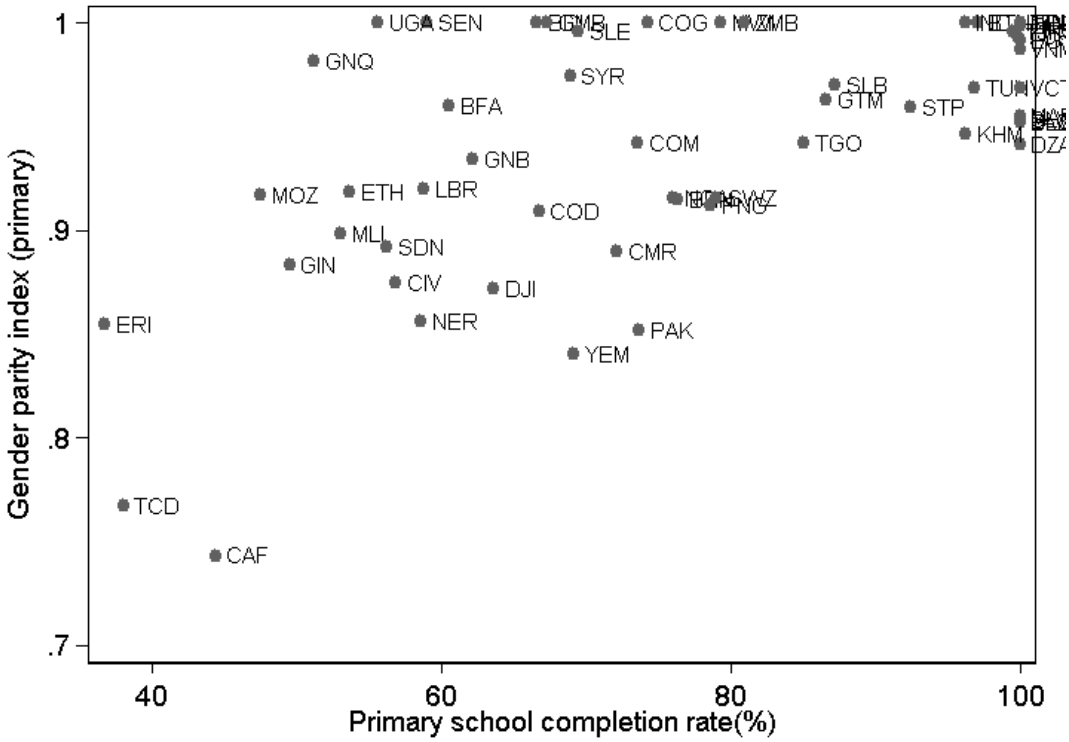


Source: Authors' calculations based on World Bank (2016c).



Source: Authors' calculations based on World Bank (2016c).

E. Primary completion rates mapped to gender parity index in enrollment, most recent available year



Source: Authors' calculations based on World Bank (2016c).

F. Forest cover: net change 1990-2015 (km^2)

	Average annual net change 1990-2000	Average annual net change 2000-2015	Total net change 1990-2015
Aggregate			
Developing countries	(82,000)	(47,000)	(1,523,000)
Geography			
China	20,000	21,000	512,000
India	1,000	4,000	67,000
East Asia & Pacific ex. China	(23,000)	(8,000)	(346,000)
Europe & Central Asia	2,000	7,000	125,000
Latin America & Caribbean	(45,000)	(35,000)	(972,000)
Middle East & North Africa	500	2,000	32,000
South Asia ex. India	(1,000)	(1,000)	(23,000)
Sub-Saharan Africa	(37,000)	(36,000)	(918,000)
Income Group			
Low-income ex. India	(63,000)	(44,000)	(1,288,000)
Middle-income ex. China	(41,000)	(27,000)	(814,000)

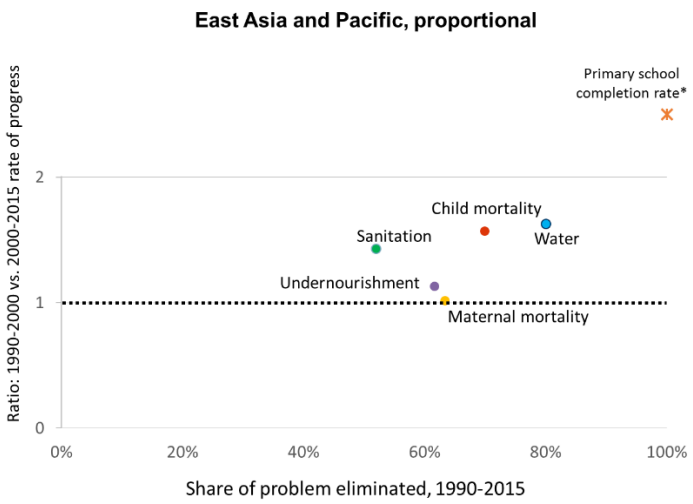
Note: Numbers may not sum due to rounding.
Source: Authors' calculations based on World Bank (2016c).

