Methodology

8.7 ALLIANCE

GLOBAL ESTIMATES OF CHILD LABOUR, 2012-2016

International Labour Office

Methodology of the global estimates of child labour

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Introduction

This report explains the methodology used to arrive at the 2016 Global Estimates of Child Labour[1] and provides a detailed analysis of results and trends. The Global Estimates underscore the scale, prevalence, and key characteristics of child labour in the world today. Child labour remains endemic worldwide. Its elimination requires both economic and social reform and the active cooperation of all relevant stakeholders, including governments, workers' and employers' organizations, businesses, international organizations and broader civil society. Furthermore, target 8.7 of the Sustainable Development Goals explicitly calls for the eradication of all forms of child labour by 2025 – a tall order, but an obligation nevertheless.

The Global Estimates reveal that, despite successes, almost 152 million children are still engaged in child labour: economic activities for which they are too young and which impede their overall development, or which are physically and psychologically injurious to their health and well-being. Three major findings should be mentioned. First, although the 2012 estimates indicated an accelerated decline in the number of children in child labour, the pace of the decline has slowed significantly. Second, while efforts targeting children aged 15 to 17 have successfully reduced the numbers of child labourers in that age group, positive outcomes among younger children have been marginal. Third, progress towards the eradication of child labour has been uneven across regions and economic sectors.

The extrapolation of the global estimates is based on 105 national household surveys, covering more than 70 per cent of the world population of children aged 5 to 17. All regions are covered, with data from Organization for Economic Cooperation and Development (OECD) countries and China included for the first time. A total of 24 national data sets were derived from child labour surveys (CLS) implemented by the ILO in collaboration with national bureaus of statistics and with additional financial support from the United States Department of Labor; 17 national data sets were derived from the multiple indicator cluster surveys (MICS) implemented with the assistance of UNICEF; 17 data sets were derived from demographic and health surveys (DHS), most of which were implemented with funding from the United States Agency for International Development (USAID): 17 data sets were derived from national labour force surveys (LFS) or other national household surveys; 30 data sets limited to 15–17-year-old children were derived from national LFS conducted in accordance with Eurostat guidelines.

The findings of these Global Estimates have stark implications for policy. If eradication of all forms of child labour is to be achieved by 2025, this is a wake-up call and additional major and systemic efforts are needed. Moreover, the specific data about different age groups reveals policy gaps that must be tackled. Finally, the uneven progress across regions underscores the need for much greater efforts and investment of resources in particular parts of the world.

It is also hoped that the findings presented in this report will encourage further research and data collection efforts by governments and stimulate the harmonization of measurement frameworks across countries.

Overall summary of results: Children's involvement in employment, child labour and hazardous work by sex, age, geographical region, and national income, 2000–16

			Children in employment		Child labour		Hazardous work	
			(thousands)	%	(thousands)	%	(thousands)	%
World		2000	351 900	23.0	245 500	16.0	170 500	11.1
		2004	322 729	20.6	222 294	14.2	128 381	8.2
		2008	305 669	19.3	215 209	13.6	115 314	7.3
		2012	264 427	16.7	167 956	10.6	85 344	5.4
		2016	**218 019**	**13.8**	**151 622**	**9.6**	**72 525**	**4.6**
Sex	Boys	2000	184 200	23.4	132 200	16.8	95 700	12.2
		2004	171 150	21.3	119 575	14.9	74 414	9.3
		2008	175 777	21.4	127 761	15.6	74 019	9.0
		2012	148 327	18.1	99 766	12.2	55 048	6.7
		2016	**123 190**	**15.0**	**87 521**	**10.7**	**44 774**	**5.5**
	Girls	2000	167 700	22.5	113 300	15.2	74 800	10.0
		2004	151 579	19.9	102 720	13.5	53 966	7.1
		2008	129 892	16.9	87 508	11.4	41 296	5.4
		2012	116 100	15.2	68 190	8.9	30 296	4.0
		2016	**94 829**	**12.4**	**64 100**	**8.4**	**27 751**	**3.6**
Age	5–14 years	2000	211 000	17.6	186 300	15.5	111 300	9.3
		2004	196 047	16.2	170 383	14.1	76 470	6.3
		2008	176 452	14.5	152 850	12.6	52 895	4.3
		2012	144 066	11.8	120 453	9.9	37 841	3.1
		2016	**130 364**	**10.6**	**114 472**	**9.3**	**35 376**	**2.9**
	15–17 years	2000	140 900	42.4	59 200	17.8	59 200	17.8
		2004	126 682	35.2	51 911	14.4	51 911	14.4
		2008	129 217	35.0	62 419	16.9	62 419	16.9
		2012	120 362	33.0	47 503	13.0	47 503	13.0
		2016	**87 655**	**24.9**	**37 149**	**10.5**	**37 149**	**10.5**
Region (new ILO groupings)	Africa	**2016**	**99 417**	**27.1**	**72 113**	**19.6**	**31 538**	**8.6**
	Arab States	**2016**	**1 868**	**4.6**	**1 162**	**2.9**	**616**	**1.5**
	Asia and the Pacific	**2016**	**90 236**	**10.7**	**62 077**	**7.4**	**28 469**	**3.4**
	Americas	**2016**	**17 725**	**8.8**	**10 735**	**5.3**	**6 553**	**3.2**
	Europe and Central Asia	**2016**	**8 773**	**6.5**	**5 534**	**4.1**	**5 349**	**4.0**
Region (former ILO groupings)	Asia and the Pacific	2012	129 358	15.5	77 723	9.3	33 860	4.1
		2016	**90 236**	**10.7**	**62 077**	**7.4**	**28 469**	**3.4**
	Latin America and the Caribbean	2012	17 843	12.5	12 505	8.8	9 638	6.8
		2016	**16 062**	**11.2**	**10 461**	**7.3**	**6 278**	**4.4**
	Sub-Saharan Africa	2012	83 570	30.3	59 031	21.4	28 767	10.4
		2016	**95 931**	**30.7**	**69 985**	**22.4**	**30 460**	**9.8**
Region (former ILO groupings)	Low-income	2012	-	-	74 394	22.5	-	-
		2016	**86 828**	**25.8**	**65 203**	**19.4**	**29 664**	**8.8**
	Lower-middle-income	2012	-	-	81 306	9.0	-	-
		2016	**81 735**	**11.9**	**58 184**	**8.5**	**33 465**	**4.9**
	Upper-middle-income	2012	-	-	12 256	6.2	-	-
		2016	**43 364**	**11.0**	**26 209**	**6.6**	**7 751**	**2.0**
	High-income	2012	-	-	-	-	-	-
		2016	**6 093**	**3.6**	**2 025**	**1.2**	**1 645**	**1.0**

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Part A
Main results

Under the ILO Worst Forms of Child Labour Convention, 1999 (No. 182) and the UN Convention on the Rights of the Child, a child is defined as an individual under the age of 18 years. The target population for measuring child labour comprises all persons in the 5–17 age group, where age is measured as the number of completed years at the child's last birthday. As per the 18th International Conference of Labour Statisticians (ICLS) Resolution II concerning statistics of child labour, the definition of child labour varies according the age of the child, with thresholds at 12 years and 15 years. All tables on employment, child labour, hazardous work, and unpaid household services are therefore disaggregated by age group, using the three following age groups: 5 to 11 years old, 12 to 14 years old and 15 to 17 years old.

1. Global trends in the number of children in employment

The term "children in employment" is used interchangeably with the term "children in economic activity" in this report. It denotes a broader concept than child labour and includes all persons of either sex who furnish the supply of labour for the production of goods and services defined by the UN System of National Accounts during a specified reference period.

The term encompasses most activities undertaken by children with a view to producing goods and providing services, whether these are:

- for the market or not, including the production of goods such as agricultural products for the child's own use or consumption;
- paid or unpaid;
- part-time or full-time;
- performed on a causal or a regular basis;
- performed in the formal or informal economy;
- performed within or outside the family setting;
- legal or illegal.

It excludes:

- household chores in the child's own household (unpaid household services);
- activities that are part of schooling;
- children seeking work for which they are available if it is offered.

1.1 Children in employment by age group

In 2016, an estimated 218.0 million children aged 5–17 were in employment worldwide, equivalent to 13.8 per cent of all children in that age group. In the 5–14 age group, an estimated 130.4 million children were in employment, equivalent to 10.6 per cent of all children in that age group.

Between 2012 and 2016, employment in the core 5–14 age group declined by approximately 14 million (1.2 percentage points), from 144.1 million (11.8 per cent) to 130.4 million (10.6 per cent). During the same period, employment rates for 15–17-year-old children declined by approximately 33 million (8.1 percentage points), from 120.4 million (33.0 per cent) to 87.7 million (24.9 per cent).

Table 1

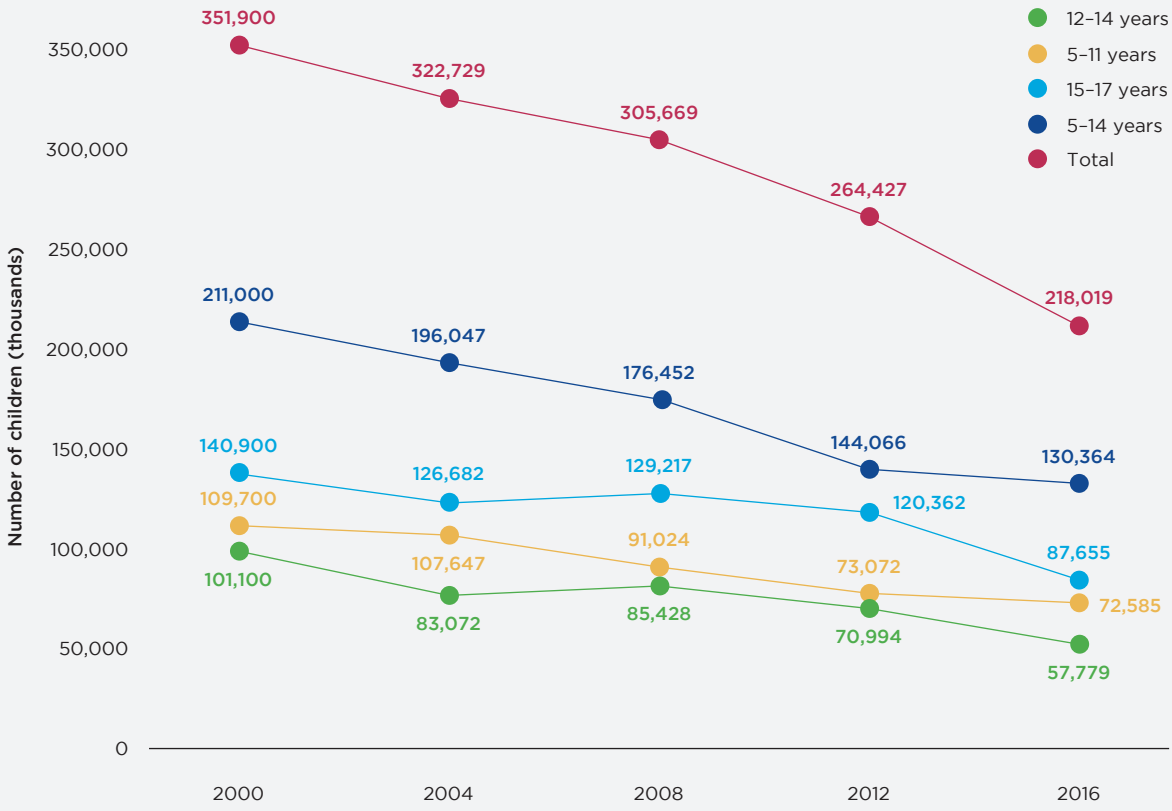
Global trends (2012–16) in the number of children aged 5–17 in employment

	Population (thousands)		Children in employment (thousands)		Employment rate (%)		Percentage-point change in employment rate, 2012 to 2016
	2012	2016	2012	2016	2012	2016	
World	1 585 566	1 585 219	264 427	218 019	16.7	13.8	-2.9
Boys	819 877	819 423	148 327	123 190	18.1	15.0	-3.1
Girls	765 690	765 796	116 100	94 829	15.2	12.4	-2.8
5–11 years	858 925	874 705	73 072	72 585	8.5	8.3	-0.2
12–14 years	362 146	358 002	70 994	57 779	19.6	16.1	-3.5
(5–14 years)	1 221 071	1 232 707	144 066	130 364	11.8	10.6	-1.2
15–17 years	364 495	352 512	120 362	87 655	33.0	24.9	-8.1

Chart 1 shows fluctuations in children's employment since the ILO began publishing global estimates of child labour in 2000. Compared with 2000, there were 133.9 fewer million children aged 5–17 in employment in 2016, with overall employment rates falling from 23.0 to 13.8 per cent. In the 5–14 age group, the reduction in employment was 80.6 million (from 17.6 to 10.6 per cent). The equivalent figure for children in the 15–17 age group was 53.2 million (a decline from 42.4 to 24.9 per cent).

Chart 1

Global trends (2000–16) in the number of children in employment by age group



1.2 Children in employment by sex

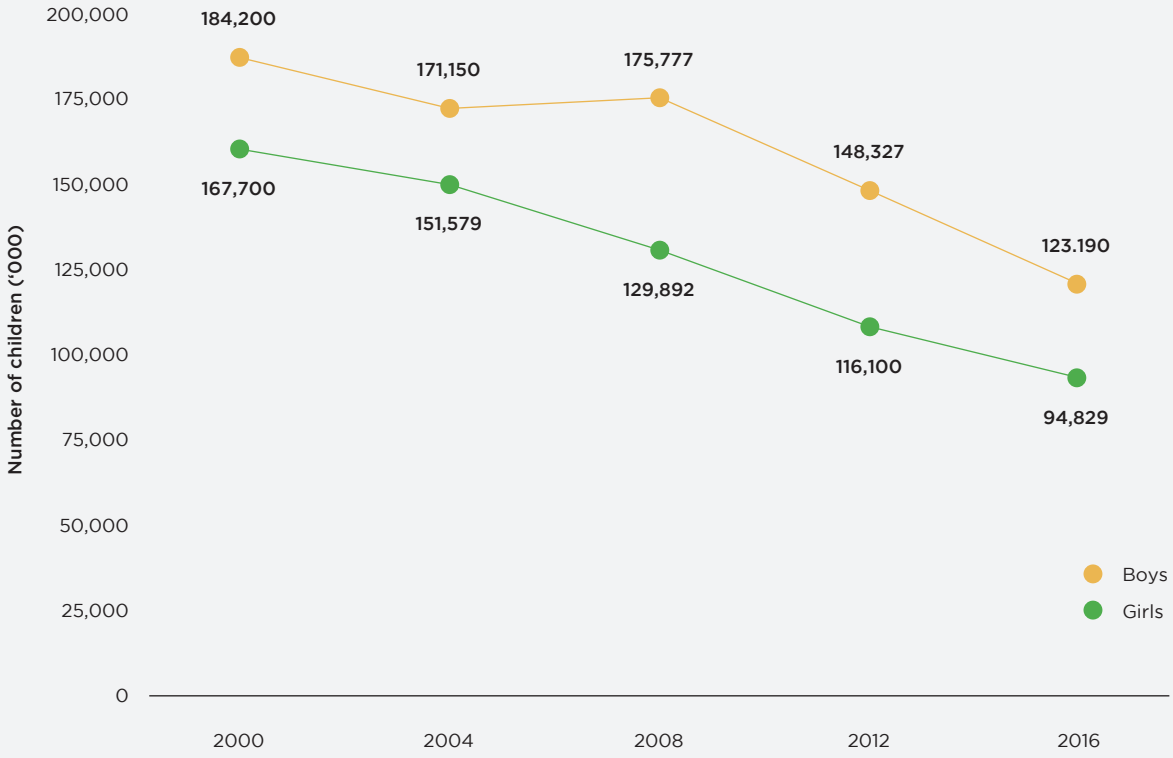
The 2016 Global Estimates of Child Labour reveal significant differences between boys and girls in terms of both their absolute and relative employment. Boys tend to be engaged in employment in larger numbers than girls (123.2 million versus 94.8 million). The employment rate for boys was 15.0 per cent, compared with 12.4 per cent for their female counterparts (see Table 1).

Between 2012 and 2016, employment rates decreased slightly faster among boys than among girls (3.1 percentage points for boys compared to 1.7 percentage points for girls).

Since the ILO began publishing global estimates in 2000, girls have experienced the largest absolute and relative reduction in employment. Compared with 2000, there were 72.9 million fewer girls and 61.0 fewer boys in employment in 2016 (see Chart 2). In relative terms, the employment rate fell from 22.5 to 12.4 per cent for girls, and from 23.4 to 15.0 per cent for boys between 2000 and 2016, respectively.

Chart 2

Global trends (2000–16) in the number of children aged 5–17 years in employment by sex



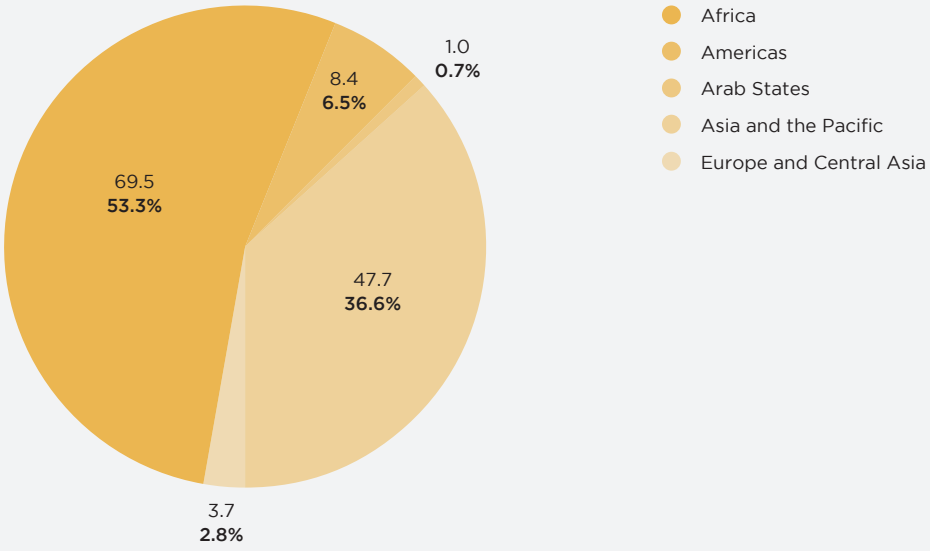
1.3 Children in employment by region

This section looks at regional variations in children's employment. This report uses the new ILO regional classification.[2] This classification includes the following five major regions: Africa, the Americas, the Arab States, Asia and the Pacific, and Europe and Central Asia. When relevant and for comparability purposes with previous global estimates, subregional classifications for sub-Saharan Africa and Latin America and the Caribbean are provided.

