Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.
eMethods 1. Study Population and Sample Size

The DHS are large representative household surveys conducted in 85 LMICs; 57 of these countries conducted at least 2 surveys. These multiple surveys allow for repeated cross-sectional analyses that can evaluate trends in the socioeconomic inequalities and prevalence of anemia. We constructed cross-sectional and repeated cross-sectional datasets using women’s and/or children’s surveys from DHS surveys between January 1, 2000, and December 31, 2014 (eFigure 1). The DHS only collect information on hemoglobin concentrations of either women only or children only in some countries. For example, surveys conducted in the Congo determined the hemoglobin concentrations among women in 2005 and 2011, but did so only once for children. Given this limitation, we constructed separate cross-sectional and repeated cross-sectional datasets for women and children. In addition, the DHS population coverage was generally children aged 0–59 months, women aged 15–49 years. Some countries have extended the age range of the women surveyed, for example, 13–49 years or 15–64 years, as well as a small sample of pregnant women in the DHS of each country. The DHS did not collect information about hemoglobin concentrations for children aged 0–5 months. Therefore, all analysis was limited to non-pregnant women aged 15–49 years and children aged 6–59 months.

Of the 85 LMICs, the surveys for 40 of them had no hemoglobin concentration data. The remaining 45 LMICs were used to construct the cross-sectional and repeated cross-sectional datasets. The first and second datasets were developed from cross-sectional surveys that included the countries where at least one survey had been conducted. Data from the most recent surveys that captured hemoglobin concentrations and socio-demographic characteristics for children aged 6–59 months and non-pregnant women aged 15–49 years were selected to
construct the dataset. Therefore, we included the most recent surveys of the 45 LMICs with hemoglobin concentration data in the datasets. The first was a cross-sectional dataset of children aged 6–59 months developed from the most recent surveys of these 45 countries, and, after excluding 133,067 children aged < 6 months and/or those with missing data, were left with the final analytic dataset containing 163,419 children aged 6–59 months (eFigure 1). Of the most recent of the surveys, conducted from 2005 through 2014 for these countries, 13 were conducted between 2005 and 2009, 14 in 2010 or 2011, and 18 between 2012 and 2014 (eTable 1). The second survey was a cross-sectional dataset of non-pregnant women aged 15–49 years developed from the most recent surveys of these 45 countries, and, after excluding 278,306 women aged < 15 or > 49 years and/or currently pregnant and/or those with missing data, were left with the final analytic dataset containing 304,202 non-pregnant women aged 15–49 years (eFigure 1). The most recent of the surveys, conducted from 2005 through 2014, for these countries included 12 surveys conducted between 2006 and 2009, 16 in 2010 or 2011, and 17 between 2012 and 2014 (eTable 2).

The third and fourth datasets were developed from repeated cross-sectional surveys across countries in which more than 2 surveys were completed and had captured hemoglobin concentrations and socio-demographic characteristics of children aged 6–59 months and non-pregnant women aged 15–49 years. If a country had at least 2 DHS surveys available, the data of the earliest and most recent surveys were selected to construct the datasets. Therefore, we included the earliest and the most recent surveys of the 24 LMICs in the third dataset for children aged 6–59 months. Of the remaining 61 LMICs, 40 had no hemoglobin concentration data and 21 had only one survey that captured hemoglobin concentrations. The third dataset consisted of
information concerning children aged 6–59 months developed from both the earliest and the most recent surveys of 24 LMICs. After excluding 133,067 children aged < 6 months and/or those with missing data, we were left with dataset containing 182,273 children aged 6–59 months (eFigure 1). The average time between the earliest and the most recent surveys for children was 7.4 years (standard deviation, 2.5 years), with a minimum of 5 years in Armenia (2000–2005), Bolivia (2003–2008), Jordan (2007–2012), Lesotho (2004–2009), Madagascar (2003–2008), Nepal (2006–2011), Sierra Leone (2008–2013), and Zimbabwe (2005–2010), and a maximum of 12 years in Haiti (2000–2012) and Peru (2000–2012) (eTable 3). We included the earliest and the most recent surveys of 25 LMICs in the fourth dataset. Of the remaining 60 LMICs, 40 had no hemoglobin concentration data and 20 had only 1 survey that captured hemoglobin concentrations. After excluding 352,284 women aged < 15 or > 49 years and/or currently pregnant and/or those with missing data, the fourth repeated cross-sectional surveys included a total of 322,088 non-pregnant women from the earliest and the most recent surveys from these 25 LMICs (eFigure 1). The average time between the earliest and the most recent surveys was 7.2 years (standard deviation, 2.4 years), with a minimum of 5 years in Armenia (2000–2005), Bolivia (2003–2008), Jordan (2007–2012), Lesotho (2004–2009), Madagascar (2003–2008), Nepal (2006–2011), Senegal (2005–2010), Sierra Leone (2008–2013), and Zimbabwe (2005–2010), and a maximum of 12 years in Haiti (2000–2012) and Peru (2000–2012) (eTable 4).
eMethods 2. Estimation of Anemia Inequalities for Another Dimension of Socioeconomic Position: Education (or Maternal Education in the Case of Children)

We also examined anemia inequalities for another dimension of socioeconomic position: education (or maternal education in the case of children) using the same analysis method as that employed when examining household wealth. Education was measured as the reported number of education years. The children and non-pregnant women in this study were separately ranked from the lowest education level (rank 0) to the highest (rank 1) in order to estimate their positions in the cumulative distribution of socioeconomic status. The education-related slope index of inequality (SII) and the relative index of inequality (RII) were calculated to determine absolute and relative socioeconomic inequalities of anemia, respectively. The annualized changes of the education-related SII and RII were calculated to adjust for the time difference between the earliest and the most recent surveys.

The education-related SII and RII of total anaemia among children was −8.37% and 0.71 (eTable 9). For children, the education-related SII and RII were significantly negative and less than 1 in 32 of 45LMICs, respectively (eTable 9). The education-related SII and RII of total anaemia among non-pregnant women was −4.88% and 0.80, respectively (eTable 10). For non-pregnant women, the education-related SII and RII were significantly negative and less than 1 in 25 countries, respectively (eTable 10). For example, the education-related SII for Ethiopia was -16.79 (-18.94 to -14.63), signifying that moving from the bottom to the top of the education distribution was associated with an estimated decrease of 16.79 cases of anemia per 100 non-pregnant women (eTable 10). Among children, the annualized changes in the education-related SII were not significantly different from 0 in 18 of the 24 LMICs (eTable 11). Among pregnant women, the
changes in the education-related SII were not significantly different from 0 in 15 of the 25 LMICs. However, the changes in the education-related SII for the countries of Sierra Leone, Guinea, and Cameroon represented annualized decreases among non-pregnant women, indicating an increase in socioeconomic inequalities (eTable 12).
**eFigure 1. Flow Diagram of Sample Selection From DHS Before 2014**

DHS data (65 countries)

- The 40 countries that did not capture information about hemoglobin concentrations and socio-demographic characteristics among children aged 6-59 months and non-pregnant women aged 15-49 years were excluded.

21 countries that had only one survey captured hemoglobin concentrations and socio-demographic characteristics were excluded.

45 countries (including 83 children's surveys)

- The most recent and earliest surveys from each country were selected.

- 45 countries, 45 children's surveys (including 280,523 women)

24 countries, 48 children's surveys (including 315,340 women)

- 182,273 children aged 6-59 month (24 countries, 48 children's surveys) were included in the third dataset.

21 countries, 48 children's surveys (including 315,340 women)

117,104 children aged <6 month and/or miss data were excluded.

24 countries, 48 children's surveys (including 315,340 women)

133,067 children aged <6 month and/or miss data were excluded.

45 countries, 45 children's surveys (including 280,523 women)

163,419 children aged 6-59 month (45 countries, 45 children's surveys) were included in the first dataset.

45 countries, 45 women's surveys (including 582,508 women)

278,206 women aged <15 or >49 years and/or currently pregnant and/or with miss data were excluded.

25 countries, 50 women's surveys (including 674,372 women)

352,284 women aged <15 or >49 years and/or currently pregnant and/or with miss data were excluded.

304,202 non-pregnant women aged 15-49 years (45 countries, 45 women's surveys) were included in the second dataset.

322,068 non-pregnant women aged 15-49 years (25 countries, 50 women's surveys) were included in the fourth dataset.