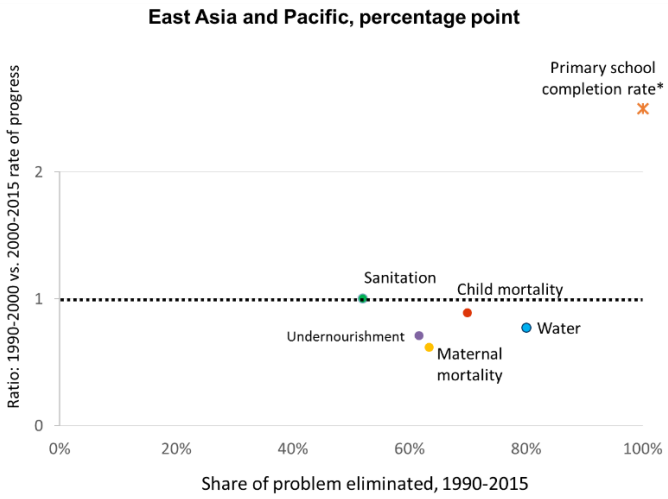
G. Protected land area: net change 1990-2014 (km^2)

	Average annual net change 1990-2000	Average annual net change 2000-2014	Total net change 1990-2014
Aggregate			
Developing countries	347,000	256,000	7,053,000
Geography			
China	18,000	10,000	326,000
India	1,000	600	19,000
East Asia & Pacific ex. China	33,000	9,000	456,000
Europe & Central Asia	106,000	22,000	1,359,000
Latin America & Caribbean	111,000	127,000	2,896,000
Middle East & North Africa	60,000	20,000	881,000
South Asia ex. India	3,000	1,000	46,000
Sub-Saharan Africa	16,000	65,000	1,070,000
Income Group			
Low-income ex. India	44,000	58,000	1,247,000
Middle-income ex. China	284,000	187,000	5,460,000

Note: Numbers may not sum due to rounding.
Source: Authors' calculations based on World Bank (2016c).

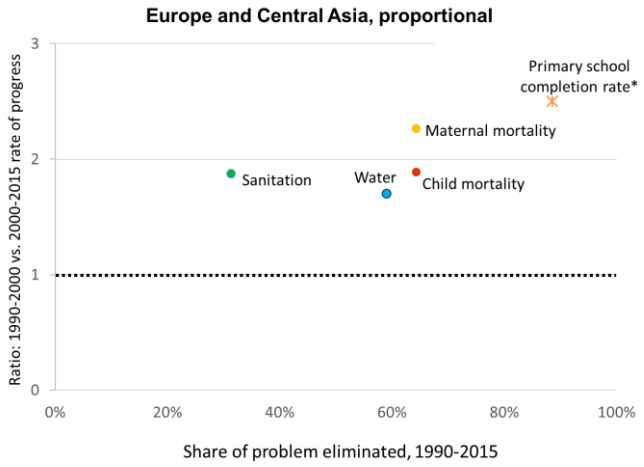
H. Synthesizing regional MDG outcomes by proportional vs. absolute rate of progress

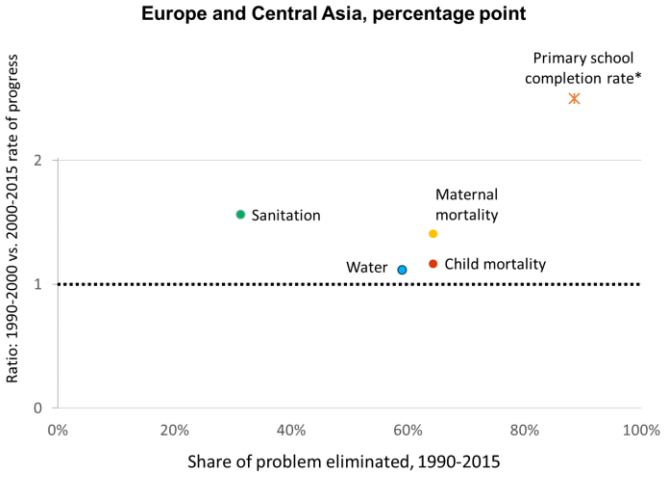




Indicator	Remaining problem (%) 1990	2000	2015	Share of problem eliminated (%) 1990-2015	Rate of progress (proportional, %) 1990-2000	2000-2015	Ratio pre/post	Rate of progress (pct. point) 1990-2000	2000-2015	Ratio pre/post
Primary school completion rate	1.4	9.8	0.0	100.0	-21.1	46.5	*	-0.8	0.9	*
Sanitation	51.0	40.4	24.5	52.0	2.3	3.3	1.4	1.1	1.1	1.0
Water	31.0	19.5	6.2	80.0	4.5	7.4	1.6	1.1	0.9	0.8
Maternal mortality ratio	0.17	0.11	0.06	63.3	3.9	4.0	1.0	0.006	0.003	0.6
Child mortality rate	5.9	4.1	1.8	69.8	3.5	5.5	1.6	0.2	0.2	0.9
Undernourishment	25.7	18.4	9.9	61.6	3.6	4.1	1.1	0.8	0.6	0.7