Chart 3 shows that the Africa region is home to the largest number of children in the 5–14 age group in employment (69.5 million), followed by Asia and the Pacific (47.7 million), the Americas (8.4 million), Europe and Central Asia (3.7 million), and the Arab States (1.0 million). This is the first time since the ILO began producing global estimates that a region other than Asia and the Pacific registered the largest number of children in the 5–14 age group in employment. This reveals a major shift in the distribution of children's work worldwide. Of all children in the 5–14 age group in employment globally, approximately 53.3 per cent are in Africa, 36.6 per cent are in Asia and the Pacific, 6.5 per cent are in the Americas, 2.8 per cent are in Europe and Central Asia, and 0.7 per cent are in the Arab States.

Chart 3

Children aged 5–14 in employment by region (million, percentage), 2016



Asia and the Pacific is home to the largest number of 15–17-year-olds in employment (42.5 million), followed by Africa (29.9 million), the Americas (9.3 million), Europe and Central Asia (5.1 million), and the Arab States (0.9 million). Approximately 48.5 per cent of those children are in Asia and the Pacific, 34.1 per cent are in Africa, 10.6 per cent are in the Americas, 5.1 per cent are in Europe and Central Asia and about 1.0 per cent are in the Arab States.

Chart 4

Children aged 15-17 in employment by region (million, percentage), 2016

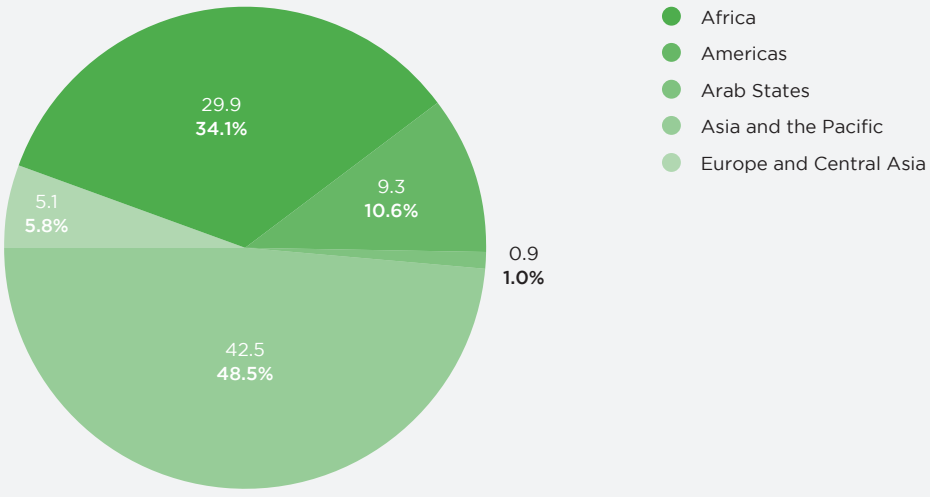
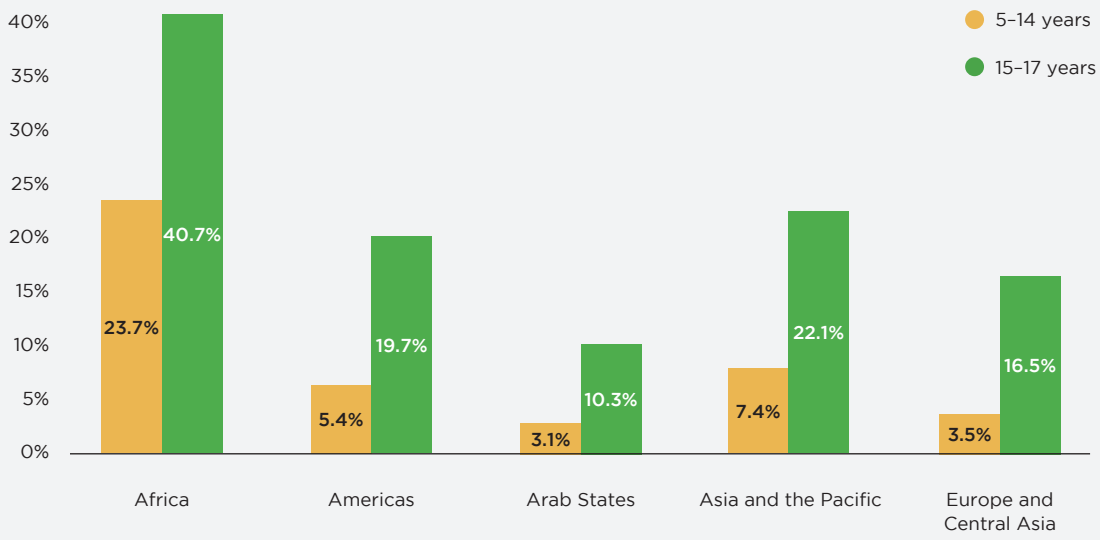


Chart 5 shows employment rates by region and age group. For both the 5–14 and 15–17 age groups, employment rates are highest in Africa, followed by Asia and the Pacific, the Americas, Europe and Central Asia, and the Arab States. Approximately one in four children under 15 years of age were in employment in Africa (23.7 per cent of children), compared to one in 14 in Asia and the Pacific (7.4 per cent), one in 19 in the Americas region (5.4 per cent), one in 29 in Europe and Central Asia (3.5 per cent), and one in 32 in the Arab States (3.1 per cent). For 15–17-year-olds, the regional order remains the same as for 5–14-year-olds, with 40.7 per cent of children in employment living in Africa, 22.1 per cent in Asia and the Pacific, 19.7 in the Americas, 16.5 per cent in Europe and Central Asia, and 10.3 per cent in the Arab States.

Chart 5

Children's employment rate (percentage) by region and age group, 2016



Charts 6 and 7 show changes in employment rates between 2012 and 2016 for children aged 5 to 14 in the regions considered in previous global estimates.

In sub-Saharan Africa, children's employment rose in both absolute and relative terms, increasing from 57.6 to 67.8 million, equivalent to a rise from 26.2 to 27.1 per cent.

In Latin America and the Caribbean, children's employment continued to decline in both absolute and relative terms, falling from 9.0 to 8.4 million, equivalent to a decrease from 8.2 to 7.6 per cent.

The greatest progress between 2012 and 2016 occurred in Asia and the Pacific, where the number of children in employment fell from 64.4 to 47.7 million, equivalent to a 2.7 percentage-point drop to 7.4 per cent.

In the "other regions" category, there was also a significant reduction in the employment of children in both absolute and relative terms: the number of children in employment fell from 13.0 to 6.4 million, equivalent to a reduction of 2.3 percentage points.

Chart 6

Global trends in children's employment by region (percentage), 5–14-year-olds, 2012 and 2016

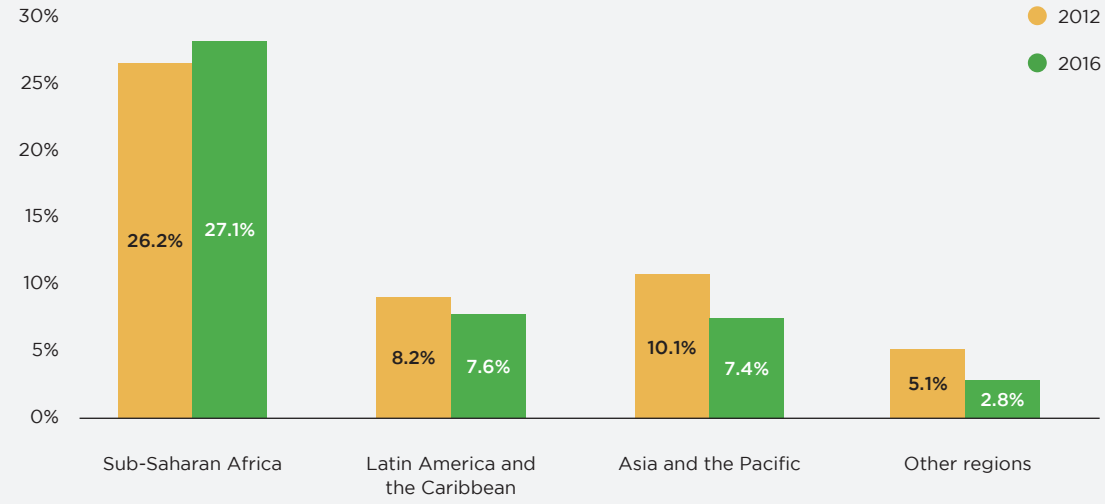


Chart 7

Global trends in children's employment by region (thousands), 5-14-year-olds, 2012 and 2016

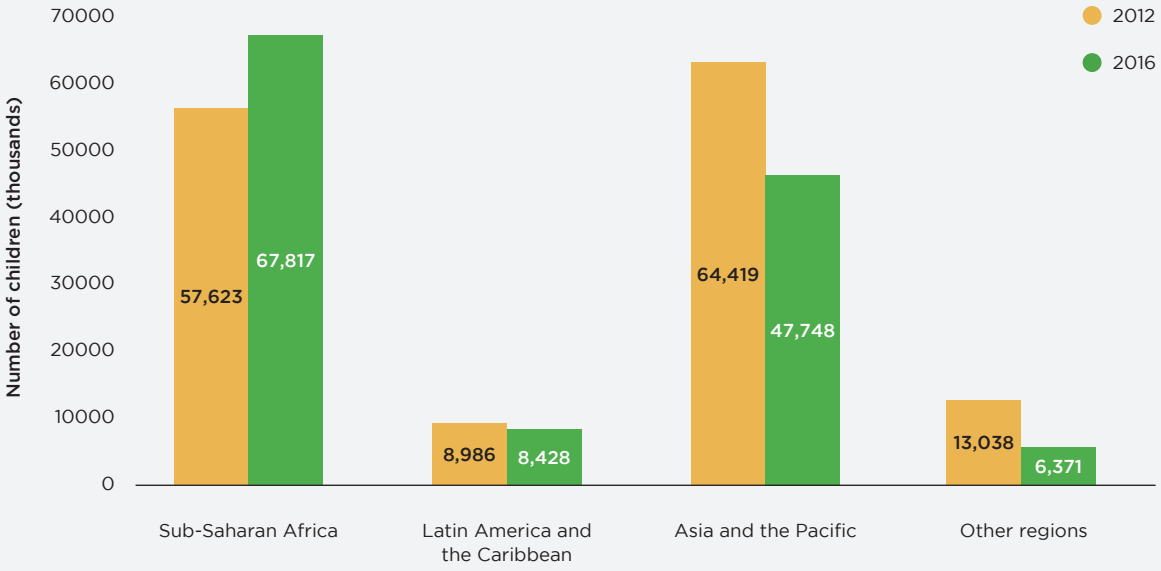
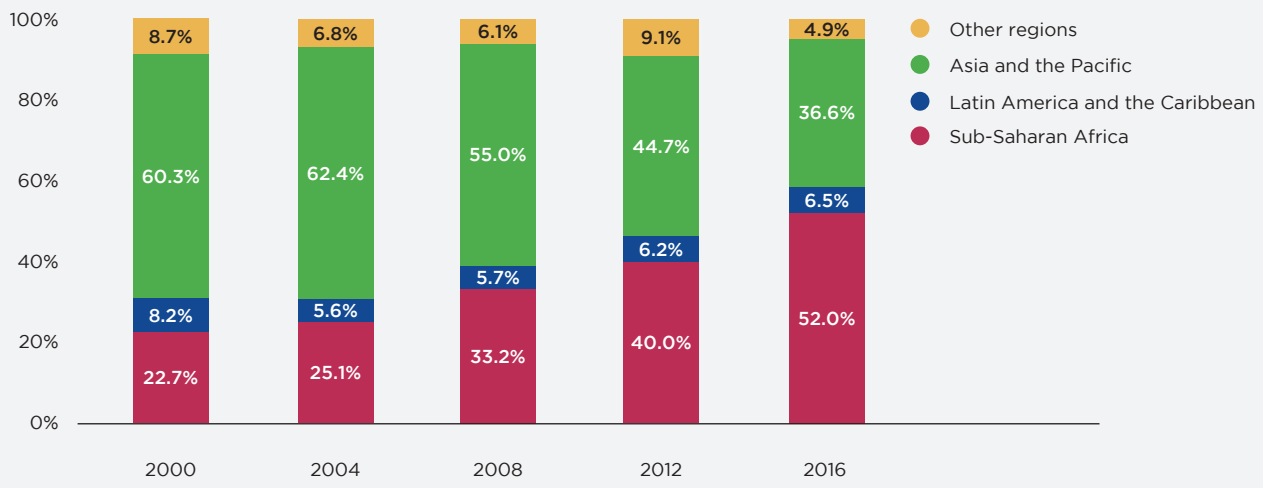


Chart 8 shows the changes in the regional distribution of children in the 5–14 age group in employment between 2000 and 2016. The Asia and the Pacific region's share of the world's children in employment fell sharply from 60.3 per cent in 2000 to 36.6 per cent in 2016. On the other hand, sub-Saharan Africa's share increased from 22.7 per cent in 2000 to 52.0 per cent in 2016. Latin America and the Caribbean's share remained relatively stable, falling slightly from 8.2 to 6.5 per cent over the period in question, while the share of the world's children in employment living in other regions declined from 8.7 to 4.9 per cent. At the global level, as previously noted, the employment of children aged 5 to 14 was concentrated more than ever before in sub-Saharan Africa, with more than half of 5–14-year-olds in employment living in that subregion.

Chart 8

Changes in the regional distribution of children in employment

Regional distribution of children aged 5 to 14 in employment, 2000-16 (percentage)

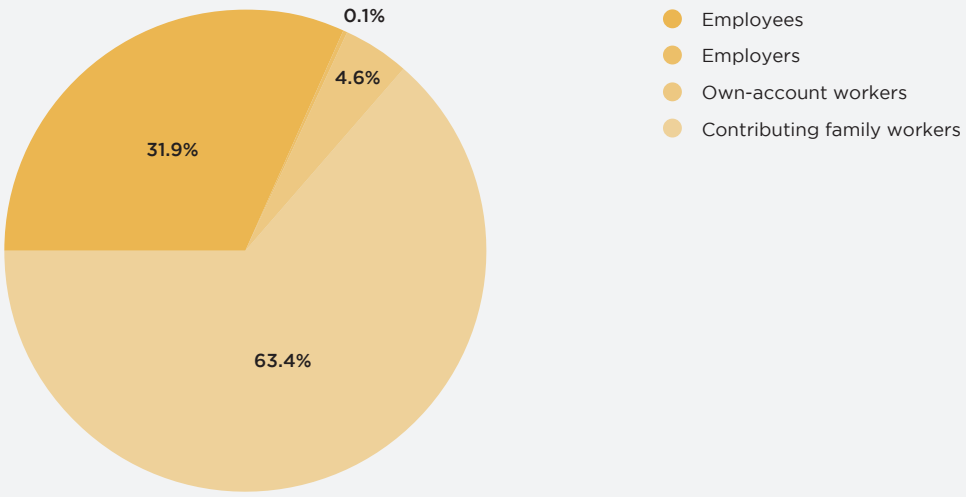


1.4 Children in employment by status in employment

About one-third of children in employment in 2016 were in paid employment (31.9 per cent) and 4.6 per cent were own-account workers. As was the case in previous global estimates, the majority of children in employment were contributing family workers (63.4 per cent).

Chart 9

Children aged 5–17 years in employment by status in employment (percentage), 2016



2. Trends in child labour

Child labour, a subset of children in employment, includes all economic activities covered by the production boundary of the UN System of National Accounts that must not be performed by children. More specifically, child labour includes:

- all children aged 5–11 years in employment;
- children aged 12–14 years in employment, unless they are engaged in permissible light work;
- children aged 15–17 years in employment who are engaged in hazardous work or other worst forms of child labour.

2.1 Child labour by age group

In 2016, an estimated 151.6 million children aged 5–17 years were engaged in child labour worldwide, equivalent to 9.6 per cent of children in that age group. Nearly half of those children (47.9 per cent) were under 11 years of age, and 27.6 per cent were aged 12–14 years.