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eFigure 2. Prevalence of Total and Severe Anemia Among Children in Low- and Middle-Income Countries (LMICs)

Weighted prevalence of total and severe anemia among children aged 6 to 59 months are shown for each LMIC. Error bars represent 95% CIs. Specific numbers of participants, prevalence total and severe anemia, and 95% CIs are provided in eTables 1 and 2 and omitted here for clarity.
eFigure 3. Prevalence of Total and Severe Anemia Among Nonpregnant Women in Low- and Middle-Income Countries (LMICs)

Weighted prevalence of total and severe anemia among nonpregnant women aged 15 to 49 years are shown for each LMIC. Error bars represent 95% CIs. Specific numbers of participants, prevalence total and severe anemia, and 95% CIs are provided in eTables 1 and 2 and omitted here for clarity.
Annualized absolute changes in prevalence of total and severe anemia among children aged 6 to 59 months are shown for each LMIC. Error bars represent 95% CI. Specific numbers of participants, annualized absolute changes in the prevalence of total and severe anemia, and 95% CIs are provided in eTables 3 and 4 and omitted here for clarity.
eFigure 5. Annualized Absolute Change in the Prevalence of Total and Severe Anemia in Women in Low- and Middle-Income Countries (LMICs)

Annualized absolute changes in prevalence of total and severe anemia among nonpregnant women aged 15 to 49 years are shown for each LMIC. Error bars represent 95% CI. Specific numbers of participants, annualized absolute changes in the prevalence of total and severe anemia, and 95% CIs are provided in eTables 3 and 4 and omitted here for clarity.
### eTable 1. Sample Sizes and the Prevalence of Total Anemia and Severe Anemia Among Children for Each Country at the Time of the Most Recent Survey

| Country         | Survey year | Sample sizes (N) | Total anemia | Severe anemia | 95% Confidence Interval | 95% Confidence Interval |
|-----------------|-------------|------------------|--------------|---------------|-------------------------|-------------------------|
| Albania         | 2008        | 1,535            | 254          | 17.57         | 14.81                   | 20.32                   |
| Armenia         | 2005        | 1,024            | 322          | 35.82         | 31.39                   | 42.25                   |
| Azerbaijan      | 2006        | 1,812            | 671          | 39.35         | 35.49                   | 43.20                   |
| Bangladesh      | 2011        | 2,283            | 1,191        | 51.77         | 49.22                   | 54.32                   |
| Benin           | 2011        | 3,312            | 1,944        | 58.87         | 56.59                   | 61.15                   |
| Bolivia         | 2008        | 2,378            | 1,445        | 61.98         | 59.17                   | 64.78                   |
| Burkina Faso    | 2010        | 5,928            | 5,239        | 87.89         | 86.73                   | 89.04                   |
| Burundi         | 2010        | 3,080            | 1,327        | 44.29         | 42.02                   | 46.56                   |
| Gabon           | 2012        | 3,049            | 1,943        | 61.28         | 58.61                   | 63.95                   |
| Gambia          | 2013        | 2,931            | 2,167        | 71.52         | 68.64                   | 74.40                   |
| Cambodia        | 2010        | 3,394            | 1,840        | 55.82         | 53.49                   | 58.15                   |
| Camereroon      | 2011        | 4,566            | 2,835        | 61.26         | 59.30                   | 63.22                   |
| Congo Dem       | 2013        | 7,317            | 4,613        | 60.07         | 57.40                   | 62.74                   |
| Congo           | 2005        | 1,976            | 1,292        | 64.84         | 61.55                   | 68.13                   |
| Cote d’Ivoire  | 2011        | 2,805            | 2,113        | 75.69         | 73.58                   | 77.80                   |
| Egypt           | 2014        | 4,603            | 1,317        | 27.42         | 25.46                   | 29.37                   |
| Ethiopia        | 2011        | 8,510            | 4,277        | 44.60         | 42.24                   | 46.96                   |
| Ghana           | 2014        | 2,388            | 1,662        | 66.80         | 63.63                   | 69.97                   |
| Guinea          | 2012        | 2,793            | 2,128        | 77.58         | 75.26                   | 79.90                   |
| Guyana          | 2009        | 1,427            | 559          | 39.29         | 35.50                   | 43.07                   |
| Haiti           | 2012        | 3,509            | 2,297        | 65.64         | 63.58                   | 67.70                   |
| Honduras        | 2011        | 8,538            | 2,592        | 29.30         | 27.92                   | 30.67                   |
| Jordan          | 2012        | 5,522            | 1,755        | 32.21         | 29.81                   | 34.60                   |
| Kyrgyzstan      | 2012        | 3,617            | 1,592        | 42.93         | 40.03                   | 45.83                   |
| Lesotho         | 2009        | 2,084            | 1,025        | 46.84         | 44.23                   | 45.82                   |
| Madagascar      | 2008        | 4,750            | 2,418        | 50.15         | 47.89                   | 52.42                   |
| Malawi          | 2010        | 4,177            | 2,683        | 63.57         | 61.33                   | 65.81                   |
| Mali            | 2012        | 4,196            | 3,401        | 81.92         | 80.13                   | 83.71                   |
| Moldova         | 2005        | 1,261            | 369          | 30.65         | 27.76                   | 33.54                   |
| Mozambique      | 2011        | 4,361            | 2,889        | 69.18         | 66.95                   | 71.41                   |
| Namibia         | 2013        | 1,537            | 785          | 49.58         | 46.48                   | 52.68                   |
| Nepal           | 2011        | 2,088            | 961          | 46.40         | 42.98                   | 49.83                   |
| Niger           | 2012        | 4,384            | 3,283        | 73.71         | 71.84                   | 75.59                   |
| Peru            | 2012        | 8,987            | 3,192        | 32.57         | 31.08                   | 34.09                   |
| Rwanda          | 2014        | 3,230            | 1,158        | 36.62         | 34.64                   | 38.60                   |
| Sao Tome        | 2008        | 1,540            | 930          | 63.61         | 60.38                   | 66.84                   |

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| Country       | Year | N  | n   | Hb (%) | Hb (%) | Hb (%) | n   | Wn | Ln |
|--------------|------|----|-----|--------|--------|--------|-----|----|----|
| Senegal      | 2014 | 5,421 | 3,318 | 60.52  | 57.21  | 63.83  | 120 | 1.94 | 1.38 | 2.51 |
| Sierra Leone | 2013 | 4,140 | 3,329 | 79.95  | 78.12  | 81.78  | 274 | 6.15 | 4.79 | 7.50 |
| Swaziland    | 2006 | 1,785 | 783  | 44.44  | 41.53  | 47.35  | 17  | 0.87 | 0.43 | 1.31 |
| Tanzania     | 2010 | 6,851 | 3,673 | 52.35  | 50.49  | 54.21  | 106 | 1.72 | 1.32 | 2.12 |
| Timor-Leste  | 2009 | 2,377 | 988  | 38.45  | 35.62  | 41.27  | 22  | 0.93 | 0.30 | 1.57 |
| Togo         | 2013 | 2,890 | 2,052 | 70.95  | 68.77  | 73.13  | 76  | 2.62 | 1.94 | 3.30 |
| Uganda       | 2006 | 2,110 | 1,551 | 73.23  | 70.66  | 73.12  | 142 | 7.14 | 5.89 | 8.39 |
| Yemen        | 2013 | 3,754 | 3,316 | 86.56  | 84.95  | 88.17  | 644 | 15.49 | 13.91 | 17.08 |
| Zimbabwe     | 2010 | 3,379 | 1,973 | 58.16  | 56.02  | 60.29  | 42  | 1.04 | 0.68 | 1.40 |

According to WHO standards, total anaemia was defined as Hb < 11 g/dL for children aged 6-59 months; severe anaemia was defined as Hb < 7 g/dL. We used the above cross-sectional data set (the first data set) for the estimates of anaemia prevalence among children. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design.
### eTable 2. Sample Sizes and the Prevalence of Total Anemia and Severe Anaemia Among Nonpregnant Women at the Time of the Most Recent Survey for Each Country