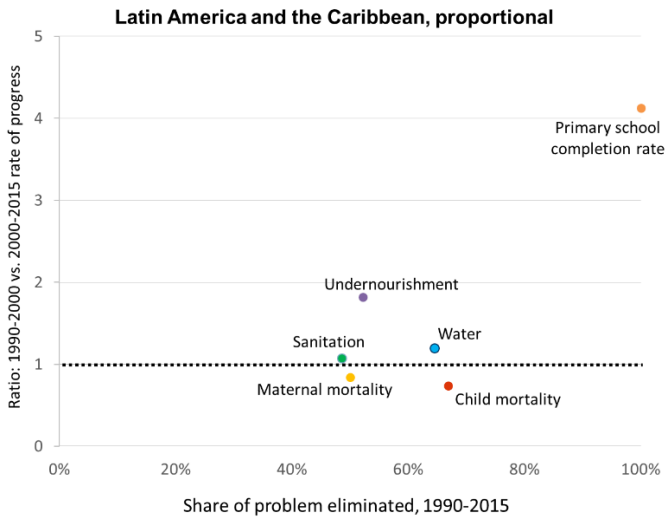
** Progress ratio not calculated for primary school completion because rate flips from negative to positive.*

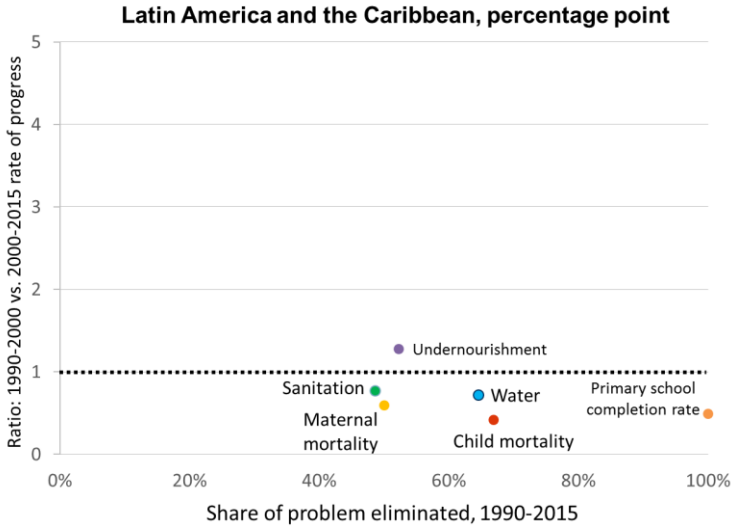




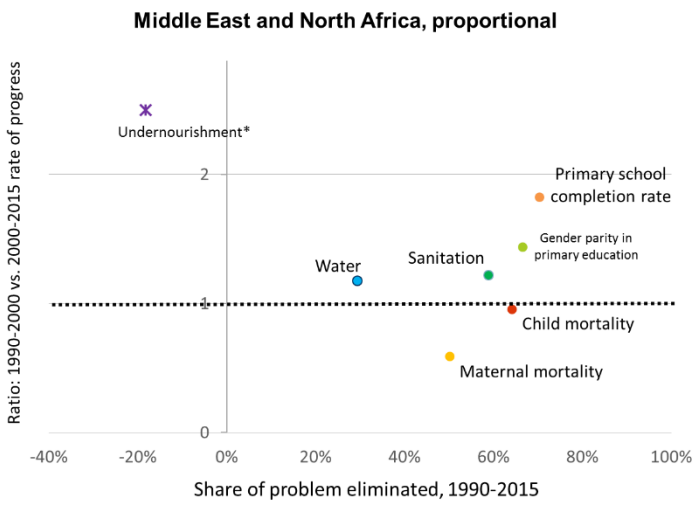
Indicator	Remaining problem (%) 1990	2000	2015	Share of problem eliminated (%) 1990-2015	Rate of progress (proportional, %) 1990-2000	2000-2015	Ratio pre/post	Rate of progress (pct. point) 1990-2000	2000-2015	Ratio pre/post
Primary school completion rate	4.0	5.8	0.5	88.5	-3.8	17.8	*	-0.2	0.4	*
Sanitation	17.8	16.1	12.2	31.3	1.0	1.8	1.9	0.2	0.3	1.6
Water	8.7	6.8	3.6	59.0	2.5	4.2	1.7	0.2	0.2	1.1
Maternal mortality ratio	0.06	0.05	0.02	64.3	2.3	5.2	2.3	0.001	0.002	1.4
Child mortality rate	4.5	3.4	1.6	64.3	2.6	5.0	1.9	0.1	0.1	1.2
Undernourishment	..	..	..	..	..	..	..	..	..	..