Table 2

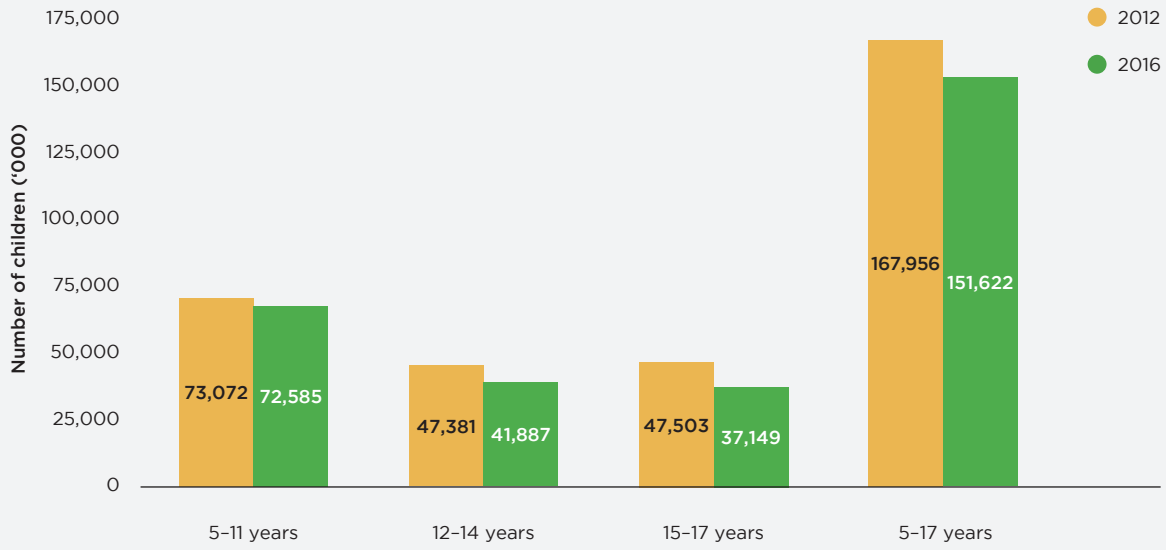
Child labour by age group (2012 and 2016)

	2012		2016		Percentage-point change in child labour rate between 2012 and 2016
	Child labour (thousands)	Child labour rate (%)	Child labour (thousands)	Child labour rate (%)	
Total	167 956	10.6	151 622	9.6	-1.0
5–11 years	73 072	8.5	72 585	8.3	-0.2
12–14 years	47 381	13.1	41 887	11.7	-1.4
(5–14 years)	120 453	9.9	114 472	9.3	-0.6
15–17 years	47 503	13.0	37 149	10.5	-2.5

Between 2012 and 2016, the proportion of children aged 5–17 years engaged in child labour decreased by only one percentage point, from 168.0 million (10.6 per cent) to 151.6 million (9.6 per cent), a decrease of about 16.4 million. During the same period, there was a decrease in children's employment of 2.9 percentage points (46.4 million); the decrease in the child labour rate was therefore less than the decrease in the children in employment rate. This is especially true for the youngest age group (children aged 5–11 years), for which the number of children engaged in employment and in child labour remained stable at around 72.6 million. The 15–17 age group registered the largest decrease in child labour (which was linked to the decrease in children's employment for this age group); the number of children in that age group engaged in child labour decreased by 10.4 million, equivalent to a decline of 2.5 percentage points. As was the case in 2012, child labour in 2016 was most prevalent among children in the 12–14 age group (see Table 2).

Chart 10

Global trends in child labour by age group (thousands)



2.2 Child labour by sex

Differences were observed between child labour rates for boys and girls in 2016: in absolute numbers, there were 87.5 million boys and 64.1 million girls aged 5–17 years in child labour, equivalent to 10.7 and 8.4 percent, respectively, of all boys and girls worldwide.

Table 3

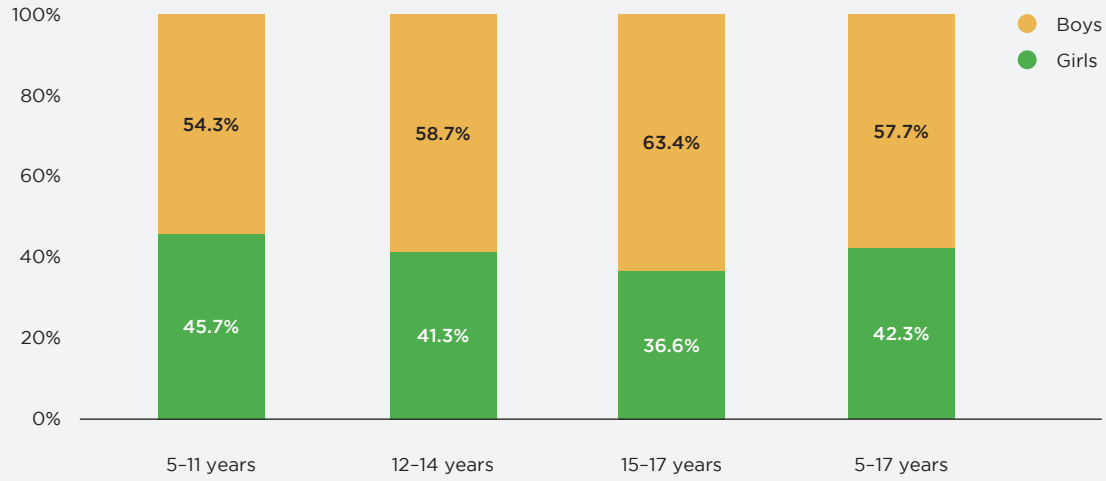
Child labour by sex and age group, 2012–16

	2012				2016			
	Child labour boys (thousands)	%	Child labour girls (thousands)	%	Child labour boys (thousands)	%	Child labour girls (thousands)	%
Total	99 766	12.2	68 190	8.9	87 521	10.7	64 100	8.4
5–11 years	36 317	8.1	36 755	8.8	39 402	8.7	33 183	7.8
12–14 years	24 780	13.4	22 601	13.1	24 582	13.3	17 035	10.0
(5–14 years)	61 097	9.6	59 356	10.0	63 985	10.0	50 488	8.5
15–17 years	38 669	20.8	8 834	5.1	23 537	12.9	13 612	8.0

The child labour rate was higher for boys than for girls in all age groups, and the gender gap increases with age. Chart 11 shows that the share of girls engaged in child labour, as a percentage all children in child labour, was 45.7 per cent for girls in the 5–11 age group, but fell to 36.6 per cent for girls in the 15–17 age group.

Chart 11

Child labour by age group, disaggregated by sex



In 2012, the rate of child labour was already lower for girls (8.9 per cent) than for boys (12.2 per cent), equivalent to 31.6 million more boys than girls aged 5–17 years engaged in child labour. By 2016, however, the gender gap had narrowed as a result of a fall in the child labour rate for boys of 1.5 percentage points and a fall in the child labour rate for girls of only 0.5 percentage points.

Child labour was most prevalent among boys and girls in the 12–14 age group, in which for boys it stood at 13.3 per cent and for girls it stood at 10.0 per cent.

2.3 Child labour by region

The highest number of children in child labour can be found in Africa (72.1 million) followed by Asia and the Pacific (62.1 million), the Americas (10.7 million), Europe and Central Asia (5.5 million), and the Arab States (1.2 million).

The rate of child labour decreased by one percentage point worldwide, but increased by one percentage point in Africa, with 11 million more children engaged in child labour in 2016 compared with 2012.

Table 4

Child labour (5–17-year-olds) by region, 2016

	Population		Child labour (thousands)		Child labour (%)		Percentage-point change in employment rate, 2012 to 2016
	2012	2016	2012	2016	2012	2016	
World	**1 585 566**	**1 585 219**	**167 956**	**151 622**	**10.6**	**9.6**	**-1.0**
Africa	**-**	**367 042**	**-**	**72 113**	**-**	**19.6**	**-**
Sub-Saharan Africa	275 397	312 083	59 031	69 985	21.4	22.4	1.0
Americas	**-**	**202 492**	**-**	**10 735**	**-**	**5.3**	**-**
Latin America and the Caribbean	142 693	144 004	12 505	10 461	8.8	7.3	-1.5
Arab States	**-**	**40 713**	**-**	**1 162**	**-**	**2.9**	**-**
Asia and the Pacific	**835 334**	**840 274**	**77 723**	**62 077**	**9.3**	**7.4**	**-1.9**
Europe and Central Asia	**-**	**134 698**	**-**	**5 534**	**-**	**4.1**	**-**
Northern, southern and Western Europe	-	60 740	-	1 094	-	1.8	-
Eastern Europe and Central and western Asia	-	73 958	-	4 440	-	6.0	-

Chart 12 shows that child labour among younger children is particularly common in Africa, where three out of every five children in child labour are between five and 11 years old. The child labour population in the other regions is distributed more evenly across the three age ranges.

Chart 12

Children's engagement in child labour by age range and region

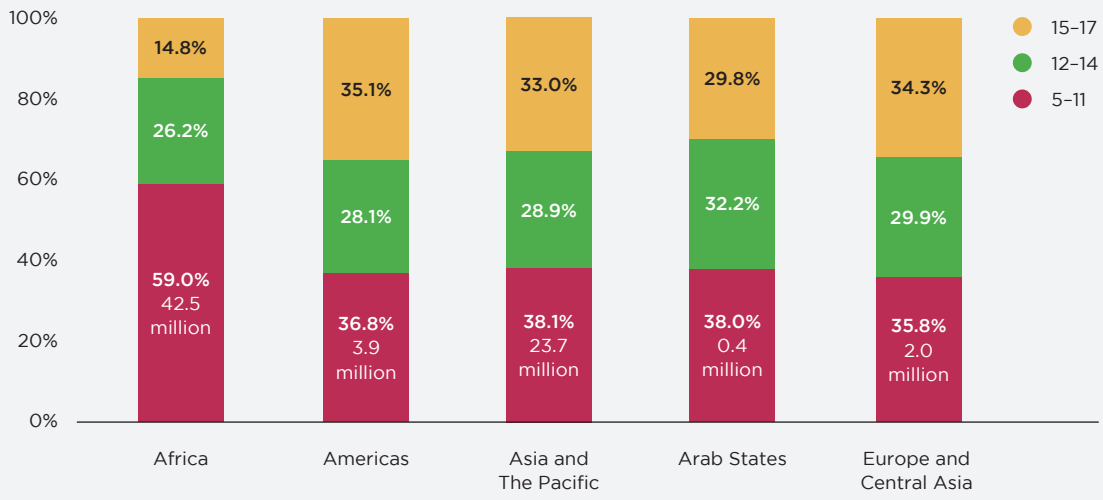
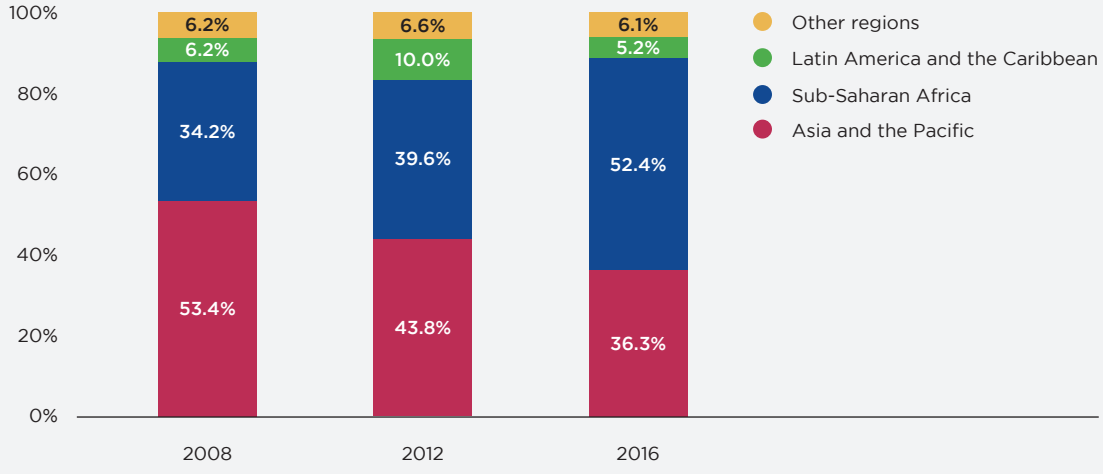


Chart 13 shows the changes in the regional distribution of children in the 5–14 age group engaged in child labour between 2008 and 2016. The Asia and the Pacific region's share of the world's children in employment fell sharply from 53.4 per cent in 2008 to 36.3 per cent in 2016. On the other hand, sub-Saharan Africa's share increased from 34.2 per cent in 2008 to 52.4 per cent in 2016. Latin America and the Caribbean's share remained relatively stable, falling slightly from 6.2 to 6.1 per cent over the period in question, while the share of the world's children engaged in child labour living in other regions declined from 6.2 to 5.2 per cent.

Chart 13

Changes in the regional distribution of children in child labour

Regional distribution of children aged 5 to 14 engaged in child labour, 2008–16 (percentage)



2.4 Child labour by branch of economic activity

Child labour is concentrated primarily in agriculture (70.9 per cent), which includes fishing, forestry, livestock herding, and aquaculture, and comprises both subsistence and commercial farming.

Almost one in five child labourers works in the services sector (17.1 per cent), while 11.9 per cent of child labourers work in industry (see Chart 14). These figures are notably different from the figures for 2012, when 58.6 per cent of child labourers worked in agriculture, 32.3 per cent in the services sector, and 7.2 per cent in industry. These changes probably reflect shifts in the regional distribution of child labour worldwide, with a greater concentration of child labourers in Africa.

Chart 14

Child labour by branch of economic activity (million, percentage), 5–17-year-olds, 2016

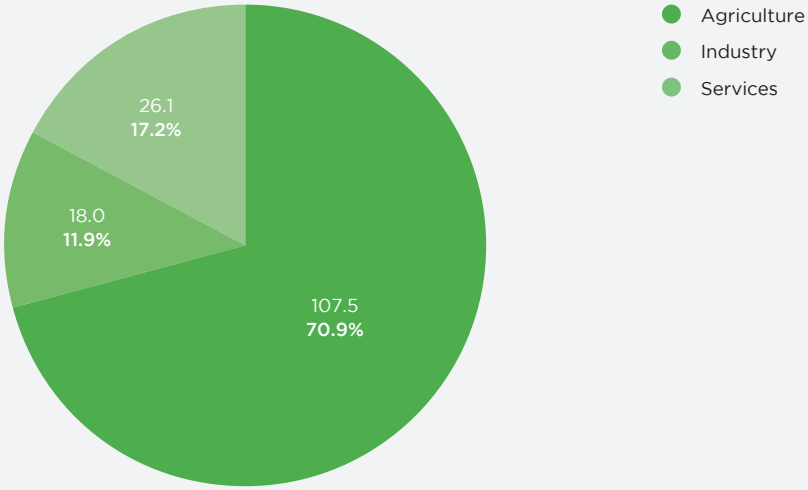


Chart 15 shows the sectoral distribution of child labour by age group. Most young children become child labourers in the agricultural sector, which absorbs approximately eight in ten child labourers aged 5–11 years (82.7 per cent). One in 20 child labourers in that age group are employed in industry (4.7 per cent) and more than one in ten works in the services sector (12.5 per cent). Older children are more likely to engage in child labour in industry and the services sector, and less likely to work in agriculture.

Chart 15

Child labour by age group and branch of economic activity (percentage), 5–17-year-olds

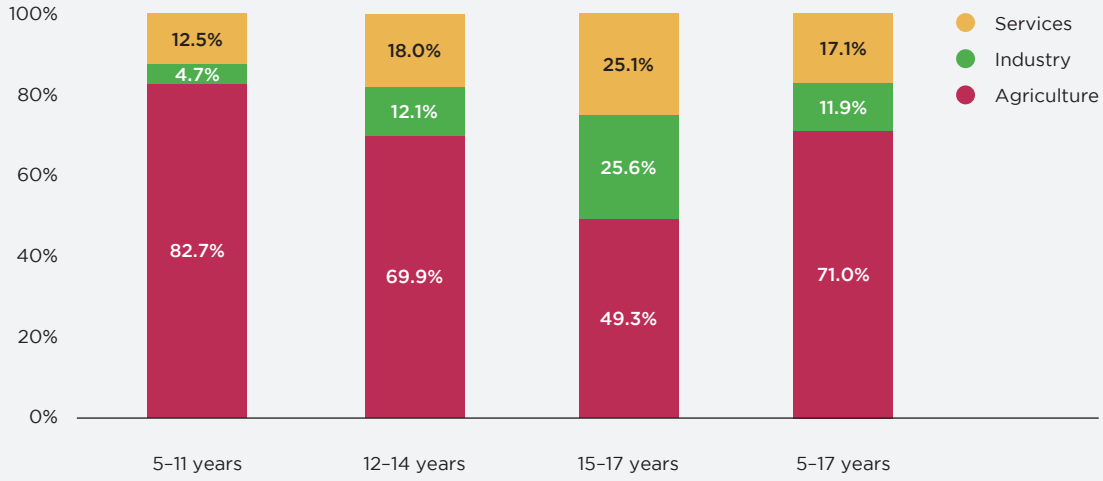
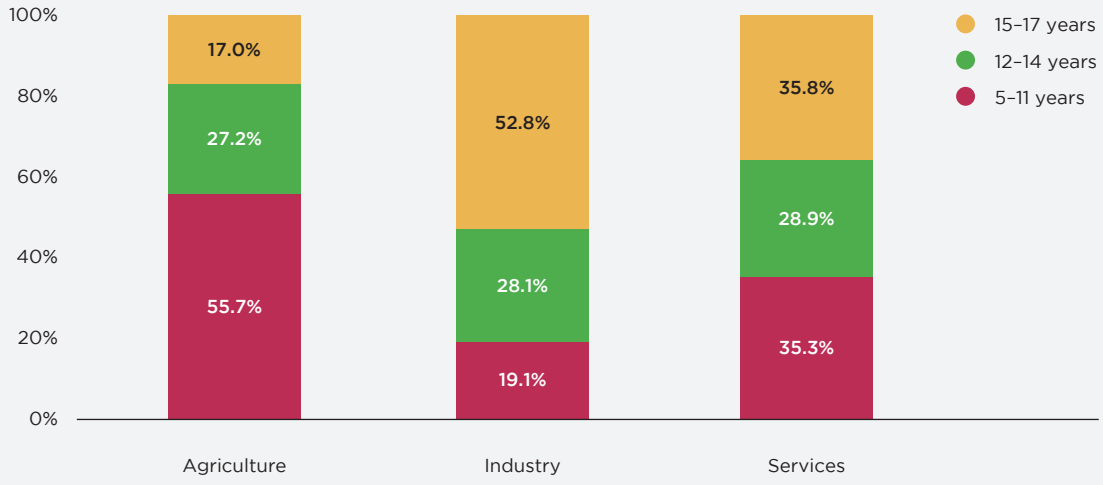


Chart 16 shows the distribution of children engaged in child labour by branch of economic activity: the agricultural sector absorbs 55.7 per cent of all child labourers aged 5 to 11, 27.2 per cent of 12–14-year-old child labourers, and 17.0 per cent of 15–17-year-old child labourers. Approximately 52.8 per cent of child labourers in industry are aged 15–17 years, followed by 28.1 per cent of 12–14-year-old child labourers and 19.1 per cent 5–11-year-old child labourers. In the services sector the picture is more balanced, with about a third of children in each age group working in that sector.