| Country       | Survey year | Sample sizes (N) | Total anaemia | Severe anaemia |
|---------------|-------------|------------------|---------------|---------------|
|               |             |                  | n             | Prevalence (%)| 95% Confidence Interval | n | Prevalence (%)| 95% Confidence Interval |
| Albania       | 2008        | 7,333            | 1,312         | 16.94         | 15.72 - 18.16             | 7  | 0.10       | 0.02 - 0.18 |
| Armenia       | 2005        | 5,957            | 1,394         | 21.56         | 19.79 - 23.33             | 34 | 0.48       | 0.26 - 0.71 |
| Azerbaijan    | 2006        | 7,835            | 2,835         | 32.58         | 31.04 - 34.12             | 66 | 0.70       | 0.47 - 0.94 |
| Bangladesh    | 2011        | 5,314            | 2,194         | 37.66         | 35.90 - 39.42             | 8  | 0.19       | 0.00 - 0.38 |
| Benin         | 2011        | 4,579            | 1,863         | 36.45         | 34.87 - 38.03             | 21 | 0.38       | 0.18 - 0.57 |
| Bolivia       | 2008        | 5,400            | 1,988         | 33.16         | 31.63 - 34.69             | 31 | 0.49       | 0.27 - 0.71 |
| Burkina Faso  | 2010        | 7,556            | 3,569         | 42.53         | 41.03 - 44.03             | 71 | 0.89       | 0.63 - 1.14 |
| Burundi       | 2010        | 4,034            | 670           | 15.75         | 13.99 - 17.51             | 8  | 0.25       | 0.05 - 0.44 |
| Cambodia      | 2010        | 8,754            | 3,796         | 39.05         | 37.73 - 40.37             | 32 | 0.40       | 0.22 - 0.58 |
| Cameroon      | 2011        | 7,067            | 2,748         | 33.90         | 32.37 - 35.43             | 43 | 0.50       | 0.33 - 0.67 |
| Congo         | 2011        | 4,980            | 2,604         | 48.61         | 46.60 - 50.62             | 13 | 0.17       | 0.06 - 0.29 |
| Congo Dem     | 2013        | 8,125            | 3,212         | 32.89         | 30.77 - 35.01             | 24 | 0.22       | 0.09 - 0.34 |
| Cote d'Ivoire | 2011        | 4,197            | 2,175         | 46.56         | 44.16 - 48.96             | 21 | 0.31       | 0.14 - 0.48 |
| Egypt         | 2014        | 6,464            | 1,573         | 22.99         | 21.13 - 24.85             | 3  | 0.02       | 0.00 - 0.04 |
| Ethiopia      | 2011        | 14,342           | 2,750         | 15.14         | 13.93 - 16.35             | 111| 0.46       | 0.29 - 0.62 |
| Gabon         | 2012        | 4,907            | 2,859         | 53.77         | 51.74 - 55.80             | 46 | 0.93       | 0.60 - 1.27 |
| Gambia        | 2013        | 4,182            | 2,551         | 51.13         | 48.44 - 53.82             | 75 | 1.50       | 1.04 - 1.97 |
| Ghana         | 2014        | 4,352            | 1,803         | 36.92         | 35.13 - 38.71             | 14 | 0.39       | 0.14 - 0.65 |
| Guinea        | 2012        | 4,203            | 1,983         | 42.08         | 39.94 - 44.22             | 35 | 0.79       | 0.50 - 1.09 |
| Guyana        | 2009        | 4,388            | 1,587         | 33.34         | 31.55 - 35.13             | 24 | 0.60       | 0.31 - 0.90 |
| Haiti         | 2012        | 8,817            | 4,228         | 42.18         | 40.59 - 43.77             | 89 | 0.85       | 0.61 - 1.08 |
| Honduras      | 2011        | 20,385           | 3,112         | 14.08         | 13.41 - 14.75             | 23 | 0.15       | 0.07 - 0.24 |
| Jordan        | 2012        | 6,247            | 2,385         | 32.60         | 29.72 - 35.48             | 20 | 0.34       | 0.13 - 0.56 |
| Kyrgyzstan    | 2012        | 7,469            | 2,566         | 30.47         | 28.92 - 32.02             | 68 | 0.78       | 0.55 - 1.01 |
| Lesotho       | 2009        | 3,713            | 973           | 23.31         | 21.45 - 25.17             | 21 | 0.61       | 0.28 - 0.95 |
| Madagascar    | 2008        | 7,583            | 2,726         | 31.36         | 29.92 - 32.80             | 32 | 0.38       | 0.21 - 0.54 |
| Malawi        | 2010        | 6,601            | 1,869         | 25.69         | 24.17 - 27.21             | 36 | 0.64       | 0.35 - 0.94 |
| Mali          | 2012        | 4,565            | 2,313         | 44.64         | 42.94 - 46.34             | 52 | 0.98       | 0.64 - 1.32 |
| Moldova       | 2005        | 6,932            | 1,871         | 24.61         | 23.36 - 25.86             | 18 | 0.22       | 0.12 - 0.32 |
| Mozambique    | 2011        | 12,137           | 6,369         | 48.06         | 46.43 - 49.69             | 152| 1.14       | 0.90 - 1.38 |
| Namibia       | 2013        | 4,053            | 834           | 19.38         | 17.96 - 20.80             | 17 | 0.55       | 0.26 - 0.85 |
| Nepal         | 2011        | 5,794            | 1,837         | 29.84         | 27.58 - 32.10             | 17 | 0.30       | 0.13 - 0.46 |
| Niger         | 2012        | 4,369            | 1,848         | 39.24         | 36.95 - 41.53             | 33 | 0.57       | 0.31 - 0.82 |
| Peru          | 2012        | 22,514           | 4,207         | 15.41         | 14.75 - 16.07             | 35 | 0.15       | 0.08 - 0.21 |
| Rwanda        | 2014        | 6,212            | 1,175         | 17.13         | 15.90 - 18.36             | 13 | 0.20       | 0.07 - 0.34 |
| Sao Tome      | 2008        | 2,318            | 967           | 35.61         | 32.64 - 38.58             | 11 | 0.49       | 0.17 - 0.81 |

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According to WHO standards, total anaemia was defined as Hb < 12 g/dL for non-pregnant women aged 15–49 years; severe anaemia was defined as Hb < 8 g/dL. We used the above cross-sectional data set (the second data set) for the estimates of anaemia prevalence among non-pregnant women. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. Estimates of the prevalence of total and severe anemia among non-pregnant women were adjusted using world population data obtained from the WHO.

| Country        | Year | Total | Pregnant | Total | Severe | Total | Severe | Total | Severe | Total | Severe | Total | Severe |
|----------------|------|-------|----------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| Senegal        | 2010 | 5,085 | 2,709    | 47.11 | 45.23  | 48.99 | 85     | 1.52  | 1.08   | 1.97  |
| Sierra Leone   | 2013 | 7,181 | 3,206    | 38.44 | 36.14  | 40.74 | 33     | 0.48  | 0.28   | 0.68  |
| Swaziland      | 2006 | 4,343 | 1,296    | 26.43 | 25.08  | 27.78 | 17     | 0.30  | 0.12   | 0.47  |
| Tanzania       | 2010 | 8,990 | 3,794    | 34.33 | 32.86  | 35.80 | 103    | 0.85  | 0.61   | 1.09  |
| Timor-Leste    | 2009 | 3,803 | 825      | 18.82 | 17.38  | 20.26 | 12     | 0.30  | 0.11   | 0.49  |
| Togo           | 2013 | 4,374 | 1,945    | 40.58 | 38.91  | 42.25 | 27     | 0.76  | 0.46   | 1.05  |
| Uganda         | 2006 | 2,477 | 979      | 36.05 | 33.57  | 38.53 | 11     | 0.38  | 0.14   | 0.62  |
| Yemen          | 2013 | 6,760 | 4,992    | 61.70 | 60.03  | 63.37 | 204    | 2.64  | 2.13   | 3.14  |
| Zimbabwe       | 2010 | 7,511 | 2,194    | 24.99 | 23.70  | 26.28 | 55     | 0.64  | 0.43   | 0.84  |
### eTable 3. Sample Sizes and the Annualized Changes of Total Anemia and Severe Anemia Prevalence Among Children Between the Earliest and Most Recent Survey for Each Country