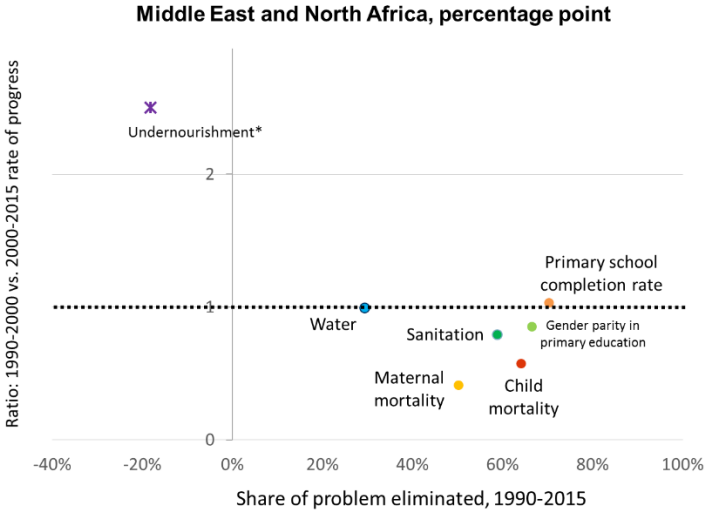
** Progress ratio not calculated for primary school completion because rate flips from negative to positive.*





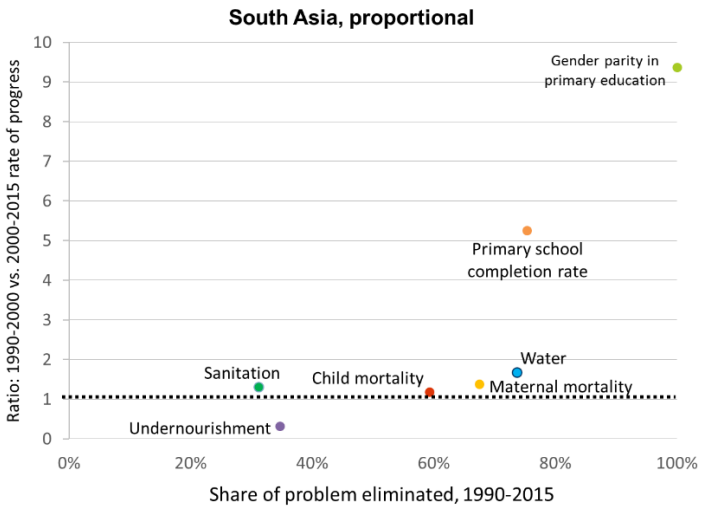
Indicator	Remaining problem (%) 1990	2000	2015	Share of problem eliminated (%) 1990-2015	Rate of progress (proportional, %) 1990-2000	2000-2015	Ratio pre/post	Rate of progress (pct. point) 1990-2000	2000-2015	Ratio pre/post
Primary school completion rate	10.5	4.1	0.0	100.0	9.0	37.1	4.1	0.6	0.3	0.5
Sanitation	33.0	25.6	16.9	48.6	2.5	2.7	1.1	0.7	0.6	0.8
Water	15.1	10.4	5.4	64.5	3.6	4.3	1.2	0.5	0.3	0.7
Maternal mortality ratio	0.14	0.10	0.07	50.0	3.0	2.5	0.8	0.004	0.002	0.6
Child mortality rate	5.4	3.2	1.8	66.9	5.1	3.8	0.7	0.2	0.1	0.4
Undernourishment	16.0	13.3	7.6	52.3	2.0	3.6	1.8	0.3	0.4	1.3