Chart 16

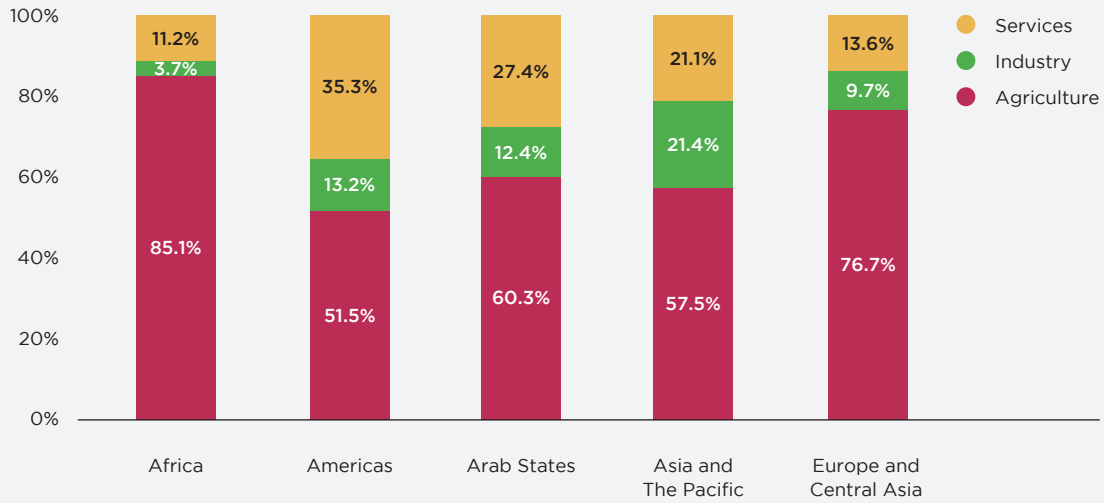
Child labour by branch of economic activity and age group (percentage), 5–17-year-olds



For the first time, the Global Estimates consider child labour distribution by branch of economic activity and region (see Chart 17). In all regions, most children engaged in child labour in 2016 worked in agriculture. Agriculture in Africa absorbed the highest percentage of child labourers (85.1 per cent), followed by Europe and Central Asia (76.7 per cent), the Arab States (60.3 per cent), Asia and the Pacific (57.5 per cent), and the Americas (51.5 per cent). Asia and the Pacific had the highest share of child labourers in industry (21.4 per cent), followed by the Americas (13.2 per cent), the Arab States (12.4 per cent), Europe and Central Asia (9.7 per cent) and Africa (3.7 per cent). Latin America and the Caribbean had the highest share of child labourers in the services sector (35.3 per cent), followed by the Arab States (27.4 per cent), Asia and the Pacific (21.1 per cent), Europe and Central Asia (13.6 per cent) and Africa (11.2 per cent).

Chart 17

Child labour by region and branch of economic activity (percentage), 5–17-year-olds, 2016

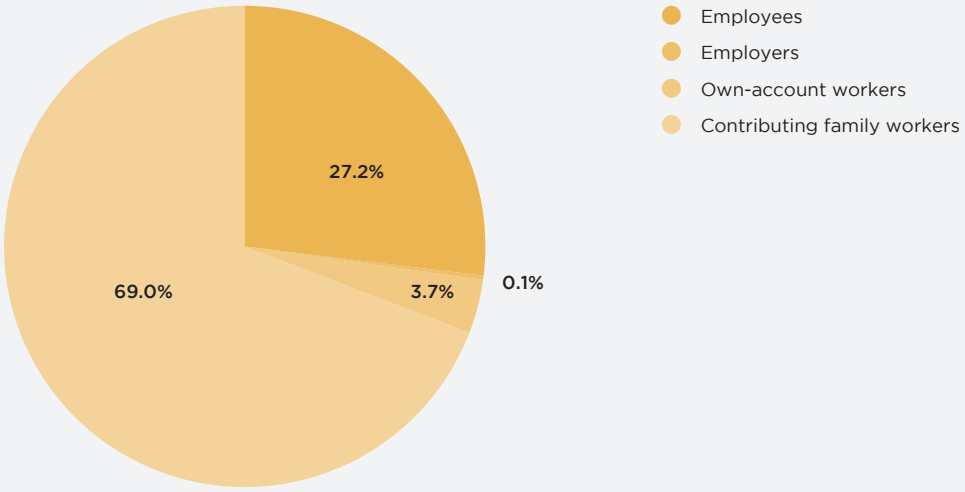


2.5 Child labour by status in employment

The majority of children engaged in child labour were contributing family workers (69.0 per cent). Some 27.2 per cent of child labourers were in paid employment and 3.7 per cent were own-account workers. The corresponding figures in 2012 were 68.4 per cent, 21 per cent and 5 per cent, respectively.

Chart 18

Children aged 5–17 years engaged in child labour by status in employment (percentage), 2016

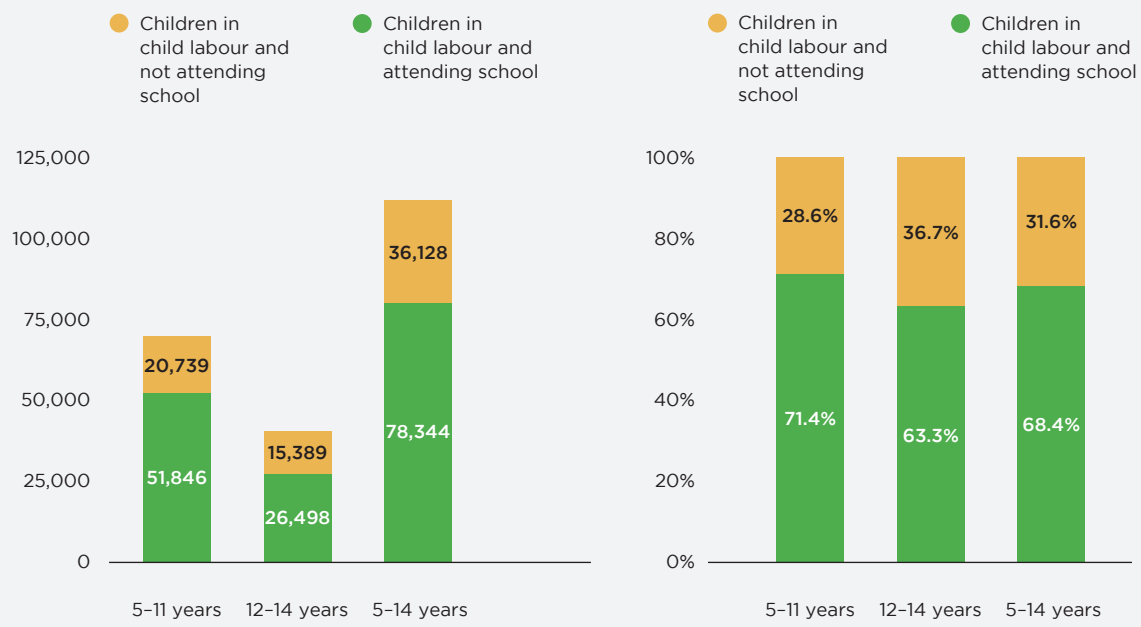


2.6 Child labour by school attendance

For the first time, the global estimates provide figures for child labour disaggregated by school attendance. In the core 5–14 age group, approximately 36.1 million children engaged in child labour were not attending school, including 20.7 million in the 5–11 age group and 15.4 million in the 12–14 age group. This implies that approximately one-third of children engaged in child labour were outside the education system. As the age of children increases, so does the proportion of child labourers outside the education system (from 28.6 per cent of 5–11-year-olds engaged in child labour to 36.7 per cent of 12–14-year-olds in child labour).

Chart 19

Child labour by school attendance and age group

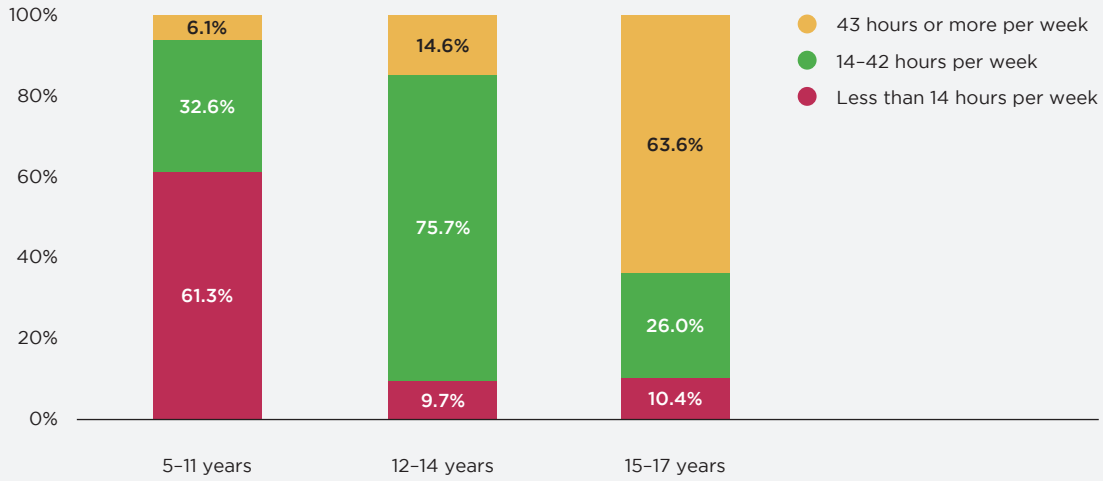


2.7 Child labour by average weekly hours in employment and age group

For the first time, the Global Estimates provide figures for the workload of child labourers. The number of hours worked provides important insight into potential negative outcomes in terms of education and health. Long hours mean greater exposure to hazards in the workplace and less time available for schooling and leisure. Chart 20 shows that there are important variations between age groups in the workload of child labourers. In the 5–11 age group, 61.3 per cent of child labourers work for less than 14 hours per week, 32.6 per cent for 14 to 42 hours per week, and 6.1 per cent for 43 hours or more per week. In contrast, only one in every ten children in the 12–14 age group work for less than 14 hours per week (9.7 per cent), 75.7 per cent work for between 14 and 42 hours per week, and approximately 14.6 per cent work for more than 43 hours per week. The majority of child labourers in the 15–17 age group work for 43 hours or more per week (63.6 per cent), 26 per cent work between 14 and 42 hours per week, and approximately 10.4 per cent work for less than 14 hours per week.

Chart 20

Child labour by average weekly hours in employment and age group



3. Trends in hazardous work performed by children

Children in hazardous work are those engaged in any activity or occupation that, by its nature or the circumstances in which is carried out, is likely to harm their health, safety, and morals. In general, hazardous work may include: night work, long hours of work, exposure to physical, psychological, or sexual abuse; work underground, under water, at dangerous heights, or in confined spaces; work with dangerous machinery, equipment, and tools, or work which involves the manual handling or transport of heavy loads; and work in an unhealthy environment that may, for example, expose children to hazardous substances, agents, or processes, or to temperatures, noise levels, or vibrations that can damage their health. Hazardous work is a subcategory of child labour. For the purpose of the present Global Estimates, hazardous work by children is statistically defined in terms of the engagement of children in hazardous industries, hazardous occupations, and long hours of work beyond a defined work-hour threshold (details on the statistical measurement framework can be found in Part B, section 2).

3.1 Hazardous work by age group

In 2016, 72.5 million children were engaged in hazardous work and comprised 47.9 per cent of children engaged in child labour and 33.3 per cent of children in employment.

Table 5 shows that hazardous work rates increase with age; among children in the 5–11 age group, it stood at 2.2 per cent in 2016, equivalent to 19.0 million children. Among children in the 12–14 age group, it stood at 4.6 per cent, equivalent to 16.4 million children, and among children in the 15–17 age group it stood at 10.5 per cent, equivalent to 37.1 million children.

Table 5

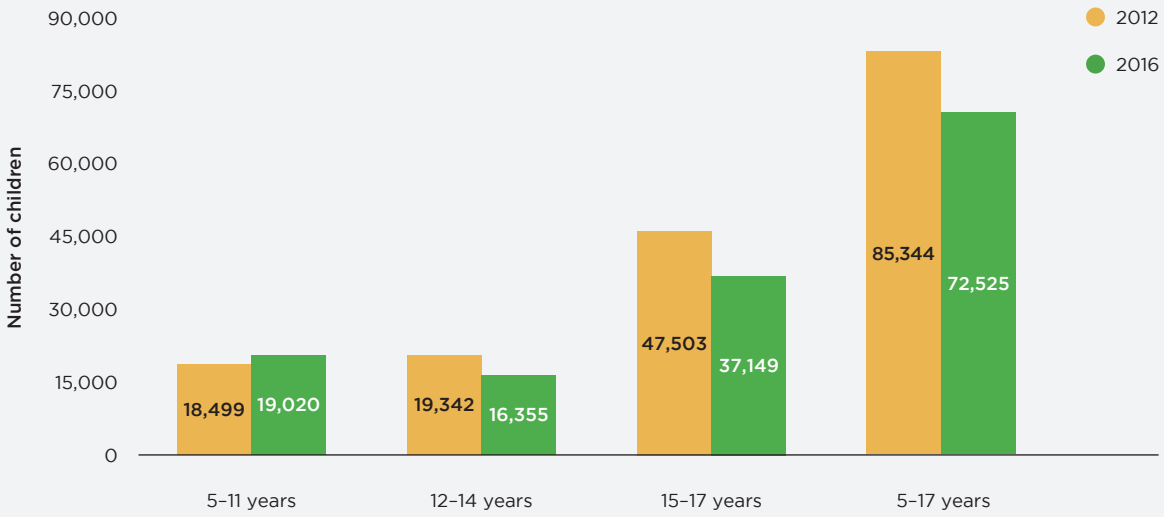
Global estimates of hazardous work by age, 2016

	2012		2016		Percentage-point change in the hazardous work rate from 2012 to 2016
	Hazardous work (thousands)	Hazardous work rate (%)	Hazardous work (thousands)	Hazardous work rate (%)	
Total	85 344	5.4	72 525	4.6	-0.8
5–11 years	18 499	2.2	19 020	2.2	0
12–14 years	19 342	5.3	16 355	4.6	-0.7
(5–14 years)	37 841	3.1	35 376	2.9	-0.2
15–17 years	47 503	13.0	37 149	10.5	-2.5

Chart 21 reveals that, between 2012 and 2016, the number of children aged 5-17 years in hazardous work decreased by 12.8 million (from 85.3 to 72.5 million). However, for 5–11-year-olds, the absolute number of children in hazardous work actually increased from 18.5 to 19 million. For 12–14-year-olds and 15–17-year-olds, there was a reduction of 3 million and 10.4 million, respectively.

Chart 21

Global trends in hazardous work by age group and year (millions)



3.2 Hazardous work by sex

The global estimates reveal significant differences between boys and girls in terms of their engagement in hazardous work: in 2016, 44.8 million boys and 27.8 million girls aged 5–17 years were engaged in hazardous work, equivalent to 5.5 per cent and 3.6 per cent, respectively. Hazardous work rates were higher for boys than for girls across all age groups.

Table 6

Hazardous work by sex and age group, 2012–16

	2012				2016			
	Hazardous work boys (thousands)	%	Hazardous work girls (thousands)	%	Hazardous work boys (thousands)	%	Hazardous work girls (thousands)	%
Total	55 048	6.7	30 296	4.0	44 774	5.5	27 751	3.6
5–11 years	7 865	1.8	10 635	2.5	11 029	2.4	7 992	1.9
12–14 years	8 514	4.6	10 827	6.3	10 208	5.5	6 147	3.6
(5–14 years)	16 379	2.6	21 462	3.6	21 237	3.3	14 139	2.4
15–17 years	38 669	20.8	8 834	5.1	23 537	12.9	13 612	8.0

Chart 22 shows hazardous work differentiated by sex. There are more boys than girls engaged in hazardous work in all age groups. As children's age increases, the proportion of boys in hazardous work increases, while that of girls decreases.

Chart 22

Children in hazardous work by sex and age group, 2016

3.3 Hazardous work by region

In 2016, the highest numbers of children aged 5 to 17 in hazardous work were in Africa (31.5 million, equivalent to 8.6 per cent of children), followed by Asia and the Pacific (28.5 million, equivalent to 3.4 per cent), the Americas (6.6 million, equivalent to 3.2 per cent), Europe and Central Asia (5.3 million, equivalent to 4.0 per cent), and the Arab States (0.6 million, equivalent to 1.5 per cent).

Table 6 also presents trends in hazardous work for regions considered in previous global estimates. Between 2012 and 2016, Latin America and the Caribbean experienced the largest reduction in the proportion of children in hazardous work, (which fell by 2.4 percentage points, from 6.8 to 4.4 per cent). Asia and the Pacific experienced the second steepest decline, (a fall of 0.7 percentage points, from 4.1 to 3.4 per cent). The third steepest decline (a fall of 0.6 percentage points, from 10.4 to 9.8 per cent) occurred in sub-Saharan Africa. In absolute terms, there were 5.4 million fewer children engaged in hazardous work in Asia and the Pacific and 3.4 million fewer in Latin America and the Caribbean. Despite the decrease in the proportion of children engaged in hazardous work in sub-Saharan Africa, the absolute number of those children rose by 1.7 million in that subregion.