| Country     | The earliest survey | The most recent survey | Total anemia (percentage points) | Severe anaemia (percentage points) |
|-------------|---------------------|------------------------|----------------------------------|------------------------------------|
|             | Survey year | Sample sizes (N) | Survey year | Sample sizes (N) | The annualized change | 95% Confidence Interval | The annualized change | 95% Confidence Interval |
| Armenia     | 2000       | 1518             | 2005       | 1024             | 2.48 | 1.22 | 3.74 | 0.170 | -0.016 | 0.357 |
| Benin       | 2001       | 2316             | 2011       | 3312             | -2.03 | -2.34 | -1.71 | -0.516 | -0.672 | -0.359 |
| Bolivia     | 2003       | 2873             | 2008       | 2378             | 2.02 | 1.27 | 2.77 | 0.304 | 0.086 | 0.523 |
| Cambodia    | 2000       | 1740             | 2010       | 3394             | -0.73 | -1.09 | -0.38 | -0.105 | -0.188 | -0.022 |
| Cameroon    | 2004       | 3292             | 2011       | 4566             | -0.90 | -1.29 | -0.51 | -0.379 | -0.498 | -0.259 |
| Egypt       | 2005       | 3853             | 2014       | 4603             | -2.36 | -2.69 | -2.03 | -0.032 | -0.054 | -0.010 |
| Ethiopia    | 2005       | 3394             | 2011       | 8510             | -1.61 | -2.12 | -1.09 | -0.272 | -0.446 | -0.098 |
| Ghana       | 2003       | 3183             | 2014       | 2388             | -0.67 | -0.99 | -0.34 | -0.289 | -0.399 | -0.179 |
| Guinea      | 2005       | 2686             | 2012       | 2793             | 0.38  | -0.03 | 0.78  | 0.166 | -0.098 | 0.430 |
| Haiti       | 2000       | 2836             | 2012       | 3509             | 0.35  | 0.07 | 0.63  | -0.038 | -0.115 | 0.039 |
| Honduras    | 2005       | 8258             | 2011       | 8538             | -1.41 | -1.74 | -1.08 | -0.072 | -0.111 | -0.033 |
| Jordan      | 2007       | 4124             | 2012       | 5522             | -1.63 | -2.39 | -0.88 | 0.015  | -0.023 | 0.053  |
| Lesotho     | 2004       | 1322             | 2009       | 2084             | -0.71 | -1.57 | 0.15  | -0.056 | -0.247 | 0.135  |
| Madagascar  | 2003       | 1542             | 2008       | 4750             | -3.98 | -4.91 | -3.04 | -0.499 | -0.805 | -0.192 |
| Malawi      | 2004       | 2329             | 2010       | 4177             | -1.65 | -2.15 | -1.14 | -0.305 | -0.527 | -0.083 |
| Mali        | 2001       | 2961             | 2012       | 4196             | 0.16  | -0.14 | 0.46  | -0.081 | -0.276 | 0.114  |
| Nepal       | 2006       | 4693             | 2011       | 2088             | -0.55 | -1.37 | 0.27  | -0.033 | -0.135 | 0.069  |
| Niger       | 2006       | 3612             | 2012       | 4384             | -1.48 | -1.90 | -1.05 | -0.689 | -0.903 | -0.474 |
| Peru        | 2000       | 2519             | 2012       | 8987             | -1.43 | -1.69 | -1.17 | -0.084 | -0.127 | -0.042 |
| Rwanda      | 2005       | 3747             | 2014       | 3230             | -1.74 | -2.06 | -1.43 | -0.151 | -0.213 | -0.088 |
| Senegal     | 2005       | 2733             | 2014       | 5421             | -2.21 | -2.64 | -1.78 | -0.537 | -0.690 | -0.384 |
| Sierra Leone| 2008       | 1894             | 2013       | 4140             | 0.57  | -0.06 | 1.20  | 0.521  | 0.201  | 0.841  |
| Tanzania    | 2004       | 7230             | 2010       | 6851             | -3.09 | -3.48 | -2.71 | -0.404 | -0.529 | -0.280 |
| Zimbabwe    | 2005       | 3394             | 2010       | 3379             | -0.64 | -1.41 | 0.14  | -0.085 | -0.216 | 0.046  |

According to WHO standards, total anaemia was defined as Hb < 11 g/dL for children aged 6-59 months; severe anaemia was defined as Hb < 7 g/dL. We used above repeated cross-sectional dataset (The third dataset) for the analyses of the annualized changes. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. The changes in the prevalences of total and severe anemia were measured by the annual absolute change in percentage points and were estimated through a calculation of the difference between anemia prevalence in the earliest and most recent surveys divided by the number of years between these two surveys.

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### eTable 4. Sample Sizes and the Annualized Changes of Total Anemia and Severe Anemia Prevalence Among Nonpregnant Women Between the First and Most Recent Surveys for Each Country

| Country     | The earliest survey | The most recent survey | Total anemia (percentage points) | Severe anaemia (percentage points) |
|-------------|---------------------|------------------------|----------------------------------|------------------------------------|
|             | Survey year Sample sizes (n) | Survey year Sample sizes (n) | The annualized change 95%Confidence Interval | The annualized change 95%Confidence Interval |
| Armenia     | 2000 5953 | 2005 5957 | 2.34 1.91 2.78 | 0.057 -0.001 0.114 |
| Benin       | 2001 2752 | 2011 4579 | -2.19 -2.50 -1.88 | -0.097 -0.150 -0.044 |
| Bolivia     | 2003 5577 | 2008 5400 | 0.93 0.45 1.42 | 0.024 -0.035 0.083 |
| Cambodia    | 2000 3397 | 2010 8754 | -1.43 -1.68 -1.18 | -0.071 -0.111 -0.031 |
| Cameroon    | 2004 4605 | 2011 7067 | -0.83 -1.17 -0.49 | -0.047 -0.099 0.005 |
| Congo       | 2005 2943 | 2011 4980 | -0.31 -0.88 0.27 | -0.072 -0.138 -0.007 |
| Egypt       | 2005 5705 | 2014 6464 | -1.58 -1.87 -1.29 | -0.027 -0.048 -0.007 |
| Ethiopia    | 2005 5489 | 2011 14342 | -1.66 -2.03 -1.29 | -0.103 -0.169 -0.037 |
| Ghana       | 2003 4862 | 2014 4352 | -0.09 -0.34 0.15 | -0.039 -0.073 -0.005 |
| Guinea      | 2005 3499 | 2012 4203 | -0.60 -1.02 -0.18 | -0.285 -0.404 -0.166 |
| Haiti       | 2000 4379 | 2012 8817 | -0.49 -0.78 -0.20 | -0.170 -0.226 -0.115 |
| Honduras    | 2005 17343 | 2011 20385 | -0.600 -0.793 -0.407 | -0.042 -0.067 -0.018 |
| Jordan      | 2007 4463 | 2012 6247 | -0.169 -0.846 0.507 | 0.041 -0.018 0.100 |
| Lesotho     | 2004 2859 | 2009 3713 | -1.32 -1.91 -0.73 | -0.071 -0.182 0.041 |
| Madagascar  | 2003 2347 | 2008 7583 | -2.12 -3.06 -1.19 | -0.564 -1.561 0.434 |
| Malawi      | 2004 2383 | 2010 6601 | -2.59 -3.07 -2.11 | -0.189 -0.293 -0.084 |
| Mali        | 2001 3467 | 2012 4565 | -1.01 -1.30 -0.73 | -0.104 -0.169 -0.040 |
| Nepal       | 2006 10041 | 2011 5794 | -0.30 -1.27 0.67 | -0.020 -0.066 0.026 |
| Niger       | 2006 3716 | 2012 4369 | 0.08 -0.45 0.61 | -0.100 -0.202 0.003 |
| Peru        | 2000 5907 | 2012 22514 | -1.17 -1.33 -1.02 | -0.008 -0.020 0.005 |
| Rwanda      | 2005 5209 | 2014 6212 | -0.72 -0.94 -0.50 | -0.075 -0.105 -0.044 |
| Senegal     | 2005 3974 | 2010 5085 | -0.88 -1.48 -0.27 | -0.206 -0.366 -0.047 |
| Sierra Leone | 2008 3098 | 2013 7181 | 0.03 -0.64 0.70 | -0.023 -0.101 0.054 |
| Tanzania    | 2004 9072 | 2010 8990 | -1.41 -1.83 -0.98 | -0.016 -0.074 0.041 |
| Zimbabwe    | 2005 7383 | 2010 7511 | -1.87 -2.33 -1.41 | -0.072 -0.145 0.002 |

According to WHO standards, total anaemia was defined as Hb < 12 g/dL for non-pregnant women aged 15–49 years; severe anaemia was defined as Hb < 8 g/dL. We used above repeated cross-sectional dataset (The four dataset) for the analyses of the annualized changes. All estimates used to determine anaemia were weighted and proved appropriate for the DHS complex survey design. The changes in the prevalences of total and severe anaemia were measured by the annual absolute change in percentage points and were estimated through a calculation of the difference between anaemia prevalence in the earliest and most recent surveys divided by the number of years between these two surveys.

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**eTable 5. The Absolute and Relative Inequality of Total Anemia Among Children for Each Country at the Most Recent Survey**