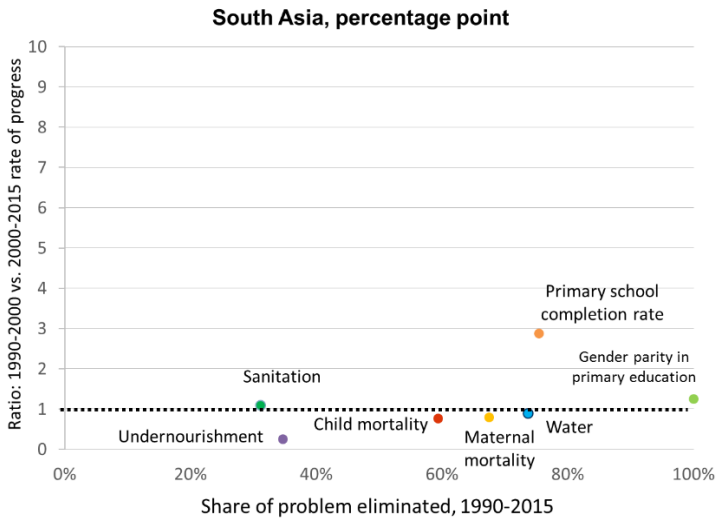




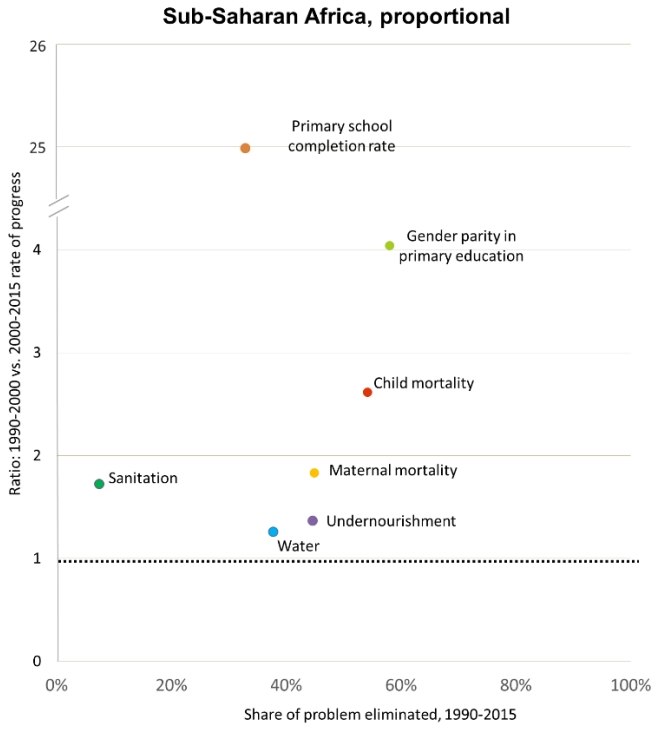
Indicator	Remaining problem (%) 1990	2000	2015	Share of problem eliminated (%) 1990-2015	Rate of progress (proportional, %) 1990-2000	2000-2015	Ratio pre/post	Rate of progress (pct. point) 1990-2000	2000-2015	Ratio pre/post
Gender parity in primary education	16.2	11.1	5.4	66.5	3.7	5.4	1.4	0.5	0.4	0.9
Primary school completion rate	23.9	16.8	7.1	70.3	3.5	6.4	1.8	0.7	0.7	1.0
Sanitation	28.5	20.8	11.7	58.9	3.1	3.8	1.2	0.8	0.6	0.8
Water	13.1	11.6	9.3	29.3	1.2	1.5	1.2	0.2	0.2	1.0
Maternal mortality ratio	0.17	0.12	0.08	50.1	3.6	2.1	0.6	0.005	0.002	0.4
Child mortality rate	6.7	4.4	2.4	64.1	4.1	3.9	1.0	0.2	0.1	0.6
Undernourishment	7.3	9.4	8.7	-18.2	-2.8	0.5	*	-0.2	0.0	*

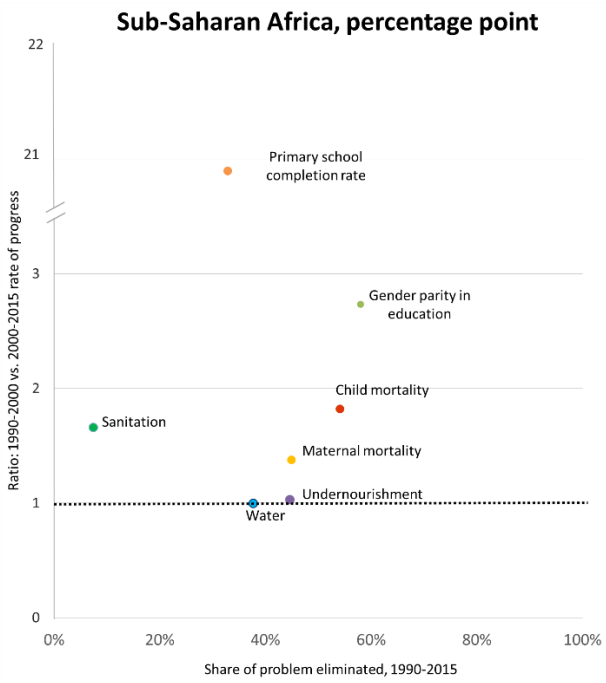
** Progress ratio not calculated for undernourishment because rate flips from negative to positive.*