Table 7

Trends in hazardous work by region, 5–17-year-olds

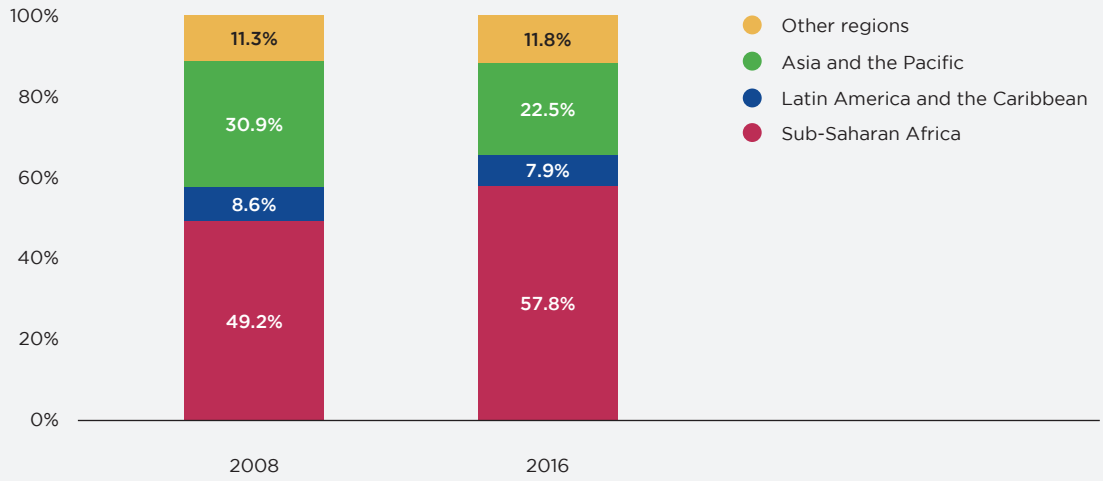
	Total children (thousands)	Total children (thousands)	Hazardous work (thousands)		Hazardous work rate (per cent)		Percentage-point change
	2012	2016	2012	2016	2012	2016	
World	**1 585 566**	**1 585 219**	**85 344**	**72 525**	**5.4**	**4.6**	**-0.8**
Africa	**-**	**367 042**	**-**	**31 538**	**-**	**8.6**	**-**
Sub-Saharan Africa	275 397	312 083	28 767	30 460	10.4	9.8	-0.6
Americas	**-**	**202 492**	**-**	**6 553**	**-**	**3.2**	**-**
Latin America and the Caribbean	142 693	144 004	9 638	6 278	6.8	4.4	-2.4
Arab States	**-**	**40 713**	**-**	**616**	**-**	**1.5**	**-**
Asia and the Pacific	**835 334**	**840 274**	**33 860**	**28 469**	**4.1**	**3.4**	**-0.7**
Europe and Central Asia	**-**	**134 698**	**-**	**5 349**	**-**	**4.0**	**-**
Northern, Southern and Western Europe	-	60 740	-	1 078	-	1.8	-
Eastern Europe and Central and Western Asia	-	73 958	-	4 272	-	5.8	-

Chart 23 shows the changes in the regional distribution of children in the 5–14 age group engaged in hazardous work between 2008 and 2016. The Asia and the Pacific region's share of the world's children in hazardous work fell sharply from 30.9 per cent in 2008 to 22.5 per cent in 2016. On the other hand, sub-Saharan Africa's share increased from 49.2 per cent in 2008 to 57.8 per cent in 2016. Latin America and the Caribbean's share fell slightly from 8.6 to 7.9 per cent over the period in question, while the share of the world's children living in other regions increased slightly from 11.3 to 11.8 per cent.

Chart 23

Changes in the regional distribution of children in hazardous work

Regional distribution of children aged 5 to 14 in hazardous work, 2008 and 2016 (per cent)



3.4 Hazardous work by branch of economic activity

Children engaged in hazardous work were mostly employed in the agricultural sector, with 62.3 per cent of children aged 5 to 17 in hazardous work employed in that sector, compared with 18.9 per cent of children in that age group employed in industry and 18.8 per cent in the services sector. This distribution differs from the distribution for child labour, where 70.9 per cent worked in agriculture, 11.9 per cent in industry and 17.2 per cent in services.

Chart 24

Hazardous work by branch of economic activity (millions, percentage), 5–17-year-olds, 2016

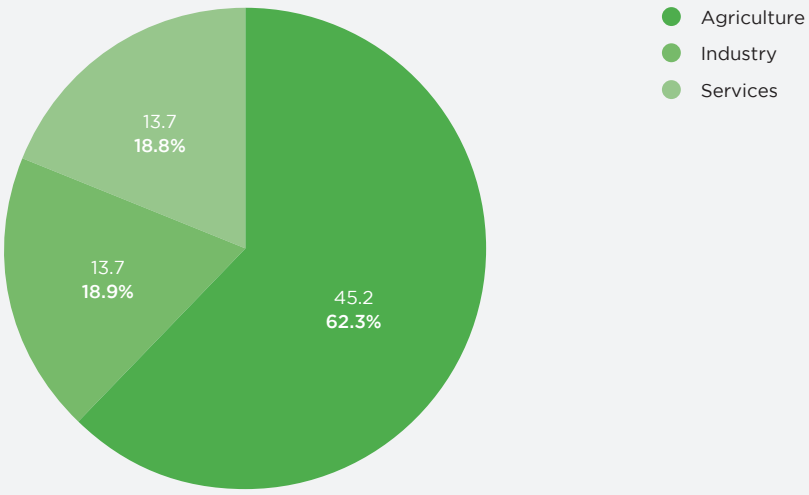


Chart 25 shows the distribution of children engaged in hazardous work by age group and branch of economic activity, which is similar to the distribution for children engaged in child labour: the agricultural sector absorbs 82.6 per cent of all children engaged in hazardous work aged 5 to 11. Some 8.8 per cent work in industry and 8.7 per cent work in the services sector. As children's age increases, the proportion of children engaged in hazardous work in the agricultural sector decreases, while the proportion of children working in industry and in services increases.

Chart 25

Hazardous work by age group and branch of economic activity (percentage), 5–17-year-olds

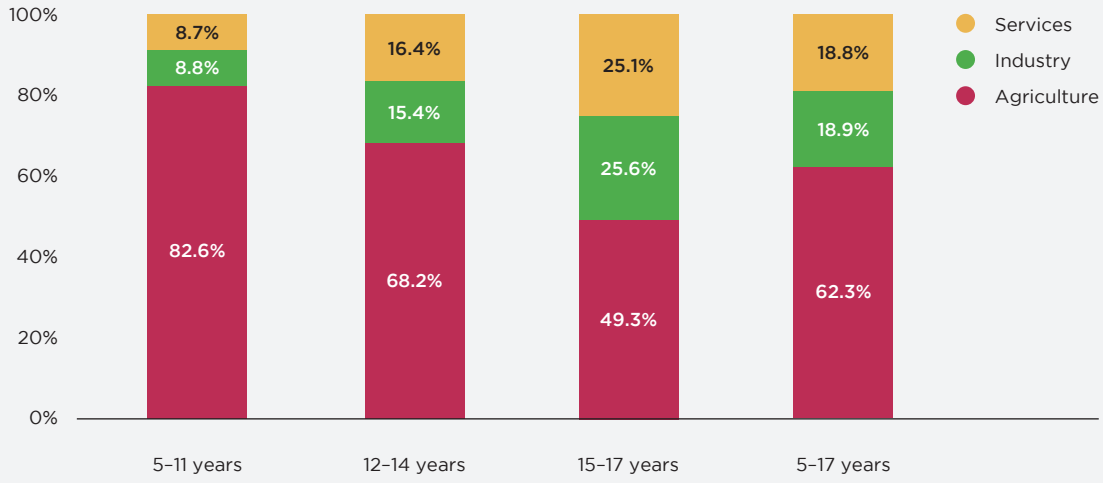
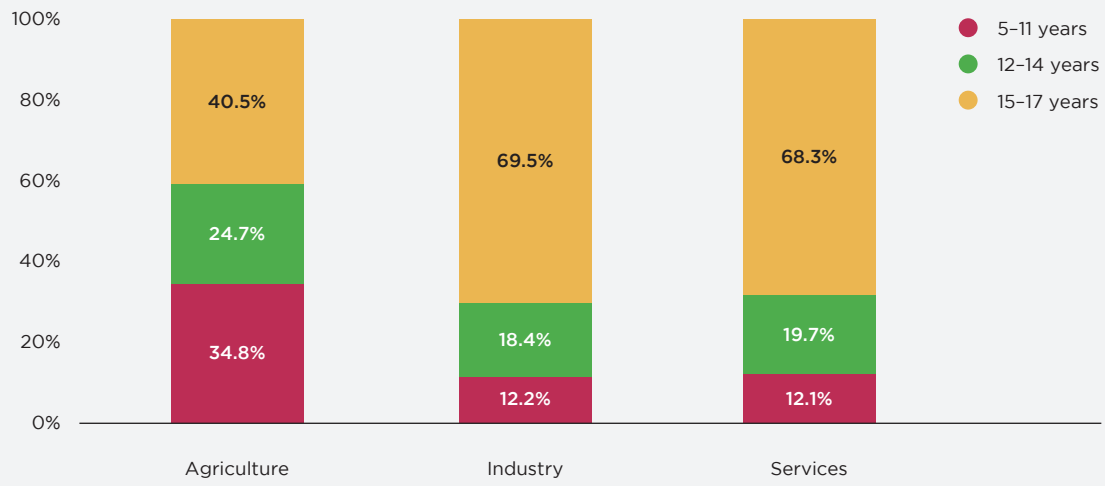


Chart 26 shows the distribution of children engaged in hazardous work by branch of economic activity and age group: the agricultural sector absorbs 40.5 per cent of all children engaged in hazardous work aged 15 to 17, 34.8 per cent of 5–11-year-old children engaged in hazardous work and 24.7 per cent of 12–14-year-old children in such work.

Approximately 70 per cent of children engaged in hazardous work in industry are aged 15–17 years, followed by 18.4 per cent of 12–14-year-olds and 12.2 per cent of 5–11-year-olds engaged in such work. The age-group distribution of children engaged in hazardous work in the services sector is similar to their age-group distribution in industry.

Chart 26

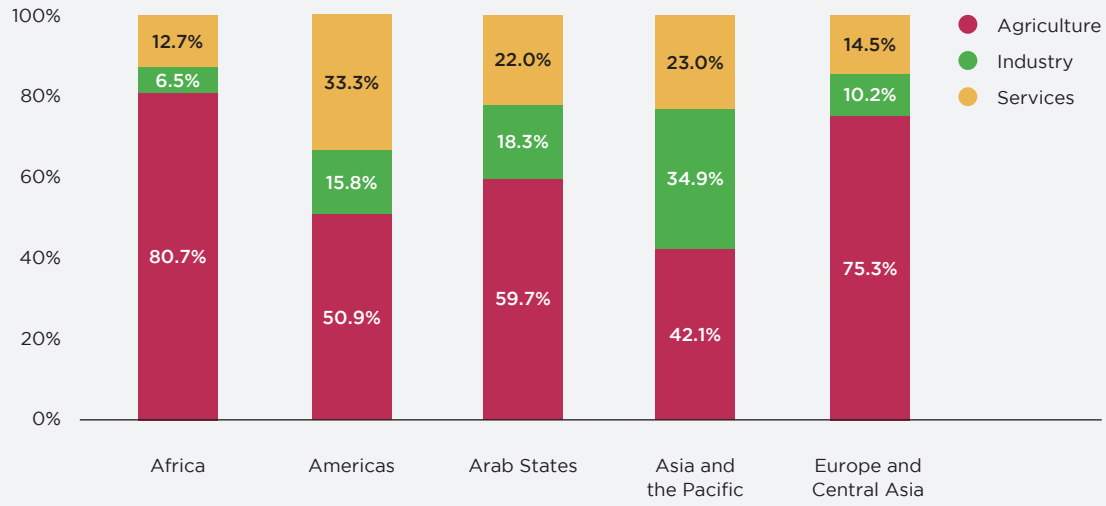
Hazardous work by branch of economic activity and age group (percentage), 5-17-year-olds



In the five major regions, most children engaged in hazardous work in 2016 worked in agriculture. Agriculture in Africa absorbed the highest percentage of children in hazardous work (80.7 per cent), followed by Europe and Central Asia (75.3 per cent), the Arab States (59.7 per cent), the Americas (50.9 per cent), and Asia and the Pacific (42.1 per cent). Asia and the Pacific had the highest share of children in hazardous work in industry (34.9 per cent), followed by the Arab States (18.3 per cent), the Americas (15.8 per cent), Europe and Central Asia (10.2 per cent), and Africa (6.5 per cent). The Americas had the highest share of children engaged in hazardous work in the services sector (33.3 per cent), followed by Asia and the Pacific (23.0 per cent), the Arab States (22.0 per cent), Europe and Central Asia (14.5 per cent), and Africa (12.7 per cent).

Chart 27

Children engaged in hazardous work by region and branch of economic activity (percentage), 5–17-year-olds, 2016



4. Children in employment, child labour and hazardous work by national income level

Global estimates of child labour are presented for different levels of national income. On the basis of their gross national income per capita in 2015, countries were placed in four categories: low-income, lower-middle-income, upper-middle-income, and high-income countries. Chart 28 presents the percentage of children in employment, in child labour, and in hazardous work by each income level category. Rates of children in employment, in child labour, and in hazardous work were all negatively correlated with the income level of countries. Indeed, although the child labour rate stood at 19.4 per cent in lower-income countries, it was only 1.2 per cent in high-income countries. There was a notable difference between low-income and lower-middle-income countries (10.9 percentage points). As for children in hazardous work, while 8.8 per cent of children were engaged in such work in lower-income countries, the figure for high-income countries was only 1.0 per cent. The largest gap was, once again, between low-income and lower-middle-income countries (3.9 percentage points).

Chart 28

Children in employment, child labour and hazardous work by national income level (percentage), 5–17-year-olds, 2016

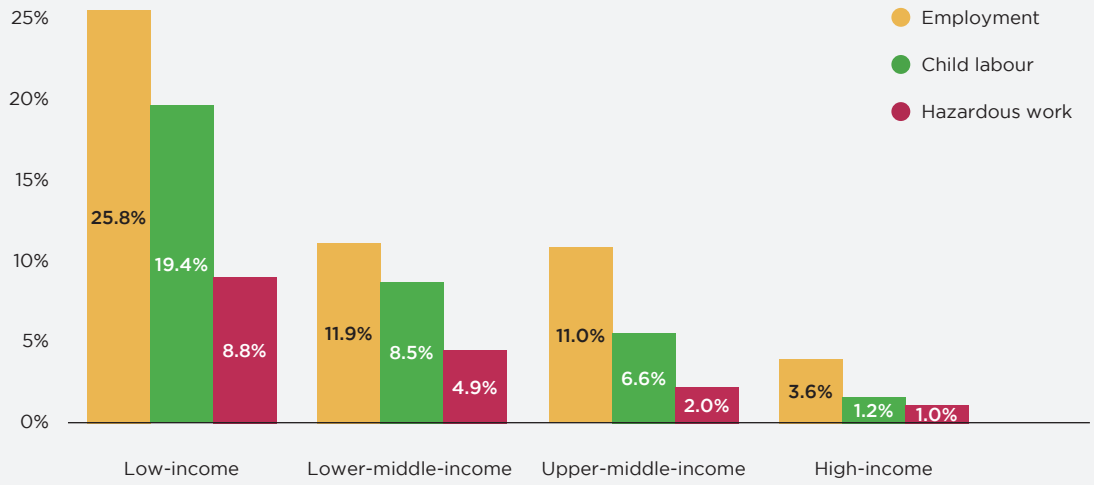
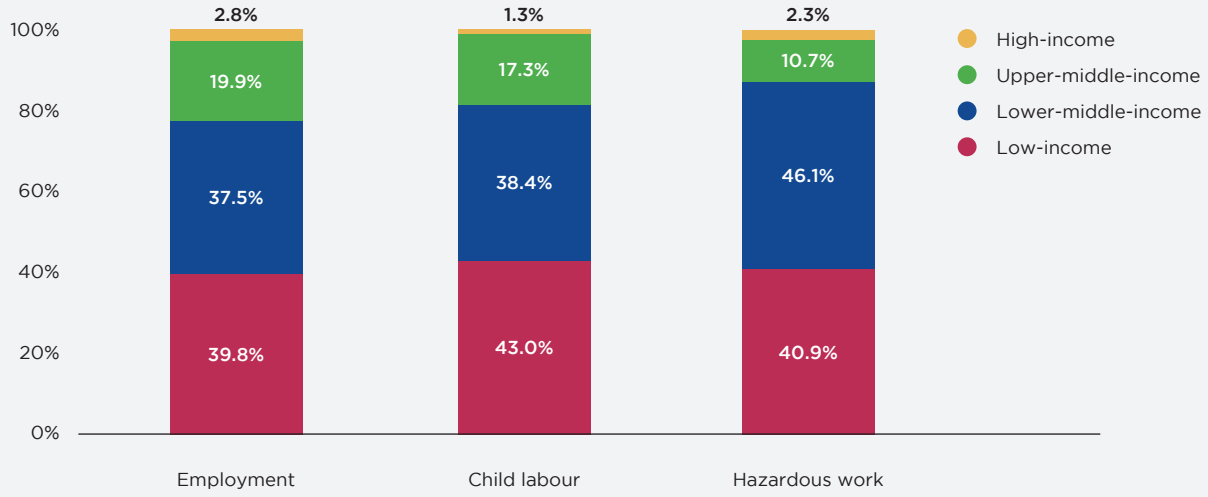


Chart 29 shows the distribution of child employment, child labour, and children in hazardous work by national income level. It should be noted that the largest share of children in employment, in child labour, and in hazardous work was in low-income or lower-middle-income countries. Indeed, 81.4 per cent of all child labour and as much as 87.0 per cent of child hazardous work worldwide was in low-income and lower-middle-income countries; only 1.3 per cent of child labour and 2.3 per cent of child hazardous work was in upper-middle-income and high-income countries.