| Country          | SII of total anaemia | 95%Confidence Interval | RII of total anaemia | 95%Confidence Interval |
|------------------|-----------------------|-------------------------|----------------------|-------------------------|
| Albania          | -13.88                | -20.77 -7.00            | 0.40                 | 0.25 -0.63             |
| Armenia          | 11.26                 | 9.60 -21.56             | 1.67                 | 1.04 -2.68             |
| Azerbaijan       | -13.82                | -21.79 -5.86            | 0.55                 | 0.39 -0.78             |
| Bangladesh       | -21.67                | -28.61 -14.74           | 0.42                 | 0.31 -0.55             |
| Benin            | -18.34                | -24.32 -12.36           | 0.47                 | 0.36 -0.60             |
| Bolivia          | -21.33                | -27.94 -14.71           | 0.41                 | 0.31 -0.54             |
| Burkina Faso     | -9.91                 | -12.71 -7.12            | 0.37                 | 0.28 -0.49             |
| Burundi          | -11.42                | -17.15 -5.68            | 0.63                 | 0.50 -0.79             |
| Cambodia         | -21.66                | -27.21 -16.11           | 0.41                 | 0.33 -0.52             |
| Cameroon         | -15.86                | -20.89 -10.84           | 0.51                 | 0.41 -0.63             |
| Congo Dem        | -9.16                 | -16.37 -1.95            | 0.67                 | 0.48 -0.92             |
| Congo            | -13.34                | -17.15 -9.52            | 0.56                 | 0.48 -0.66             |
| Cote d'Ivoire    | -23.01                | -28.63 -17.40           | 0.28                 | 0.21 -0.39             |
| Egypt            | -18.61                | -22.88 -14.33           | 0.40                 | 0.32 -0.49             |
| Ethiopia         | -18.01                | -21.26 -14.75           | 0.48                 | 0.42 -0.55             |
| Gabon            | -13.39                | -19.45 -7.32            | 0.56                 | 0.43 -0.73             |
| Gambia           | -23.24                | -28.89 -17.58           | 0.30                 | 0.22 -0.41             |
| Ghana            | -35.96                | -42.19 -29.74           | 0.18                 | 0.13 -0.25             |
| Guinea           | -18.00                | -23.33 -12.68           | 0.36                 | 0.27 -0.49             |
| Guyana           | 0.00                  | -8.45 8.45             | 1.00                 | 0.70 -1.42             |
| Haiti            | 1.00                  | -4.58 6.58             | 1.05                 | 0.82 -1.34             |
| Honduras         | -10.62                | -14.03 -7.20            | 0.60                 | 0.51 -0.71             |
| Jordan           | -16.28                | -20.71 -11.84           | 0.47                 | 0.38 -0.58             |
| Kyrgyzstan       | -6.99                 | -12.69 -1.29            | 0.75                 | 0.60 -0.95             |
| Lesotho          | -4.38                 | -12.69 3.94             | 0.79                 | 0.59 -1.08             |
| Madagascar       | -16.00                | -20.71 -11.30           | 0.53                 | 0.43 -0.64             |
| Malawi           | -17.38                | -22.51 -12.25           | 0.47                 | 0.37 -0.59             |
| Mali             | -25.49                | -29.44 -21.54           | 0.17                 | 0.13 -0.23             |
| Moldova          | -18.58                | -27.24 -9.91            | 0.41                 | 0.27 -0.62             |
| Mozambique       | -28.46                | -33.20 -23.73           | 0.27                 | 0.21 -0.33             |
| Namibia          | -14.36                | -23.19 -5.53            | 0.56                 | 0.39 -0.80             |
| Nepal            | -7.68                 | -14.74 -0.62            | 0.73                 | 0.55 -0.98             |
| Niger            | -5.51                 | -9.73 -1.29             | 0.75                 | 0.59 -0.93             |
| Peru             | -27.82                | -32.41 -23.22           | 0.30                 | 0.26 -0.35             |
According to WHO standards, total anaemia was defined as Hb < 11 g/dL for children aged 6-59 months; severe anaemia was defined as Hb < 7 g/dL. We used the above cross-sectional dataset (the first dataset) for the estimates of education-related absolute and relative inequality among children women. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. The slope index of inequality (SII) and the relative index of inequality (RII) were calculated to determine the absolute and relative socioeconomic inequalities of anemia, respectively. SII > 0 and RII > 1 would indicate that individuals with lower socioeconomic status would be more likely to suffer from anemia, whereas the reverse inequality would indicate lower anemia prevalence among populations with lower socioeconomic status.

**eTable 6. The Absolute and Relative Inequality of Total Anemia Among Nonpregnant Women for Each Country at the Most Recent Survey**

| Country          | SII of total anaemia | 95%Confidence Interval | RII of total anaemia | 95%Confidence Interval |
|------------------|----------------------|-------------------------|----------------------|-------------------------|
| Albania          | -10.48               | -13.46 - 7.49           | 0.49                 | 0.40 - 0.60             |
| Armenia          | 1.68                 | -2.22 - 5.59            | 1.10                 | 0.88 - 1.37             |
| Azerbaijan       | -12.06               | -15.88 - 8.24           | 0.59                 | 0.50 - 0.70             |
| Bangladesh       | -19.96               | -24.47 - 15.45          | 0.44                 | 0.36 - 0.53             |
| Benin            | -0.61                | -5.70 - 4.48            | 0.98                 | 0.79 - 1.20             |
| Bolivia          | -14.09               | -18.49 - 9.70           | 0.54                 | 0.45 - 0.66             |
| Burkina Faso     | -13.16               | -17.09 - 9.23           | 0.59                 | 0.50 - 0.69             |
| Burundi          | -9.49                | -13.22 - 5.76           | 0.50                 | 0.38 - 0.66             |
| Cambodia         | -24.70               | -28.18 - 21.21          | 0.36                 | 0.31 - 0.42             |
| Cameroon         | 8.79                 | 4.74 - 12.83            | 1.45                 | 1.22 - 1.72             |
| Congo            | 9.54                 | 4.64 - 14.45            | 1.47                 | 1.20 - 1.79             |
| Congo Dem        | 0.48                 | -3.19 - 4.15            | 1.02                 | 0.88 - 1.19             |
| Cote d'Ivoire    | -6.55                | -11.87 - 1.24           | 0.77                 | 0.62 - 0.95             |
| Egypt            | -5.95                | -9.40 - 2.50            | 0.72                 | 0.60 - 0.87             |

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According to WHO standards, total anaemia was defined as Hb < 12 g/dL for non-pregnant women aged 15–49 years; severe anaemia was defined as Hb < 8 g/dL. We used the above cross-sectional dataset (the second dataset) for the estimates of absolute and relative inequality among non-pregnant women. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. The slope index of inequality (SII) and the relative index of inequality (RII) were calculated to determine the absolute and relative socioeconomic inequalities of anaemia, respectively. SII > 0 and RII > 1 would indicate that individuals with lower socioeconomic status would be more likely to suffer from anaemia, whereas the reverse inequality would indicate lower anaemia prevalence among populations with lower socioeconomic status.

| Country         | SII  | RII  | SII  | RII  |
|-----------------|------|------|------|------|
| Ethiopia        | -14.92 | -16.86 | -12.99 | 0.38 |
| Gabon           | 9.51 | 4.77 | 14.26 | 1.48 |
| Gambia          | -26.40 | -31.43 | -21.36 | 0.33 |
| Ghana           | -8.52 | -13.51 | -3.54 | 0.70 |
| Guinea          | -20.21 | -25.44 | -14.98 | 0.44 |
| Guyana          | 4.92 | 0.22 | 9.61 | 1.24 |
| Haiti           | 12.98 | 9.34 | 16.62 | 1.68 |
| Honduras        | 5.73 | 4.02 | 7.44 | 1.55 |
| Jordan          | 0.60 | -3.84 | 5.03 | 1.03 |
| Kyrgyzstan      | -12.25 | -16.08 | -8.42 | 0.58 |
| Lesotho         | 6.41 | 1.54 | 11.29 | 1.39 |
| Madagascar      | -20.31 | -23.83 | -16.79 | 0.41 |
| Malawi          | -8.57 | -12.44 | -4.70 | 0.65 |
| Mali            | -18.58 | -23.47 | -13.69 | 0.47 |
| Moldova         | -11.19 | -14.86 | -7.52 | 0.57 |
| Mozambique      | -11.09 | -14.18 | -8.00 | 0.64 |
| Namibia         | -4.02 | -8.42 | 0.38 | 0.78 |
| Nepal           | -2.59 | -6.56 | 1.38 | 0.89 |
| Niger           | -11.76 | -16.56 | -6.96 | 0.62 |
| Peru            | -6.81 | -8.64 | -4.98 | 0.64 |
| Rwanda          | -7.86 | -11.14 | -4.57 | 0.60 |
| Sao Tome        | -4.99 | -12.11 | 2.13 | 0.81 |
| Senegal         | -9.05 | -14.15 | -3.95 | 0.70 |
| Sierra Leone    | -19.73 | -23.74 | -15.72 | 0.45 |
| Swaziland       | 7.60 | 2.99 | 12.21 | 1.44 |
| Tanzania        | 5.57 | 2.03 | 9.12 | 1.26 |
| Timor-Leste     | -4.20 | -8.88 | 0.48 | 0.78 |
| Togo            | 19.72 | 14.82 | 24.62 | 2.23 |
| Uganda          | -16.30 | -22.71 | -9.89 | 0.50 |
| Yemen           | -12.85 | -16.62 | -9.09 | 0.51 |
| Zimbabwe        | 1.82 | -1.72 | 5.35 | 1.09 |
### eTable 7. The Annualized Changes of the Absolute and Relative Inequality of Total Anemia Among Children Between the Earliest and Most Recent Survey for Each Country