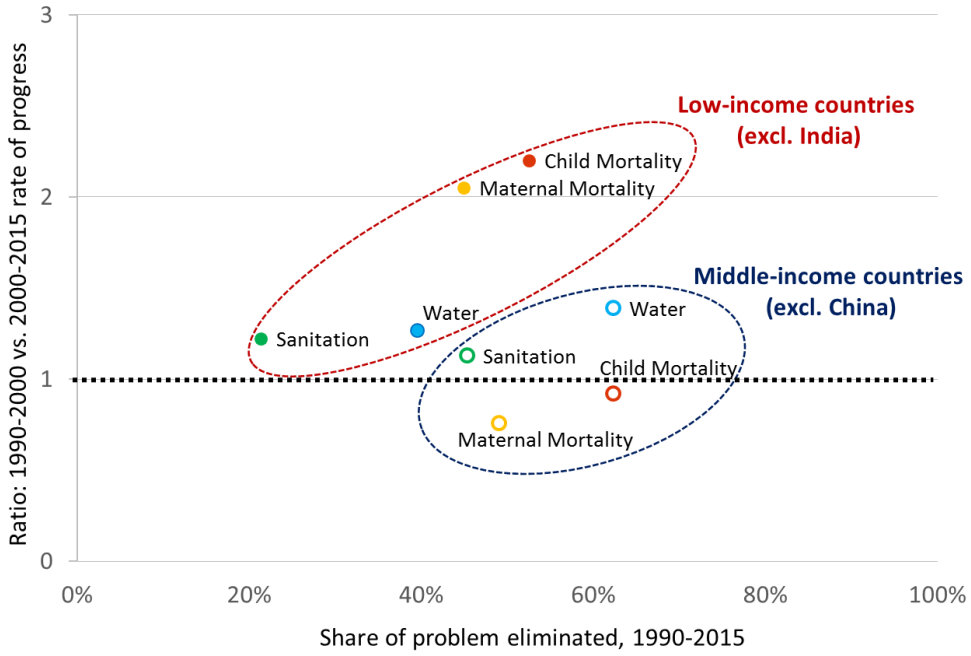
Indicator	Remaining problem (%)			Share of problem eliminated (%)	Rate of progress (proportional, %)			Rate of progress (pct. point)		
	1990	*2000*	*2015*	*1990-2015*	*1990-2000*	*2000-2015*	*Ratio pre/post*	*1990-2000*	*2000-2015*	*Ratio pre/post*
Gender parity in primary education	27.0	16.8	0.0	100.0	4.6	43.5	9.4	1.0	1.3	1.3
Primary school completion rate	36.2	30.1	8.9	75.3	1.8	9.6	5.3	0.6	1.8	2.9
Sanitation	80.2	70.7	55.2	31.2	1.3	1.6	1.3	1.0	1.0	1.1
Water	28.9	19.8	7.6	73.7	3.7	6.2	1.7	0.9	0.8	0.9
Maternal mortality ratio	0.56	0.39	0.18	67.5	3.6	4.9	1.4	0.017	0.014	0.8
Child mortality rate	12.9	9.4	5.3	59.3	3.2	3.8	1.2	0.4	0.3	0.8
Undernourishment	24.8	18.8	16.2	34.7	3.1	1.0	0.3	0.7	0.2	0.3





Indicator	Remaining problem (%)			Share of problem eliminated (%)	Rate of progress (proportional, %)			Rate of progress (pct. point)		
	1990	*2000*	*2015*	*1990-2015*	*1990-2000*	*2000-2015*	*Ratio pre/post*	*1990-2000*	*2000-2015*	*Ratio pre/post*
Gender parity in primary education	17.0	14.9	7.2	58.0	1.4	5.5	4.0	0.2	0.6	2.7
Primary school completion rate	46.0	45.4	30.9	32.8	0.1	2.9	25.0	0.1	1.1	20.9
Sanitation	76.2	74.6	70.6	7.4	0.2	0.4	1.7	0.2	0.3	1.7
Water	53.4	45.3	33.3	37.7	1.6	2.0	1.3	0.8	0.8	1.0
Maternal mortality ratio	0.99	0.85	0.55	44.8	1.6	2.9	1.8	0.014	0.020	1.4
Child mortality rate	18.1	15.5	8.3	54.1	1.6	4.1	2.6	0.3	0.5	1.8
Undernourishment	33.4	27.9	18.5	44.6	2.0	2.7	1.4	0.6	0.6	1.0