Chart 29

Child employment, child labour, and children in hazardous work by national income level (percentage), 5–17-year-olds, 2016

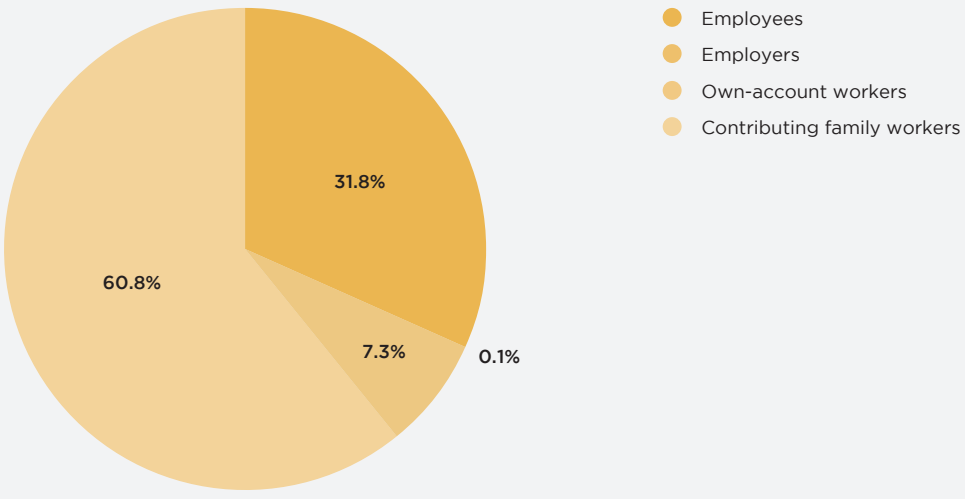


4.1 Hazardous work by status in employment

In 2016, 60.8 per cent of children in hazardous work were employed as contributing family workers, 31.8 per cent were in paid employment, and 7.3 per cent were own-account workers.

Chart 30

Hazardous work by status in employment (percentage), 5–17-year-olds, 2016

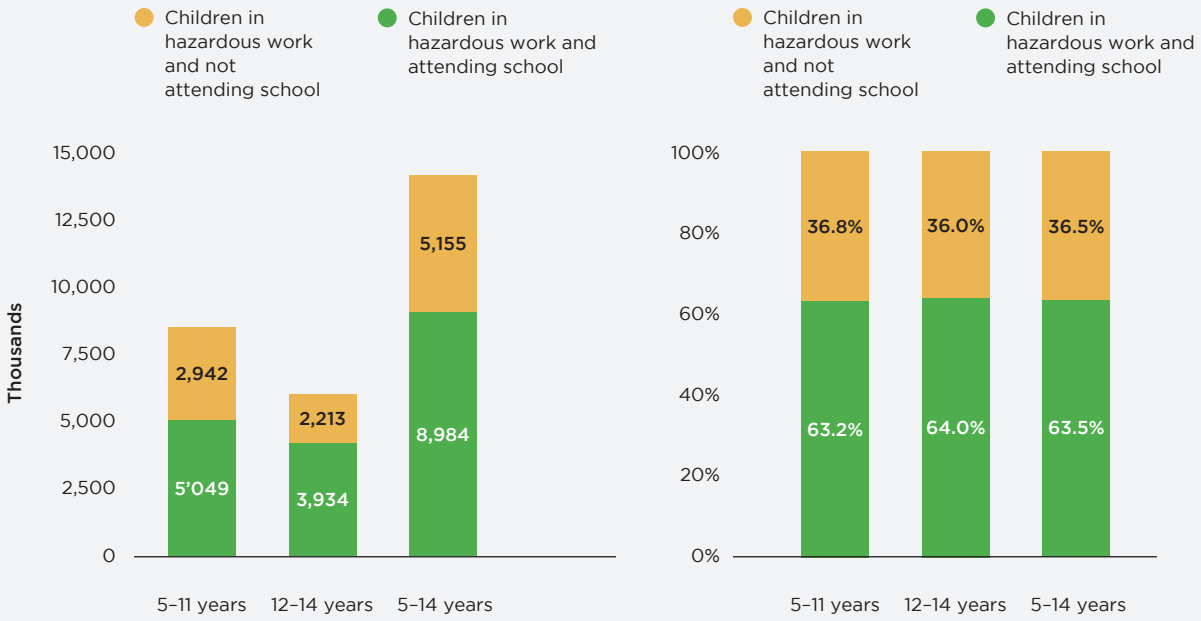


4.2 Hazardous work by school attendance

Approximately 5.2 million children engaged in hazardous work in the core 5–14 age group were not attending school, including 2.9 million in the 5–11 age group and 2.2 million in the 12–14 age group. Children aged 5 to 11 engaged in hazardous work were less likely to attend school than children in the same age range engaged in child labour.

Chart 31

Children in hazardous work by school attendance and age group

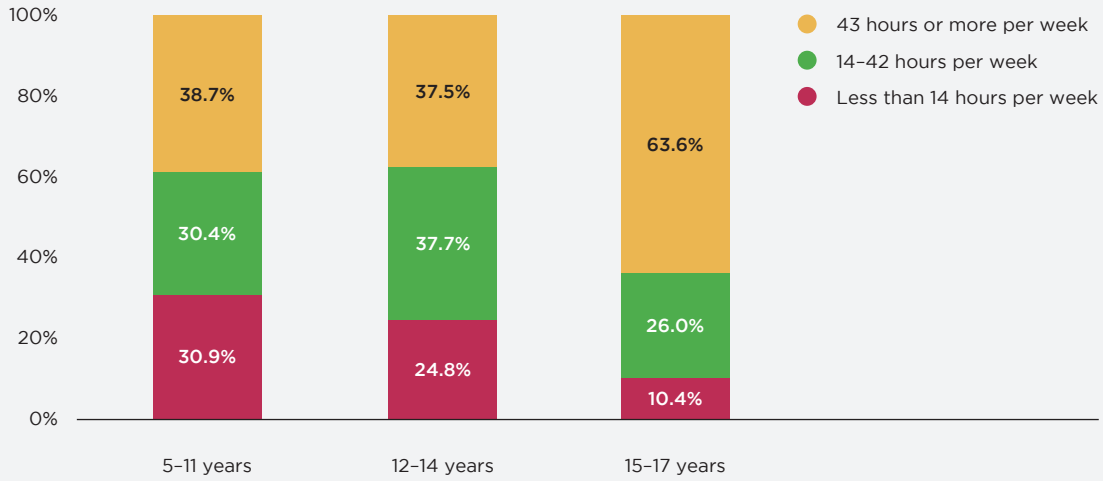


4.3 Hazardous work by average weekly hours in employment and age group

Chart 32 shows the distribution of children engaged in hazardous work by age group and number of hours worked. Compared to Chart 19, which shows the same indicators for child labour, there is a substantially higher share of 5–11-year-olds and 12–14-year-olds working for 43 hours or more per week. Chart 32, moreover, shows that at least 60 per cent of 5–14-year-olds in hazardous work are in hazardous occupations and hazardous industries.[3]

Chart 32

Hazardous work by average weekly hours in employment and age group

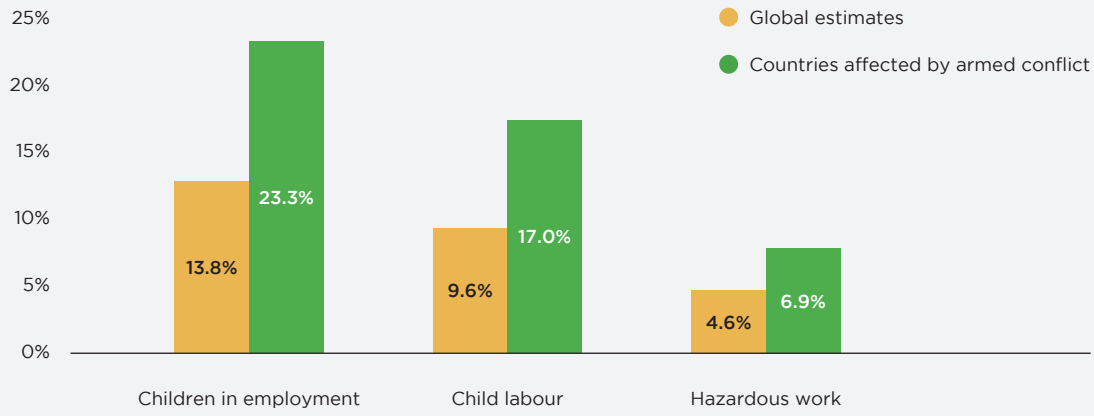


4.4 Children affected by conflict

Globally more than 1.5 billion people live in countries that are affected by conflict, violence, and instability. According to UNICEF, an estimated 535 million children (almost one in four children) live in countries affected by conflict or disaster (https://www.unicef.org/media/media_93863.html). Children also comprise more than half of the 65 million people presently displaced by war. In the context of the present Global Estimates of Child Labour, it is crucial to highlight that a significant proportion of the 151.6 million children engaged in child labour live in areas affected by conflict, further increasing their vulnerability to some of the most extreme forms of labour exploitation. In that regard, the Report of the Secretary-General on children and armed conflict (S/2015/409), submitted to the UN Security Council in 2015, underscored that employment, child labour, and child hazardous work rates were on average higher in countries affected by armed conflict (see Chart 33).

Chart 33

Children in employment, in child labour, and in hazardous work: global estimates and estimates for countries classified as "affected by armed conflict" (percentage), 5–17-year-olds, 2016



Note: Countries classified as "affected by armed conflict" are taken from the Report of the Secretary-General on children and armed conflict, submitted to the UN Security Council in 2015. The category "countries affected by armed conflict" includes Afghanistan, the Central African Republic, Colombia, Iraq, Mali, Nigeria, the Philippines, South Sudan, Ukraine, Yemen, and the Democratic Republic of Congo. Countries affected by armed conflict for which child labour data is not available in the current global estimates include: Libya, Myanmar, Somalia, Sudan, and the Syrian Arab Republic.

5. Unpaid household services

Unpaid household services relate to the production of domestic and personal services by a household member for consumption within his or her own household, and are commonly known as "household chores". They constitute a "non-economic" form of production and are excluded from consideration in the UN System of National Accounts, the internationally agreed standard set of guidelines for measuring national economic activity. The 18th ICLS Resolution II concerning statistics of child labour addresses unpaid household services and discusses their inclusion in child labour statistics. In particular, it encourages countries "to gather data on unpaid household services by children, in terms of the time spent in such activities and the major tasks performed", regardless of the application or not of the general production boundary.[4] Household chores include caring for siblings and for sick, infirm, disabled, or elderly household members; cleaning and carrying out minor household repairs; cooking and serving meals; washing and ironing clothes; and transporting or accompanying family members to and from work and school.[5]

For the first time, the Global Estimates of Child Labour provide figures on unpaid household services produced by children for their own households. Approximately 800 million children aged 5–17 years perform some unpaid household services in their households (see Table 8). Girls are considerably more likely than boys to perform household chores in all age groups (see Chart 34a) and in every weekly hour bracket (see Chart 34b).

Table 8

Unpaid household services performed by children (thousands)

	Male (age group)				Female (age group)				Total (age group)
	5–11	12–14	15–17	5–17	5–11	12–14	15–17	5–17	5–17
Less than 14 hours	145 133	82 392	79 400	306 925	154 519	81 543	67 439	303 501	610 427
14–20 hours	14 214	12 126	12 487	38 827	19 455	19 814	23 107	62 377	101 204
21–27 hours	4 744	4 376	4 768	13 888	7 408	8 350	10 556	26 313	40 201
28–42 hours	4 366	3 788	3 691	11 844	6 459	7 397	10 829	24 686	36 530
More than 43 hours	1 310	1 123	970	3 403	1 752	2 510	3 787	8 049	11 451
Total	169 768	103 804	101 315	374 888	189 593	119 614	115 718	424 926	799 813

Chart 34

Performance of household chores

(a) Percentage of children performing household chores for at least one hour per week by age range and sex

(b) Percentage of children performing household chores by weekly hour bracket and sex

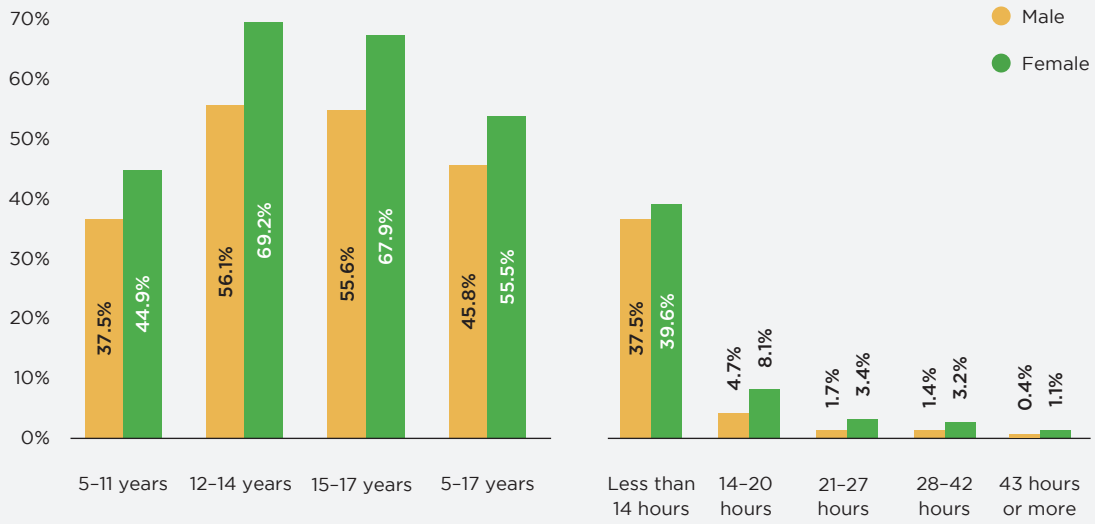
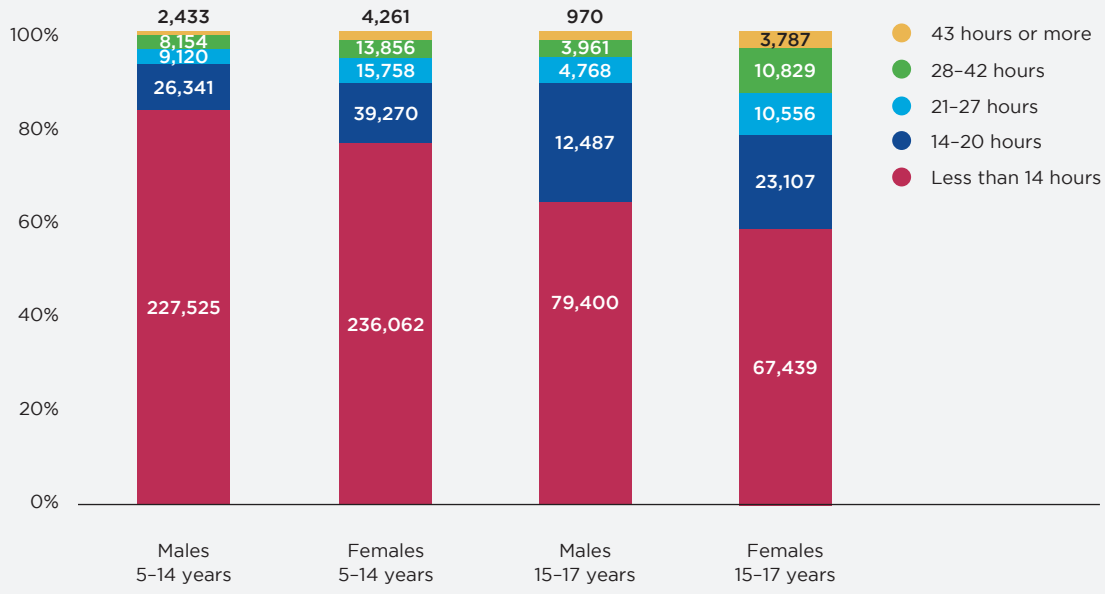


Chart 35 shows the number of hours children spent in household chores per week by age group and weekly hour bracket. Approximately 54 million boys and girls aged 5–14 years perform household chores for 21 hours or more per week, the threshold beyond which initial exploratory research suggests household chores begin to negatively affect the ability of children to attend school (see Chart 35).[6] Sixty-three per cent of these are girls and 37 per cent boys. Additionally, 35 million adolescents aged 15–17 years perform household chores in their own households for 21 hours or more per week, of which 73 per cent are girls and 27 per cent boys.

Chart 35

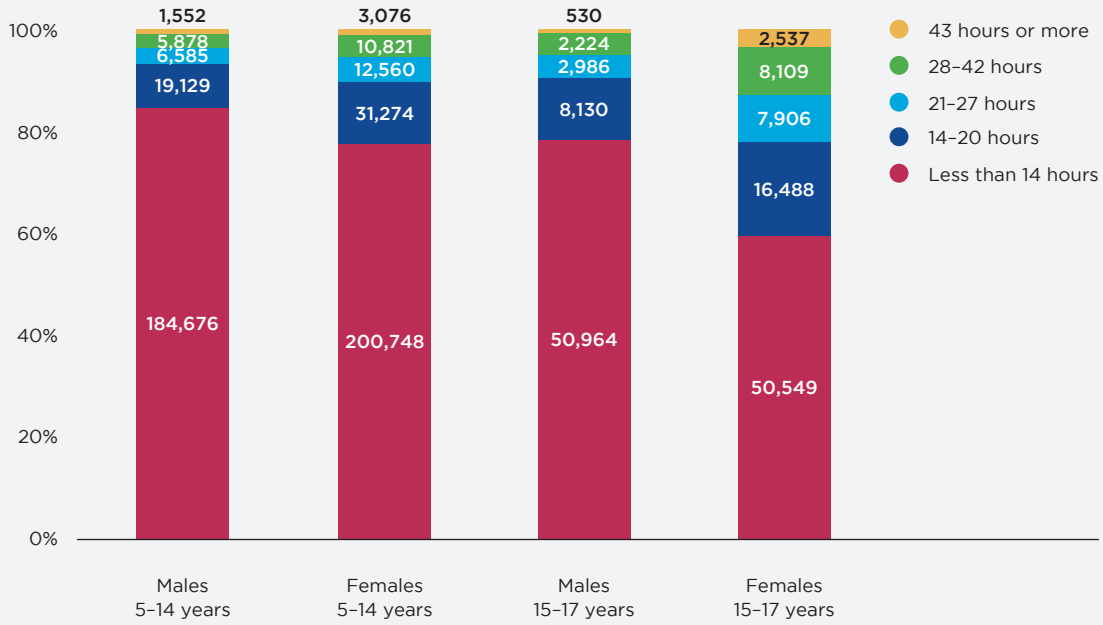
Number (thousands) and proportion of children performing household chores by sex, age group and hour bracket of household chores per week



When we limit the analysis of household chores to children who are not in employment – and therefore have not been included in our child labour statistics – as many as 627 million 5–17-year-olds are performing some household chores per week worldwide (see Chart 36). Among 5–14-year-olds, 40 million perform unpaid household services for 21 hours or more per week, 35 per cent of whom are boys and 65 per cent girls. Additionally, 24 million 15–17-year-olds perform household chores for 21 hours or more per week, 76 per cent of whom are girls and 24 per cent boys. There are no agreed legal or statistical norms governing work-hour thresholds in the measurement of household chores beyond which unpaid household services could become an element of the child labour definition, and no agreement on whether different work-hour thresholds should be applied to different age groups. We should note that, if child labour figures included hazardous unpaid household services, we would need to add millions of children to the child labour indicator.