| Country        | SII of total anaemia | RII of total anaemia |
|----------------|----------------------|----------------------|
|                | The annualized change | 95%Confidence interval | The annualized % change | 95%Confidence interval |
| Armenia        | 7.23                 | 4.72                 | 9.73                | 37.93                 | 25.17                 | 50.68 |
| Benin          | 0.28                 | -0.57                | 1.13                | 5.51                 | 1.13                 | 9.89 |
| Bolivia        | -0.47                | -2.31                | 1.37                | -2.74                | -10.41               | 4.94 |
| Cambodia       | -0.39                | -1.35                | 0.56                | -1.07                | -5.15                | 3.01 |
| Cameroon       | 0.48                 | -0.61                | 1.56                | 3.12                 | -1.78                | 8.02 |
| Egypt          | -0.16                | -0.91                | 0.59                | -2.52                | -5.90                | 0.86 |
| Ethiopia       | -0.60                | -1.63                | 0.44                | -2.31                | -6.54                | 1.91 |
| Ghana          | -1.30                | -2.03                | -0.58               | -5.14                | -8.91                | -1.37 |
| Guinea         | -1.17                | -2.30                | -0.04               | -7.08                | -13.26               | -0.90 |
| Haiti          | -0.22                | -0.92                | 0.49                | -0.88                | -3.89                | 2.14 |
| Honduras       | 0.54                 | -0.30                | 1.38                | 1.34                 | -2.46                | 5.15 |
| Jordan         | -1.04                | -2.44                | 0.35                | -5.65                | -11.96               | 0.66 |
| Lesotho        | -4.15                | -6.56                | -1.74               | -16.65               | -26.34               | -6.95 |
| Madagascar     | -0.49                | -2.34                | 1.36                | -0.07                | -8.21                | 8.08 |
| Malawi         | -0.61                | -1.98                | 0.76                | -0.92                | -7.48                | 5.64 |
| Mali           | -1.16                | -1.74                | -0.58               | -8.54                | -12.42               | -4.66 |
| Nepal          | -0.78                | -2.49                | 0.94                | -3.15                | -10.05               | 3.76 |
| Niger          | 0.75                 | -0.25                | 1.74                | 6.17                 | 0.21                 | 12.13 |
| Peru           | -1.10                | -1.74                | -0.46               | -5.49                | -8.22                | -2.75 |
| Rwanda         | -0.61                | -1.48                | 0.26                | -3.01                | -6.66                | 0.64 |
| Senegal        | -2.00                | -2.87                | -1.13               | -6.29                | -10.93               | -1.65 |
| Sierra Leone   | 0.33                 | -1.16                | 1.82                | 0.78                 | -8.09                | 9.66 |
| Tanzania       | 1.95                 | 1.05                 | 2.84                | 9.80                 | 5.80                 | 13.80 |
| Zimbabwe       | -0.39                | -2.02                | 1.24                | -1.60                | -8.32                | 5.12 |

According to WHO standards, total anaemia was defined as Hb < 11 g/dL for children aged 6-59 months; severe anaemia was defined as Hb < 7 g/dL. We used above repeated cross-sectional dataset (The third dataset) for the analyses of the annualized changes. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. The annualized changes of the SII and RII were calculated to adjust for the interval of time between the earliest and most recent surveys. Positive values for the annualized change of the SII and RII indicate a reduction in inequality, whereas negative values indicate an increase in inequality.
### Table 8. The Annualized Changes of the Absolute and Relative Inequality of Total Anemia Among Nonpregnant Women Between the Earliest and Most Recent Survey for Each Country

| Country      | SII of total anaemia | RII of total anaemia |
|--------------|----------------------|----------------------|
|              | The annualized change | 95% Confidence Interval | The annualized % change | 95% Confidence Interval |
| Armenia      | 2.25                 | 1.28                 | 3.22 | 19.03 | 12.13 | 25.92 |
| Benin        | -0.81                | -1.62                | 0.00 | -3.48 | -6.90 | -0.06 |
| Bolivia      | 1.90                 | 0.68                 | 3.12 | 9.86  | 4.31  | 15.41 |
| Cambodia     | -0.36                | -1.03                | 0.31 | -1.41 | -4.22 | 1.39  |
| Cameroon     | 0.35                 | -0.58                | 1.29 | 1.63  | -2.22 | 5.49  |
| Congo        | 3.28                 | 1.95                 | 4.62 | 13.30 | 7.87  | 18.74 |
| Egypt        | -0.20                | -0.81                | 0.41 | -1.70 | -4.57 | 1.17  |
| Ethiopia     | 0.88                 | 0.24                 | 1.52 | 0.91  | -2.84 | 4.65  |
| Ghana        | 0.63                 | 0.01                 | 1.25 | 2.52  | -0.03 | 5.07  |
| Guinea       | -1.49                | -2.61                | -0.37 | -6.08 | -10.62 | -1.54 |
| Haiti        | 0.87                 | 0.34                 | 1.40 | 3.49  | 1.34  | 5.63  |
| Honduras     | 1.13                 | 0.70                 | 1.56 | 8.47  | 5.36  | 11.58 |
| Jordan       | -0.16                | -1.52                | 1.21 | -0.69 | -6.51 | 5.14  |
| Lesotho      | -2.15                | -3.66                | -0.65 | -9.54 | -16.98 | -2.11 |
| Madagascar   | 1.73                 | 0.22                 | 3.23 | 6.30  | -0.24 | 12.83 |
| Malawi       | -0.77                | -2.04                | 0.50 | -4.38 | -10.08 | 1.32 |
| Mali         | 0.06                 | -0.62                | 0.74 | 0.70  | -2.17 | 3.57  |
| Nepal        | -0.54                | -1.56                | 0.48 | -2.51 | -7.12 | 2.10  |
| Niger        | 0.78                 | -0.39                | 1.96 | 3.26  | -1.59 | 8.11  |
| Peru         | 0.67                 | 0.32                 | 1.02 | 2.13  | 0.15  | 4.11  |
| Rwanda       | 0.10                 | -0.47                | 0.67 | -0.53 | -3.90 | 2.83  |
| Senegal      | 0.78                 | -0.76                | 2.32 | 3.43  | -2.86 | 9.73  |
| Sierra Leone | -3.67                | -5.09                | -2.25 | -14.95 | -20.77 | -9.13 |
| Tanzania     | 1.85                 | 1.00                 | 2.69 | 7.48  | 4.06  | 10.91 |
| Zimbabwe     | -0.33                | -1.37                | 0.72 | -1.22 | -5.97 | 3.54  |

According to WHO standards, total anaemia was defined as Hb < 12 g/dL for non-pregnant women aged 15–49 years; severe anaemia was defined as Hb < 8 g/dL. We used above repeated cross-sectional dataset (The four dataset) for the analyses of the annualized changes. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. The annualized changes of the SII and RII were calculated to adjust for the interval of time between the earliest and most recent surveys. Positive values for the annualized change of the SII and RII indicate a reduction in inequality, whereas negative values indicate an increase in inequality.
### eTable 9. Education-Related Absolute and Relative Inequality of Total Anemia Among Children for Each Country at the Most Recent Survey