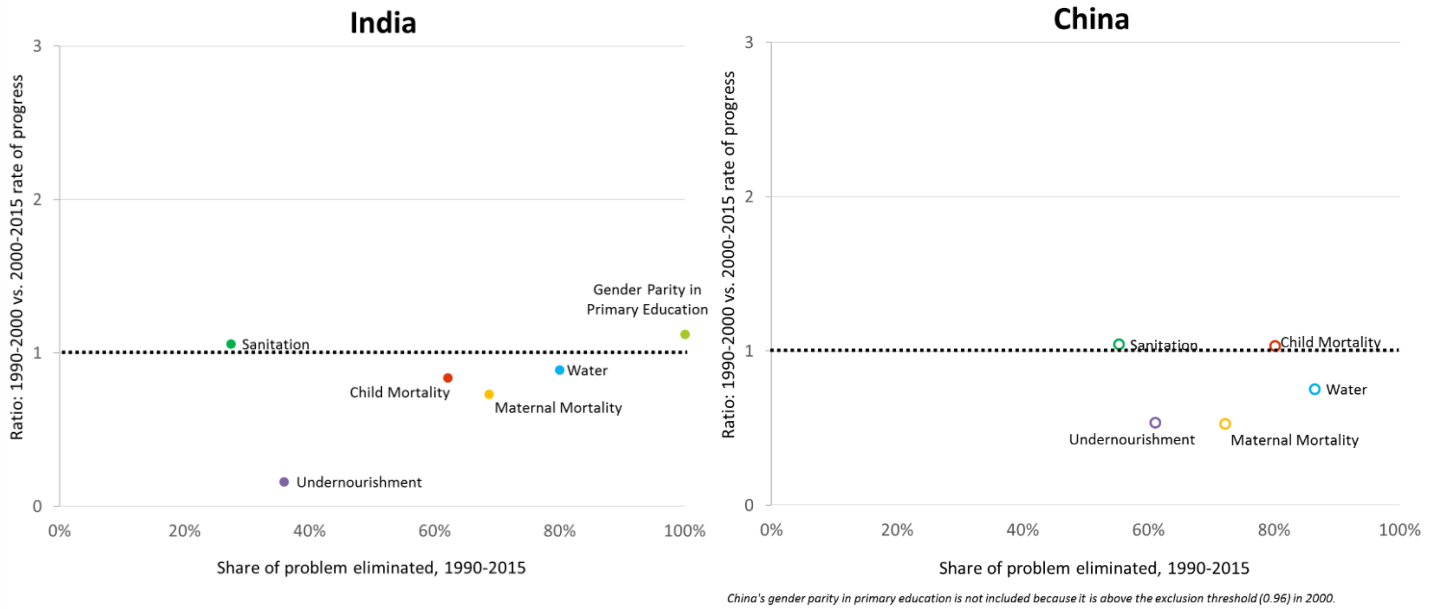
I. Synthesizing MDG outcomes for income groups by annual absolute rate of progress (percentage point)



LIC excl. India	Remaining problem (%)			Share of problem eliminated (%)	Rate of progress (proportional, %)			Rate of progress (pct. point)		
Indicator	*1990*	*2000*	*2015*	*1990-2015*	*1990-2000*	*2000-2015*	*Ratio pre/post*	*1990-2000*	*2000-2015*	*Ratio pre/post*
Sanitation	66.9	61.5	52.6	21.4	0.8	1.0	1.2	0.5	0.6	1.1
Water	39.1	32.9	23.6	39.5	1.7	2.2	1.3	0.6	0.6	1.0
Maternal mortality ratio	0.74	0.64	0.41	44.9	1.4	3.0	2.1	0.010	0.016	1.5
Child mortality rate	14.8	12.5	7.0	52.5	1.7	3.7	2.2	0.2	0.4	1.6

MIC excl. China	Remaining problem (%)			Share of problem eliminated (%)	Rate of progress (proportional, %)			Rate of progress (pct. point)		
Indicator	*1990*	*2000*	*2015*	*1990-2015*	*1990-2000*	*2000-2015*	*Ratio pre/post*	*1990-2000*	*2000-2015*	*Ratio pre/post*
Sanitation	26.7	21.4	14.6	45.3	2.2	2.5	1.1	0.5	0.5	0.8
Water	12.6	9.2	4.8	62.3	3.1	4.3	1.4	0.3	0.3	0.9
Maternal mortality ratio	0.12	0.08	0.06	49.0	3.1	2.4	0.8	0.003	0.002	0.5
Child mortality rate	5.1	3.4	1.9	62.3	4.0	3.7	0.9	0.2	0.1	0.6