Chart 36

Number (thousands) and proportion of children not in employment performing household chores by sex, age group and hour bracket of household chores per week



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Part B
Methodology

1. Introduction

The ILO produced global estimates of child labour for the first time in 1995, when it estimated the total number of children engaged in child labour at 250 million.[7] Since then, the ILO has released four comprehensive editions of global estimates of child labour (in 2000, 2004, 2008 and 2012), reporting a steady decline in child labour worldwide from 245.5 million in 2000 to around 168 million in 2012.[8] These figures played a crucial role in bringing to public attention the size and nature of the phenomenon and helping governments, the social partners, and civil society formulate and monitor policies for combating child labour throughout the world.

The present fifth edition of Global Estimates of Child Labour provides data for 2016. These estimates are based for the most part on specially designed child labour surveys developed by the ILO under SIMPOC and implemented by national statistical agencies or affiliates in an increasing number of countries across all regions of the world. For the first time, the Global Estimates incorporate data on China, the United States, and 32 European countries.

As in the previous editions providing figures for 2008 and 2012, the ILO Global Estimates are based on the international standards concerning statistics on child labour adopted by the 18th International Conference of Labour Statisticians (ICLS) in 2008.[9] These standards set forth statistical definitions of child labour and its components hazardous work by children and worst forms of child labour other than hazardous work. The standards also provide guidelines on data collection methods, supplementary data sources, and items of data collection for the measurement of child labour.

In the present edition of Global Estimates of child labour, an attempt has been made to automate as much as possible the different steps of the estimation process with a view to ensuring their transparency and replicability. The calculations are organized into two sets of data files, one containing the national data sets and the other the extrapolation process to produce the global and regional estimates.

The purpose of Part B is to document the methodology of the 2016 Global Estimates of Child Labour. Section 2 presents the measurement framework and defines the main concepts and classifications. Section 3 describes the scope and coverage of the global and regional estimates in relation to the underlying national data sets. Section 4 explains the approach adopted for harmonizing the national data sets. Section 5 describes the statistical treatment of missing items, while section 6 details the calculation of weights for extrapolating the national data to regional and global estimates. Finally, section 7 evaluates the results along several dimensions.

2. Measurement framework

The measurement framework of the 2016 Global Estimates of Child Labour follows the same concepts and definitions of the previous editions of 2008 and 2012 data and is in line with the international standards concerning statistics of child labour (18th ICLS, 2008).

2.1 Age of a child

Children are defined as "all persons in the age group from 5 to 17 years, where age is measured as the number of completed years at the child's last birthday" (para. 9 of Resolution II concerning statistics of child labour). All global and regional estimates are presented for children in the 5–17 age group, as well as the subgroups 5–11 years, 12–14 years, and 15–17 years, for boys and girls separately.

2.2 Children in employment

Children in employment are "those engaged in any activity falling within the production boundary of the UN System of National Accounts for at least one hour during the reference period". The production boundary includes all activities undertaken to produce goods and services for pay or profit, as well as activities to produce goods for own use such as subsistence foodstuff production. It excludes, however, activities for own-use production of services and those that do not involve the production of goods or services (such as begging or stealing).

It is important to note that the concept of employment used in the international standards concerning statistics of child labour (18th ICLS, 2008) has now been superseded by the new international standards on statistics of work, employment, and labour underutilization (19th ICLS, 2013), where employment is defined more narrowly to refer to "any activity to produce goods or provide services for pay or profit". This new definition thus excludes subsistence foodstuff production and more generally own-use production of goods from the scope of employment. The data presented here, however, continues to refer to the broader definition of employment, as the child labour statistics standard has yet to be revised in line with the new definition of employment and countries have yet to implement the new international standards.

2.3 Child labour

According to Resolution II concerning statistics of child labour (18th ICLS, 2008), children engaged in child labour include "all persons aged 5 to 17 years who, during a specified time period, were engaged in one or more of the following categories of activities: (a) worst forms of child labour […]; (b) employment below the minimum age […]; and (c) hazardous unpaid household services", as detailed in the resolution.

An attempt has been made in this edition of the Global Estimates to measure all three components of child labour, including: (i) commercial sexual exploitation of children; (ii) child forced labour; and (iii) hazardous work by children due to long hours of work and in designated hazardous industries and occupations. Element (iii) is estimated under the present framework of estimates of child labour as defined below, but (i) and (ii) are calculated separately as part of the Alliance 8.7 Global Estimates of Modern Slavery: Forced Labour and Forced Marriage, 2017.

2.4 Hazardous work by children

Hazardous work by children is "statistically defined in terms of the engagement of children in activities of a hazardous nature (designated industries and occupations) [...], or work under hazardous conditions, for example, long hours of work in tasks and duties which by themselves may or may not be of a hazardous nature for children".

The international standards specify that hazardous work by children involves "(a) work which exposes children to physical, psychological or sexual abuse; (b) work underground, under water, at dangerous heights or in confined spaces; (c) work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads; (d) work in an unhealthy environment, which may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels or vibrations damaging to their health; (e) work under particularly difficult conditions such as work for long hours or during the night or work where the child is unreasonably confined to the premises of the employer".

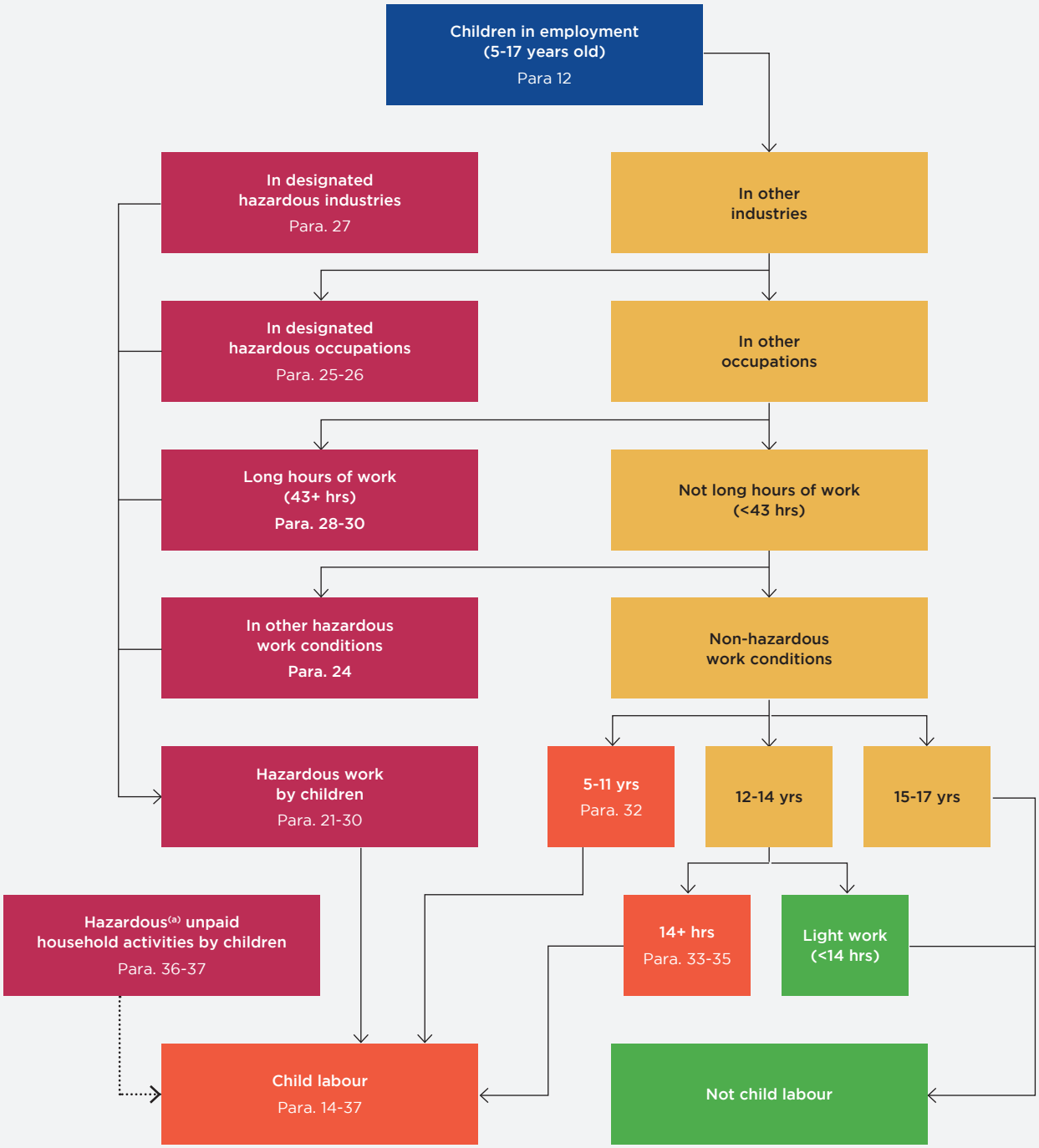
2.5 Hazardous unpaid household services

Hazardous unpaid household services by children are "those performed in the child's own household under conditions corresponding to those defined in paragraph 20 above [of the resolution], that is, unpaid household services performed (a) for long hours, (b) in an unhealthy environment, involving unsafe equipment or heavy loads, (c) in dangerous locations, and so on".

The operational definitions of the components of child labour estimated under the present measurement framework are shown in schematic form in Diagram 1.

Diagram 1

Conceptual framework of the ILO global estimation of child labour



Note: 18th International Conference of Labour Statisticians. Resolution concerning statistics of child labour. ILO, Geneva, 2008.

The starting point for measuring child labour for the purpose of the 2016 Global Estimates of Child Labour is children aged 5 to 17 years in employment. Among children in employment, those in designated hazardous industries are first separated from those employed in other branches of economic activity. In the present context, designated hazardous industries are mining and quarrying (ISIC Rev. 4 codes 05–09) and construction (ISIC Rev. 4 codes 41–43).[11]

Among children engaged in other branches of economic activity, those engaged in designated hazardous occupations are identified next. Designated hazardous occupations are those defined for the purpose of the ILO global estimates of child labour in ISCO-88 codes 313, 322–323, 516, 614–615, 711–713, 721–724, 731–732, 811–816, 821–823, 825–829, 832–834, 911–912, 915–931, and 933.[12]

Next, among children not engaged in either hazardous industries or hazardous occupations, those who worked long hours during the reference week are identified. Long hours are defined for the purpose of the Global Estimates as 43 or more hours of work during the reference week. The 43-hour threshold was the same used in earlier ILO global estimates. It corresponds to approximately the mid-point of normal hours of work stipulated by national legislations, mostly in the range of 40 to 44 hours.

The next step identifies children who were exposed to other hazardous work conditions not captured by the designated hazardous industries or occupations, or with long hours of work. This step is implemented only in national surveys where detailed data on hazardous work conditions are collected such as night work and work in extreme temperatures.

The total number of children in designated hazardous industries, children in hazardous occupations, children with long hours of work, and children working in other hazardous conditions constitutes in aggregate the overall number of children in hazardous work.

As shown in the diagram, the final estimate of child labour is obtained by adding to the number of children in hazardous work two more categories, namely children aged 5 to 11 years engaged in any form of employment and children aged 12 to 14 years working 14 hours or more per week. For 12–14-year-olds, the 14-hour threshold distinguishes between permissible light work and other work that cannot be considered as permissible light work. The same threshold was used in the earlier ILO global estimates. It corresponds to two hours of work per day over a calendar week, covering both school days or holidays.

It can be verified that the measurement framework ensures that hazardous work by children is a subset of child labour and that child labour itself is a subset of children in employment:

- hazardous work by children $\subseteq$ child labour $\subseteq$ children in employment, where $\subseteq$ is the subset symbol.

It can also be verified that for children aged 5–11 years,

- child labour = children in employment

and for adolescents aged 15–17 years,

- child labour = hazardous work by children.

The framework also provides for the separate measurement of hazardous unpaid household services by children. Data on this component of child labour is presented in the form of three cross-classifications:

- children engaged in unpaid household services by sex, age group, school attendance and hours of work in unpaid household services;
- children combining employment and unpaid household services by sex, age group, school attendance, broad branch of economic activity, status in employment, and combined hours of employment and unpaid household services; and
- children engaged in unpaid household services by sex and age group, with a distinction made between those in employment and others, and within

each group total hours of employment and unpaid household services.

No attempt has been made at this stage to define work-hour thresholds or other criteria for identifying children engaged in hazardous unpaid household services. The cross-classifications are meant to provide information on the number and characteristics of children engaged in unpaid household services in general, and to examine if necessary the impact of different criteria for identifying children in hazardous unpaid household services.

3. National data sets

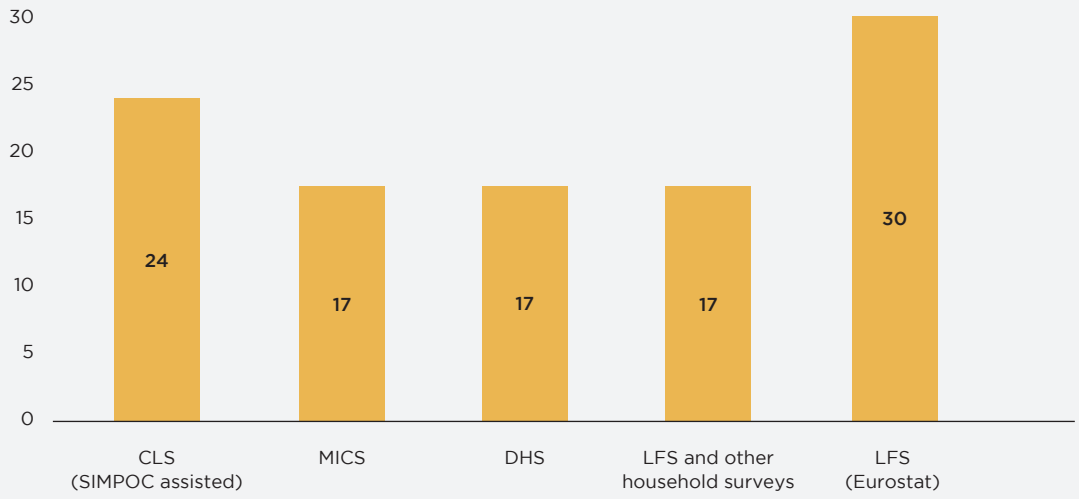
In total, 105 national data sets from as many countries are used for producing the 2016 Global Estimates of Child Labour. The list of the national data sets is given in Annex 2 of the report. It represents a significant increase from the 75 national data sets from 53 countries used for the 2012 estimates, and the 60 data sets from 50 countries used for the 2008 estimates. The type of source and dates of the 2016 edition national data sets and their geographical coverage and contents are described below.

3.1 Data sources

Chart 37 shows the distribution of national data sets by type of source: 24 national data sets were derived from child labour surveys (CLS), implemented with the assistance of SIMPOC; 17 national data sets from the multiple indicator cluster surveys (MICS), implemented with the assistance of UNICEF; 17 other data sets from demographic and health surveys (DHS), implemented mostly with funding from USAID; 17 further data sets from national labour force surveys (LFS) or other national household surveys; and finally, 30 data sets limited to children aged 15 to 17 years from national LFS conducted under Eurostat regulations. The different types of data sources are briefly described below:

Chart 37

National data sets by type of data source



3.2 Child labour surveys

The ILO child labour surveys (CLS) are specialized household-based sample surveys designed by SIMPOC. The main objectives of the survey are to measure the prevalence of child labour and to obtain data on the socio-economic characteristics of the children involved with a view to identifying the causes and consequences of child labour in the implementing country. A typical child labour survey has a sample size in the range of about 5,000 to 15,000 households if it is a stand-alone survey, and has the sample size of the mother survey if it is a module attached to a national child labour survey. A standard CLS questionnaire comprises three parts:

- Part I (household roster) on household composition and other household identification elements;
- Part II (adult questionnaire) on the economic activity of children and other household members, addressed to the most knowledgeable adult household member; and
- Part III (child questionnaire) on the economic activity of children and their working and living conditions, addressed directly to children.

As in the previous rounds, the current round of the Global Estimates of Child Labour uses data obtained from the adult questionnaire, except for conditions of work, where the information from the child questionnaire is deemed to be more reliable.

3.3 Multiple indicator cluster surveys

Multiple indicator cluster surveys (MICS) are household-based surveys designed by UNICEF to obtain information on the situation of children and women, covering a broad range of items, including health, education, child protection, HIV/AIDS, employment, and hours of work. The sample size of a typical MICS is about 11,000 sample households. A standard MICS household questionnaire (round 4) includes several parts, starting with a household information panel and a household listing form and then parts on education, water and sanitation, household characteristics, insecticide treated nets, indoor residual spraying, child labour, child discipline, hand washing, and salt iodization. The part on child labour is administered for children aged 5 to 14 years, and the items of data collection include:

- Name and age at last birthday;
- Any kind of work performed for someone not a member of the household;
- Total hours of work performed in the past week (including hours at all jobs);
- Fetching water or collecting firewood for household use in the past week;
- Hours spent in the past week on fetching water or collecting firewood for household use;
- Paid or unpaid work on a family farm or in a family business, or selling goods in the street in the past week;
- Hours spent in the past week on paid or unpaid work on a family farm or in a family business, or selling goods in the street.