| Country       | SII of total anaemia | 95% Confidence Interval | RII of total anaemia | 95% Confidence Interval |
|---------------|-----------------------|--------------------------|----------------------|-------------------------|
|               | SII                   | 95% Confidence Interval  | RII                  | 95% Confidence Interval |
| Albania       | -11.25                | -18.50 -3.99             | 0.48                 | 0.30 -0.77              |
| Armenia       | 1.47                  | -8.66 11.60              | 1.07                 | 0.67 -1.70              |
| Azerbaijan    | -8.03                 | -15.83 -0.23             | 0.71                 | 0.51 -0.99              |
| Bangladesh    | -11.61                | -18.67 -4.56             | 0.63                 | 0.47 -0.83              |
| Benin         | -11.29                | -17.20 -5.39             | 0.63                 | 0.49 -0.80              |
| Bolivia       | -11.51                | -18.26 -4.76             | 0.62                 | 0.46 -0.82              |
| Burkina Faso  | -6.62                 | -9.42 -3.81              | 0.52                 | 0.40 -0.69              |
| Burundi       | -6.43                 | -12.33 -0.53             | 0.77                 | 0.60 -0.98              |
| Cambodia      | -12.48                | -18.06 -6.90             | 0.60                 | 0.48 -0.76              |
| Cameroon      | -15.70                | -20.72 -10.69            | 0.51                 | 0.41 -0.63              |
| Congo Dem     | -6.62                 | -13.92 0.67              | 0.75                 | 0.54 -1.03              |
| Congo         | -4.61                 | -8.49 -0.74              | 0.82                 | 0.69 -0.97              |
| Cote d'Ivoire| -9.72                 | -15.36 -4.08             | 0.59                 | 0.44 -0.80              |
| Egypt         | -10.88                | -15.40 -6.35             | 0.59                 | 0.47 -0.73              |
| Ethiopia      | -11.87                | -15.51 -8.24             | 0.62                 | 0.54 -0.72              |
| Gabon         | -13.72                | -20.09 -7.35             | 0.55                 | 0.42 -0.73              |
| Gambia        | -12.78                | -18.42 -7.14             | 0.51                 | 0.38 -0.69              |
| Ghana         | -31.64                | -37.88 -25.40            | 0.22                 | 0.16 -0.30              |
| Guinea        | -12.99                | -18.49 -7.49             | 0.49                 | 0.36 -0.66              |
| Guyana        | -2.31                 | -11.26 6.65              | 0.91                 | 0.62 -1.32              |
| Haiti         | -2.71                 | -8.26 2.85               | 0.89                 | 0.69 -1.13              |
| Honduras      | -6.37                 | -9.75 -2.98              | 0.74                 | 0.63 -0.87              |
| Jordan        | -8.53                 | -12.61 -4.46             | 0.67                 | 0.56 -0.81              |
| Kyrgyzstan    | 5.52                  | -0.24 11.28              | 1.25                 | 0.99 -1.58              |
| Lesotho       | 5.54                  | -7.96 19.04              | 0.89                 | 0.58 -1.37              |
| Madagascar    | -12.62                | -17.39 -7.86             | 0.60                 | 0.50 -0.73              |
| Malawi        | -15.59                | -20.67 -10.50            | 0.50                 | 0.40 -0.63              |
| Mali          | -15.18                | -19.22 -11.15            | 0.37                 | 0.28 -0.48              |
| Moldova       | -13.68                | -22.25 -5.10             | 0.52                 | 0.34 -0.78              |
| Mozambique    | -16.56                | -21.26 -11.86            | 0.47                 | 0.38 -0.59              |
| Namibia       | -12.97                | -21.60 -4.33             | 0.59                 | 0.42 -0.84              |
| Nepal         | -10.54                | -17.92 -3.16             | 0.65                 | 0.49 -0.88              |
| Niger         | -1.76                 | -6.13 2.60               | 0.91                 | 0.72 -1.15              |
| Peru          | -17.00                | -21.82 -12.18            | 0.51                 | 0.43 -0.60              |
| Rwanda        | -4.96                 | -10.65 0.73              | 0.81                 | 0.63 -1.03              |

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According to WHO standards, total anaemia was defined as Hb < 11 g/dL for children aged 6-59 months; severe anaemia was defined as Hb < 7 g/dL. We used the above cross-sectional dataset (the first dataset) for the estimates of education-related absolute and relative inequality among children. All estimates used to determine anaemia were weighted and proved appropriate for the DHS complex survey design. The slope index of inequality (SII) and the relative index of inequality (RII) were calculated to determine the absolute and relative socioeconomic inequalities of anaemia, respectively. SII > 0 and RII > 1 would indicate that individuals with lower socioeconomic status would be more likely to suffer from anaemia, whereas the reverse inequality would indicate lower anaemia prevalence among populations with lower socioeconomic status.

| Country     | SII  | RII  | SII  | RII  | SII  | RII  |
|-------------|------|------|------|------|------|------|
| Sao Tome    | -11.51 | -20.06 | -2.96 | 0.62 | 0.43 | 0.88 |
| Senegal     | -8.51  | -13.14 | -3.89 | 0.70 | 0.57 | 0.85 |
| Sierra Leone| -2.83  | -7.03  | 1.37  | 0.84 | 0.64 | 1.09 |
| Swaziland   | -1.65  | -9.59  | 6.30  | 0.94 | 0.68 | 1.29 |
| Tanzania    | -6.93  | -12.06 | -1.80 | 0.82 | 0.70 | 0.96 |
| Timor-Leste | 3.37   | -3.64  | 10.38 | 1.15 | 0.86 | 1.53 |
| Togo        | -10.85 | -16.64 | -5.06 | 0.59 | 0.45 | 0.78 |
| Uganda      | -10.35 | -18.54 | -2.15 | 0.52 | 0.37 | 0.73 |
| Zimbabwe    | -6.14  | -11.89 | -0.39 | 0.78 | 0.61 | 0.98 |
| Total       | -8.37  | -9.60  | -7.14 | 0.71 | 0.68 | 0.75 |

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### eTable 10. Education-Related Absolute and Relative Inequality of Total Anemia Among Nonpregnant Women

for Each Country at the Most Recent Survey

| Country        | SII of total anaemia | 95% Confidence Interval | RII of total anaemia | 95% Confidence Interval |
|----------------|-----------------------|-------------------------|----------------------|-------------------------|
| Albania        | -7.67                 | -10.72 -4.62            | 0.59                 | 0.48 -0.73              |
| Armenia        | 1.77                  | -2.00 5.54              | 1.10                 | 0.89 1.36              |
| Azerbaijan     | -4.36                 | -8.05 -0.66             | 0.83                 | 0.71 0.97              |
| Bangladesh     | -13.22                | -17.79 -8.65            | 0.58                 | 0.48 0.70              |
| Benin          | -0.67                 | -5.65 4.31              | 0.97                 | 0.79 1.20              |
| Bolivia        | -7.40                 | -11.83 -2.98            | 0.73                 | 0.60 0.88              |
| Burkina Faso   | -7.92                 | -11.79 -4.04            | 0.73                 | 0.62 0.85              |
| Burundi        | -8.76                 | -12.61 -4.91            | 0.53                 | 0.40 0.70              |
| Cambodia       | -15.18                | -18.68 -11.68           | 0.54                 | 0.47 0.62              |
| Cameroon       | 3.50                  | -0.57 7.57              | 1.16                 | 0.98 1.38              |
| Congo          | 5.29                  | 0.30 10.28              | 1.24                 | 1.01 1.51              |
| Congo Dem      | 3.77                  | 0.07 7.48               | 1.17                 | 1.00 1.37              |
| Cote d'Ivoire  | -8.18                 | -13.50 -2.86            | 0.72                 | 0.58 0.89              |
| Egypt          | -1.28                 | -4.91 2.34              | 0.93                 | 0.77 1.14              |
| Ethiopia       | -16.79                | -18.94 -14.63           | 0.33                 | 0.29 0.38              |
| Gabon          | 7.86                  | 2.85 12.87              | 1.38                 | 1.12 1.70              |
| Gambia         | -18.11                | -23.28 -12.94           | 0.47                 | 0.37 0.58              |
| Ghana          | -5.33                 | -10.31 -0.34            | 0.80                 | 0.65 0.99              |
| Guinea         | -13.64                | -18.90 -8.38            | 0.58                 | 0.47 0.71              |
| Guyana         | -4.15                 | -9.06 0.75              | 0.84                 | 0.68 1.03              |
| Haiti          | 8.02                  | 4.35 11.69              | 1.38                 | 1.19 1.60              |
| Honduras       | 1.71                  | 0.01 3.41               | 1.14                 | 1.00 1.30              |
| Jordan         | -2.27                 | -6.31 1.78              | 0.91                 | 0.77 1.08              |
| Kyrgyzstan     | 2.18                  | -1.62 5.97              | 1.10                 | 0.93 1.30              |
| Lesotho        | 2.45                  | -2.46 7.35              | 1.13                 | 0.88 1.46              |
| Madagascar     | -19.52                | -23.11 -15.94           | 0.42                 | 0.36 0.50              |
| Malawi         | -9.95                 | -13.80 -6.11            | 0.61                 | 0.51 0.74              |
| Mali           | -14.04                | -19.02 -9.06            | 0.57                 | 0.47 0.70              |
| Moldova        | -3.69                 | -7.30 -0.07             | 0.83                 | 0.69 1.00              |
| Mozambique     | -8.65                 | -11.68 -5.62            | 0.71                 | 0.63 0.80              |
| Namibia        | -6.18                 | -10.54 -1.82            | 0.68                 | 0.52 0.89              |
| Nepal          | -4.69                 | -8.82 -0.56             | 0.81                 | 0.67 0.97              |
| Niger          | -8.44                 | -13.39 -3.49            | 0.71                 | 0.58 0.87              |

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| Country     | SII  | RII  | SII  | RII  | SII  | RII  |
|-------------|------|------|------|------|------|------|
| Peru        | -5.12| -6.86| -3.38| 0.71 | 0.64 | 0.80 |
| Rwanda      | -5.45| -8.80| -2.10| 0.70 | 0.56 | 0.87 |
| Sao Tome    | 1.49 | -5.61| 8.59 | 1.06 | 0.79 | 1.42 |
| Senegal     | 0.17 | -4.62| 4.95 | 1.01 | 0.83 | 1.22 |
| Sierra Leone| -10.92| -14.93| -6.91| 0.64 | 0.55 | 0.76 |
| Swaziland   | -1.82| -6.49| 2.85 | 0.92 | 0.73 | 1.15 |
| Tanzania    | 0.57 | -2.80| 3.95 | 1.02 | 0.89 | 1.18 |
| Timor-Leste | -5.96| -10.60| -1.32| 0.70 | 0.53 | 0.93 |
| Togo        | 7.85 | 2.77 | 12.93| 1.37 | 1.12 | 1.69 |
| Uganda      | -14.12| -20.71| -7.53| 0.55 | 0.42 | 0.73 |
| Zimbabwe    | 0.42 | -3.16| 3.99 | 1.02 | 0.86 | 1.21 |
| Total       | -4.88| -5.46| -4.29| 0.80 | 0.78 | 0.83 |