J. Synthesizing MDG outcomes for China and India by annual absolute rate of progress (percentage point)

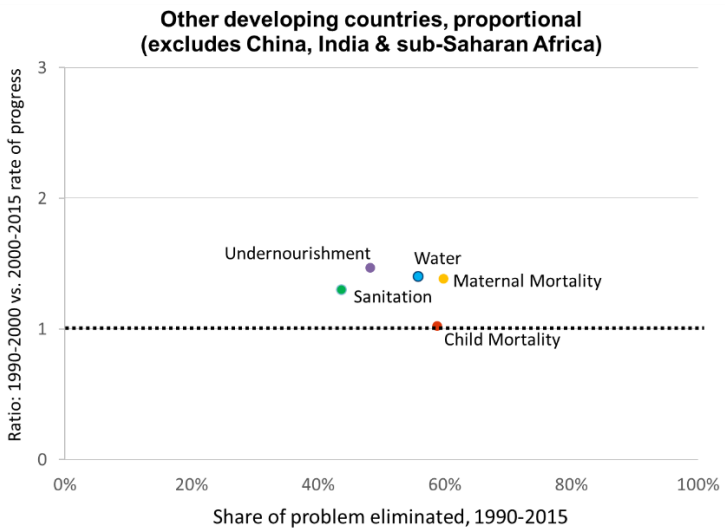


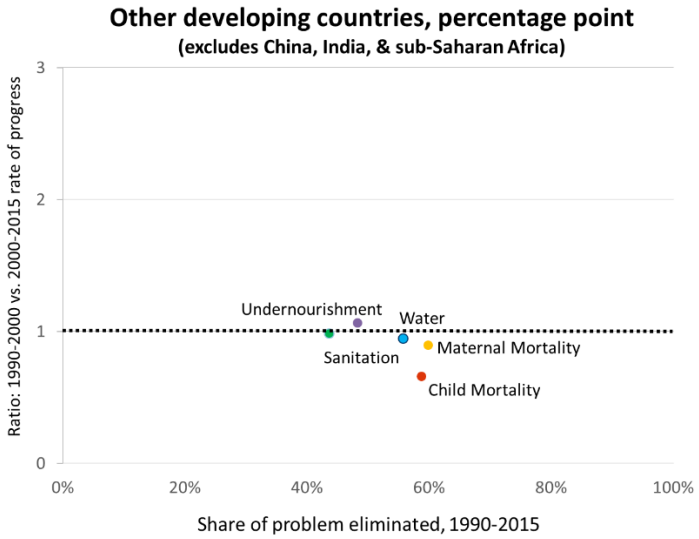
China's gender parity in primary education is not included because it is above the exclusion threshold (0.96) in 2000.

India	Remaining problem (%)			Share of problem eliminated (%)	Rate of progress (proportional, %)			Rate of progress (pct. point)		
Indicator	*1990*	*2000*	*2015*	*1990-2015*	*1990-2000*	*2000-2015*	*Ratio pre/post*	*1990-2000*	*2000-2015*	*Ratio pre/post*
Gender parity in primary education	26.3	15.6	0.0	100.0	5.1	43.2	8.5	1.1	1.2	1.1
Sanitation	83.2	74.4	60.4	27.4	1.1	1.4	1.2	0.9	0.9	1.1
Water	29.5	19.4	5.9	80.0	4.1	7.6	1.9	1.0	0.9	0.9
Maternal mortality ratio	0.56	0.37	0.17	68.7	3.9	5.0	1.3	0.018	0.013	0.7
Child mortality rate	12.6	9.1	4.8	62.1	3.2	4.2	1.3	0.3	0.3	0.8
Undernourishment	23.7	17.0	15.2	35.9	3.6	0.7	0.2	0.7	0.1	0.2

China	Remaining problem (%)			Share of problem eliminated (%)	Rate of progress (proportional, %)			Rate of progress (pct. point)		
Indicator	*1990*	*2000*	*2015*	*1990-2015*	*1990-2000*	*2000-2015*	*Ratio pre/post*	*1990-2000*	*2000-2015*	*Ratio pre/post*
Sanitation	52.5	41.2	23.5	55.2	2.4	3.7	1.5	1.1	1.2	1.0
Water	33.1	19.7	4.5	86.4	5.1	9.4	1.9	1.3	1.0	0.8
Maternal mortality ratio	0.10	0.06	0.03	72.2	5.0	5.0	1.0	0.004	0.002	0.5
Child mortality rate	5.4	3.7	1.1	80.1	3.7	7.9	2.1	0.2	0.2	1.0
Undernourishment	23.9	16.2	9.3	61.1	4.2	3.6	0.9	0.9	0.5	0.5

K. Synthesizing MDG outcomes for developing world ex. China, India and sub-Saharan Africa: by proportional vs. absolute percentage point rate of progress





Indicator	Remaining problem (%)			Share of problem eliminated (%)	Rate of progress (proportional, %)			Rate of progress (pct. point)		
	1990	*2000*	*2015*	*1990-2015*	*1990-2000*	*2000-2015*	*Ratio pre/post*	*1990-2000*	*2000-2015*	*Ratio pre/post*
Sanitation	38.3	31.5	21.6	43.7	1.9	2.5	1.3	0.7	0.7	1.0
Water	17.9	13.8	7.9	55.7	2.6	3.6	1.4	0.4	0.4	0.9
Maternal mortality ratio	0.25	0.19	0.10	59.8	2.9	4.0	1.4	0.006	0.006	0.9
Child mortality rate	7.5	5.3	3.1	58.7	3.4	3.5	1.0	0.2	0.1	0.7
Undernourishment	21.2	17.5	11.0	48.3	2.1	3.1	1.5	0.4	0.4	1.1