According to WHO standards, total anaemia was defined as Hb < 12 g/dL for non-pregnant women aged 15–49 years; severe anaemia was defined as Hb < 8 g/dL. We used the above cross-sectional dataset (the second dataset) for the estimates of education-related absolute and relative inequality among non-pregnant women. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. The slope index of inequality (SII) and the relative index of inequality (RII) were calculated to determine the absolute and relative socioeconomic inequalities of anemia, respectively. SII > 0 and RII > 1 would indicate that individuals with lower socioeconomic status would be more likely to suffer from anemia, whereas the reverse inequality would indicate lower anemia prevalence among populations with lower socioeconomic status.
### eTable 11. The Annualized Changes of Education-Related Absolute and Relative Inequality of Total Anemia Among Children Between the Earliest and Most Recent Survey for Each Country

| Country     | SII of total anaemia | RII of total anaemia |
|-------------|-----------------------|----------------------|
|             | The annualized change | 95%Confidence Interval | The annualized % change | 95%Confidence Interval |
| Armenia     | 3.22                  | 0.73                 | 5.70                     | 17.12                  | 4.75                 | 29.48                     |
| Benin       | 0.68                  | -0.17                | 1.53                     | 6.51                   | 2.17                 | 10.84                     |
| Bolivia     | 0.85                  | -0.99                | 2.69                     | 2.99                   | -4.62                | 10.60                     |
| Cambodia    | 0.84                  | -0.14                | 1.81                     | 4.05                   | -0.08                | 8.18                      |
| Cameroon    | -0.25                 | -1.33                | 0.83                     | -0.33                  | -5.19                | 4.54                      |
| Egypt       | 0.75                  | -0.03                | 1.53                     | 1.95                   | -1.55                | 5.44                      |
| Ethiopia    | -0.77                 | -1.89                | 0.36                     | -3.03                  | -7.57                | 1.51                      |
| Ghana       | -1.40                 | -2.13                | -0.66                    | -5.86                  | -9.63                | -2.08                     |
| Guinea      | -1.62                 | -2.76                | -0.49                    | -9.09                  | -15.23               | -2.94                     |
| Haiti       | -0.02                 | -0.71                | 0.67                     | -0.13                  | -3.09                | 2.82                      |
| Honduras    | 1.34                  | 0.51                 | 2.17                     | 5.16                   | 1.42                 | 8.89                      |
| Jordan      | 0.16                  | -1.11                | 1.43                     | 0.14                   | -5.53                | 5.81                      |
| Lesotho     | -2.10                 | -4.94                | 0.74                     | -8.43                  | -19.79               | 2.94                      |
| Madagascar  | 0.54                  | -1.36                | 2.44                     | 4.27                   | -4.06                | 12.59                     |
| Malawi      | -1.64                 | -3.01                | -0.27                    | -6.49                  | -13.00               | 0.02                      |
| Mali        | -0.78                 | -1.36                | -0.20                    | -5.32                  | -9.10                | -1.54                     |
| Nepal       | 0.72                  | -1.06                | 2.49                     | 2.86                   | -4.32                | 10.04                     |
| Niger       | 0.90                  | -0.13                | 1.93                     | 6.26                   | 0.15                 | 12.37                     |
| Peru        | -0.13                 | -0.76                | 0.50                     | -1.00                  | -3.67                | 1.66                      |
| Rwanda      | 0.43                  | -0.46                | 1.31                     | 1.52                   | -2.17                | 5.21                      |
| Senegal     | 0.19                  | -0.64                | 1.02                     | 3.60                   | -0.82                | 8.02                      |
| Sierra Leone| 0.70                  | -0.81                | 2.21                     | 3.41                   | -5.57                | 12.39                     |
| Tanzania    | 0.27                  | -0.60                | 1.13                     | 1.99                   | -1.84                | 5.83                      |
| Zimbabwe    | -1.40                 | -3.03                | 0.23                     | -5.76                  | -12.50               | 0.98                      |

According to WHO standards, total anaemia was defined as Hb < 11 g/dL for children aged 6-59 months; severe anaemia was defined as Hb < 7 g/dL. We used above repeated cross-sectional dataset (The third dataset) for the analyses of the annualized changes. All estimates used to determine anaemia were weighted and proved appropriate for the DHS complex survey design. The annualized changes of the SII and RII were calculated to adjust for the interval of time between the earliest and most recent surveys. Positive values for the annualized change of the SII and RII indicate a reduction in education-related inequality, whereas negative values indicate an increase in education-related inequality.
## eTable 12. The Annualized Changes of Education-Related Absolute and Relative Inequality of Total Anemia Among Nonpregnant Women Between the Earliest and Most Recent Survey for Each Country

| Country   | SII of total anaemia | RII of total anaemia |
|-----------|----------------------|----------------------|
|           | The annualized change | 95% Confidence Interval | The annualized % change | 95% Confidence Interval |
| Armenia  | 0.81                 | -0.15                | 1.78               | 6.01                 | -0.73                | 12.75               |
| Benin     | -0.77                | -1.57                | 0.04               | -3.29                | -6.68                | 0.11                |
| Bolivia   | 1.05                 | -0.17                | 2.27               | 5.27                 | -0.18                | 10.72               |
| Cambodia  | -0.22                | -0.90                | 0.45               | -0.89                | -3.67                | 1.90                |
| Cameroon  | -1.10                | -2.03                | -0.17              | -4.40                | -8.25                | -0.55               |
| Congo     | 1.94                 | 0.61                 | 3.28               | 7.86                 | 2.48                 | 13.24               |
| Egypt     | 0.21                 | -0.42                | 0.84               | 0.67                 | -2.31                | 3.65                |
| Ethiopia  | -0.24                | -0.95                | 0.46               | -5.42                | -9.51                | -1.33               |
| Ghana     | 0.56                 | -0.07                | 1.19               | 2.26                 | -0.32                | 4.83                |
| Guinea    | -1.56                | -2.67                | -0.45              | -6.29                | -10.77               | -1.81               |
| Haiti     | 1.09                 | 0.56                 | 1.62               | 4.37                 | 2.25                 | 6.50                |
| Honduras  | 0.74                 | 0.31                 | 1.17               | 5.26                 | 2.14                 | 8.39                |
| Jordan    | 0.57                 | -0.67                | 1.82               | 2.52                 | -2.80                | 7.84                |
| Lesotho   | -0.74                | -2.26                | 0.77               | -3.25                | -10.73               | 4.23                |
| Madagascar | 1.52                | 0.01                 | 3.04               | 5.57                 | -1.00                | 12.13               |
| Malawi    | -0.27                | -1.53                | 0.99               | -2.55                | -8.20                | 3.11                |
| Mali      | 0.05                 | -0.63                | 0.73               | 0.55                 | -2.30                | 3.39                |
| Nepal     | 0.87                 | -0.18                | 1.92               | 3.67                 | -1.09                | 8.42                |
| Niger     | -0.44                | -1.65                | 0.77               | -1.79                | -6.75                | 3.17                |
| Peru      | 0.76                 | 0.43                 | 1.10               | 2.84                 | 0.96                 | 4.72                |
| Rwanda    | 0.20                 | -0.38                | 0.78               | 0.34                 | -3.08                | 3.75                |
| Senegal   | 2.57                 | 1.11                 | 4.03               | 10.66                | 4.69                 | 16.62               |
| Sierra Leone | -2.16            | -3.60                | -0.72              | -8.77                | -14.61               | -2.92               |
| Tanzania  | 1.36                 | 0.56                 | 2.16               | 5.45                 | 2.21                 | 8.69                |
| Zimbabwe  | 0.34                 | -0.71                | 1.38               | 1.49                 | -3.29                | 6.28                |

According to WHO standards, total anaemia was defined as Hb < 12 g/dL for non-pregnant women aged 15–49 years; severe anaemia was defined as Hb < 8 g/dL. We used above repeated cross-sectional dataset (The four dataset) for the analyses of the annualized changes. All estimates used to determine anemia were weighted and proved appropriate for the DHS complex survey design. The annualized changes of the SII and RII were calculated to adjust for the interval of time between the earliest and most recent surveys. Positive values for the annualized change of the SII and RII indicate a reduction in education-related inequality, whereas negative values indicate an increase in education-related inequality.