3.4 Demographic and health surveys

Demographic and health surveys (DHS) are household-based surveys funded by USAID to collect data on fertility, reproductive health, maternal health, child health, and a variety of other demographic and health characteristics of the population. Some of the surveys also collect data on the economic activity of children aged 5 to 14 years, in particular employment, unpaid household services, and hours of work. Like MICS, DHS do not collect data on the industries and occupations in which working children are engaged.

3.5 Labour force surveys and other household surveys

Labour force surveys (LFS) are generally large-scale household-based surveys conducted by national statistical offices to collect data on the current employment and unemployment situation of the country's working age population. They often provide the main source of official statistics on the unemployment rate and other major indicators of the labour market. Many labour force surveys, especially in developing countries, collect data not only on the working age population aged 15 years and over, but also on the economic activity of children below that age. In most cases, the questionnaire covers a rich set of information, including on labour force status in the past week, status in employment, occupation, branch of economic activity, sector of employment, and hours of work in main and secondary jobs.

The other household surveys used for the Global Estimates of Child Labour include national surveys on living conditions, household budget surveys, and household income and expenditure surveys.

3.6 Labour force surveys (Eurostat)

The labour force surveys (LFS) implemented under Eurostat regulations are highly standardized national surveys carried out in most cases on a quarterly basis, with data collection spread over all 13 weeks of the quarter. The survey questionnaires are designed to collect harmonized data on a set of data requirements specified by EU Council regulations. The surveys cover the working age population aged 15 years and over, and rarely the child population below that age. In the Global Estimates of Child Labour, the Eurostat LFS were used for the first time to obtain estimates of child employment in the 15 to 17 age group in EU, EU candidate and European Free Trade Association (EFTA) countries.

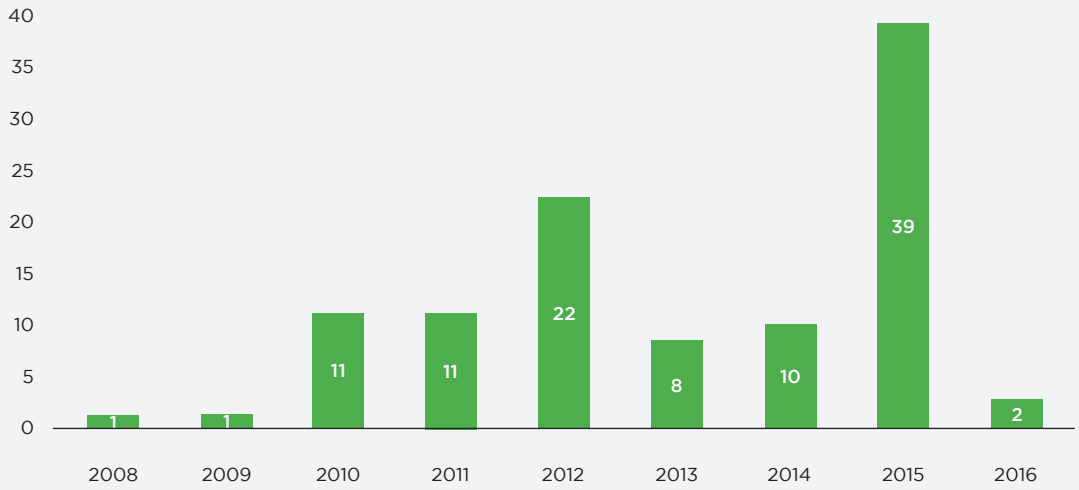
3.7 Dates

Chart 38 shows the distribution of the national data sets in terms of their survey year. It should be mentioned that, in countries for which more than one data set was available, the most recent data set was selected for these Global Estimates. Certain multi-year data sets were, however, used for evaluation purposes, as reported later in section 7 of this report.

The majority of the data sets (81) refer to the target reference period 2012 to 2016. In some cases, data from earlier years were nevertheless used in order to provide a better representation of the geographic diversity of child labour worldwide.

Chart 38

National data sets by survey year



3.8 Geographical coverage

Table 9 shows the coverage of the national data sets. The available data sets cover more than 1,100 million children aged 5 to 17 years, corresponding to about 70 per cent of the world population of children in that age group. The coverage rate is significantly higher than the rates in the previous two rounds of global estimates (44.4 per cent in 2008 and 53.1 per cent in 2012).

Table 9

Geographical coverage of child population aged 5–17 years represented by national data sets

Subregion – broad[13]	Code	World child population 5–17 years[14]	National data sets population 5–17 years	Coverage rate %
World		1 585 219	1 101 537	69.5%
Northern Africa	10	54 959	24 713	45.0%
Sub-Saharan Africa	11	312 083	219 671	70.4%
Latin America and Caribbean	20	144 004	132 250	91.8%
Northern America	21	58 488	53 809	92.0%
Arab States	30	40 713	23 469	57.6%
Eastern Asia	40	227 169	89 305	39.3%
South-Eastern Asia and the Pacific	41	151 057	109 944	72.8%
Southern Asia	42	462 048	378 704	82.0%
Northern, Southern and Western Europe	50	60 740	48 149	79.3%
Eastern Europe	51	37 009	18 840	50.9%
Central and Western Asia	52	36 949	2 681	7.3%

The highest regional coverage is for Northern America (92.0 per cent) and Latin America and the Caribbean (91.8 per cent), followed by southern Asia (82.0 per cent) and Northern, Southern and Western Europe (79.3 per cent). The lowest coverage is for Central and Western Asia (7.3 per cent), consisting of 11 countries for which data for only one country is available. The next lowest coverage rates are for Eastern Asia (39.3 per cent) and Northern Africa (45.0 per cent). In general, however, the coverage rates at the first-digit of regional groupings are uniformly higher than the corresponding rates in the preceding rounds of global estimates of child labour.

3.9 Coverage of data items

The contents of the national data sets differ greatly from each other. For example, the Eurostat data sets contain only information on employment and employment characteristics of children in the top age group, 15 to 17 years. On the other hand, SIMPOC data sets contain information on most of the items of interest for the global estimation. Table 10 summarizes the extent of coverage of the different data items by the available data sets.

Data on population are available in all data sets and for all sex and age categories. Accordingly, the corresponding coverage rate in the first row of Table 9 is 100 per cent. Data on children in employment is, however, available for 462 cells out of the total 630 required cells in the national data set templates. The coverage rate on the data item "children in employment" is thus 73.3 per cent, and so on for the other data items.

Table 10

Coverage of data items in national data sets

Data item	Code	Total number of cells in templates	Total number of filled cells with data	Coverage rate %
Child population	POP	630	630	100.0%
Children in employment	EMP	630	462	73.3%
Child labour	CL	630	316	50.2%
Hazardous work by children	HW	630	226	35.9%
Unpaid household services	HS	630	334	53.0%
Male	M	23 310	6 270	26.9%
Female	F	23 310	6 276	26.9%
Age group 5–11 years	1	15 540	3 232	20.8%
Age group 12–14 years	2	15 540	3 907	25.1%
Age group 15–17 years	3	15 540	5 407	34.8%
School attendance	SCHOOL	7 560	4 040	53.4%
Status in employment	ICSE	5 040	2 451	48.6%
Domestic worker	DW	2 520	506	20.1%
Branch of economic activity	ISIC	7 560	2 669	35.3%
Hours of work	HRS	13 860	6 614	47.7%

Note: Each national data set is processed on the basis of seven templates containing a varying number of cells per data item. The coverage rate of a given data item is calculated as the percentage of filled cells to the total number of cells on that data item in all seven templates.

The lowest coverage rate is for "domestic worker", on which data only for about 20 per cent of the required 2,520 cells is available. The coverage rate of the 5 to 11 age group is also relatively low. As expected, the coverage rate is higher for the next age group, 12 to 14 years, and highest for the top age group, 15–17 years. Data on males and females are available in most data sets, but only for the main aggregates. Male and female data on breakdowns by economic characteristics are, however, much more limited, explaining the relatively low coverage rate (26.9 per cent) for the male and female items in the table.

Table 11 shows the coverage of the main data items by ILO broad region. It can be observed that population data was available in all national data sets in all regions. The coverage rate of data on children in employment was 73.2 per cent globally. It was highest among national data sets in Asia and the Pacific and lowest among national data sets in Europe and Central Asia. Asia and the Pacific was the region with the highest coverage rate on all main data items (97.4 per cent on children in employment, 74.4 per cent on child labour, 61.5 per cent on hazardous work by children and 82.1 per cent on unpaid household services by children). The regions with the lowest coverage rates were Europe and Central Asia on children in employment (42.6 per cent) and unpaid household services by children (14.8 per cent) and the Arab States on child labour (33.3 per cent) and hazardous work by children (0.0 per cent).

Table 11

Coverage of main data items by region

ILO broad region	Population 5–17 Child years	Children in employment	Child labour	Hazardous work by children	Unpaid household services by children
Total	100.0%	73.3%	50.2%	35.6%	53.0%
Africa	100.0%	86.7%	48.9%	23.3%	80.0%
Americas	100.0%	88.4%	60.9%	44.9%	60.9%
Arab States	100.0%	88.9%	33.3%	0.0%	55.6%
Asia and the Pacific	100.0%	97.4%	74.4%	61.5%	82.1%
Europe and Central Asia	100.0%	42.6%	37.0%	33.3%	14.8%

The missing items of the national data sets are imputed using regional average rates calculated on a hierarchical fashion, as described in section 5.

4. Harmonization of national data sets

The main means of harmonization of national data sets is the processing of the national data into a common set of templates. The harmonization also involves the standardization of age groups, the statistical treatment of unspecified counts, and a unified assignment of blanks and zeros to missing values. These harmonization steps are briefly described below. Harmonization of reference years is carried out implicitly as part of the calculation of the extrapolation weights and is described in section 6.

4.1 Templates

The national data sets have all been processed into a common set of seven templates, as follows:

- **Template 1**. Child population by sex, age group, and school attendance;
- **Template 2**. Children in employment by sex, age group, branch of economic activity, status in employment, hours of work and school attendance;
- **Template 3**. Children in child labour by sex, age group, branch of economic activity, status in employment, hours of work, and school attendance;
- **Template 4**. Children in hazardous work by sex, age group, branch of economic activity, status in employment, hours of work, and school attendance;
- **Template 5**. Children in unpaid household services by sex, age group, school attendance, and hours of work;
- **Template 6**. Children combining employment and unpaid household services by sex, age group, school attendance, branch of economic activity, status in employment, and combined hours of employment and unpaid household services; and
- **Template 7**. Children in unpaid household services by sex and age group, with a distinction made between those engaged in economic activity and other children, and within each group total hours of employment and unpaid household services.

Each template is a rectangular table of cross-classification of child data with a common column structure defining the sex and age groups:

Males				Females			
5-11 years	12-14 years	15-17 years	Total	5-11 years	12-14 years	15-17 years	Total

The row structure varies from template to template. The first row in each template gives the total population count by sex and age group: child population count in template 1, children in employment count in template 2, children engaged in child labour count in template 3, and so on. The other rows define the subclassification of the child population of the template: school attendance for template 1; branch of economic activity, status in employment, hours of work and school attendance for template 2; and so on for the other templates. The data items in the rows are not cross-classified with each other, except in certain cases such as school attendance and hours of work in template 5.

The classification of status in employment is based on the current International Standard Classification of Status in Employment (ICSE-1993):

- Employee
- Employer
- Own-account worker
- Contributing family worker

It excludes the category "member of producers' cooperative," but incorporates the subcategory "domestic worker" among employees.

The classification of branch of economic activity is based on the International Standard Industrial Classification of All Economic Activities (ISIC Rev. 4). It aggregates the classification into three broad branches of economic activity:

- Agriculture: ISIC Rev. 4 section A
- Industry: ISIC Rev. 4 sections B to F
- Services: ISIC Rev. 4 sections G to U

The classification of hours of work has been especially developed for the purpose of the Global Estimates of Child Labour to meet the different work-hour thresholds:

- < 14 hours
- 14 to 20 hours
- 21 to 27 hours
- 28 to 42 hours
- 43+ hours

The five-category classification of hours of work is aggregated in certain templates. For example, it is aggregated into three categories in templates 1 to 4, and in four categories in template 5.

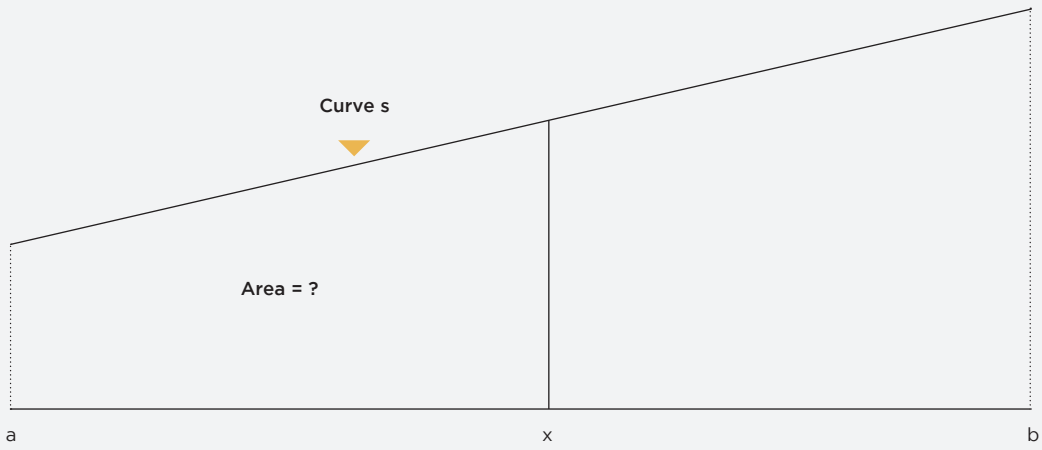
4.2 Harmonization of age groups

The age groups of the available data sets are not all in line with the standard three age groupings of the Global Estimates of Child Labour, namely 5–11 years, 12–14 years, and 15–17 years. For example, Eurostat data was given to the ILO in five-year age groups, namely 15–19 years instead of 15–17 years. Similarly, in some countries, data was available for the 10–14 years age group, from which the 12–14 years age group had to be extracted.

In general, let ***a*** and ***b*** denote the lower and upper boundary of an age group for which data are available, and let ***c*** denote the age limit within ***a*** and ***b*** for which data are to be extracted. In the Eurostat example, ***a***=15, ***b***=20 and ***c***=18, for which data for the interval from ***a*** to ***c*** is to be extracted. The problem may be formulated in mathematical terms as follows: Find the area under the curve ***s***, where ***s*** represents the size of the target population for which data are to be extracted as a function of age.

Diagram 2

Graphical representation of harmonization of age group (trapezoidal method)



Assuming that the curve is locally linear with slope α, the unknown area under the curve n_1 relative to the total area, standardized to be 1, may be expressed as

1. $n_1 = (1 - \alpha)\, x + \alpha x^2$

where $x=(c-a)/(b-a)$. The expression n_1 is general and valid for upward-sloping populations $(\alpha>0)$ such as children in employment or children in child labour or in hazardous work, as well as downward-sloping populations $(\alpha<0)$ such as the total population of children in a given age group. For flat populations $(\alpha=0)$, the expression reduces to $n_1=x$, which simply represents a linear interpolation. In practice, the value of α may be estimated from the age group itself or from adjacent age groups. We refer to this procedure as the "trapezoidal method".

To fix ideas, consider the following numerical example. The national data set for France (LFS 2015) reports 212,643 boys aged 15–19 years in employment and 910,393 in the adjacent 20–24 years age group. From these data, we first estimate the slope α. Applying the expression of n_1 to the combined age groups 15–19 and 20–24 years with a=15, b=25 and c=20, we find x=1/2 and $n_1=(1-\alpha')1/2 + \alpha'\ 1/4$. Since n_1 is known n_1 = 212,643 / (212,643 + 910,393) = 0.1893, we reverse the role of α and n_1, and find α' as a function of n_1

2. $\alpha' = 2 - 4n_1 = 2 - 4 \times 0.1893 = 1.2426$

which, after adjustment so that the area under the curve over the interval 15–19 years old is one, becomes

3. $\alpha = n_1 \times \alpha' = 0.1893 \times 1.2426 = 0.2353$

Now, applying the expression of n_1 for extracting the target age group 15–17 years from the age group 15–19 years, we find relative area n_1

4. $n_1 = (1 - 0.2353)\, x + 0.2353\, x^2 = 0.5435$

where x=(18-15)/(20-15)=0.6. Finally, we find the size of the area in absolute terms by simply multiplying n_1 with the number of children in employment in the age group 15–19 years

5. estimated children in employment 15–17 years = 0.5435 x 212643 = 115578

The accuracy of the methodology is evaluated with OECD data in section 7. It should be mentioned that, due to rounding errors, the numerical values may not always correspond to the results of the arithmetic expressions.

4.3 Other elements of harmonization

The national data sets of certain countries in many cases contain unspecified categories such as an unspecified category in the classification of school attendance, where a reported number of children are neither classified as attending school nor not attending school. Similar unspecified categories are reported in almost every classification. In all these cases, the unspecified counts have been distributed proportionately among the specified categories of the classification, for each sex and age group separately.

The national data sets have also been harmonized with respect to blanks and zeros. As a result of harmonization, a blank (coded with the symbol #DIV/0!) means the value of the category is missing and a zero means the category is void.

5. Imputation of missing values

This section describes the methodology used for the imputation of missing values in available national data sets, namely situations where the national data set is available but part of the information is missing. This section does not deal with the statistical treatment of missing countries for which national data sets are not available. It will be the subject of the following section, on extrapolation weights (section 6).

The imputation method adopted for the statistical treatment of missing values is based on the calculation of ratio where the base is the next broadest variable of the variable for which imputation is sought. Thus, a missing count of children in employment in a particular sex and age group is imputed using a ratio where the base is the population of children in that sex and age group. Similarly, a missing count of children in child labour in a particular sex and age group is imputed using a ratio where the base is the children in employment in that sex and age group, and so on.

This procedure ensures that the imputed counts are always within their bounds. For example, no imputed count of children in employment is greater than its base population. Similarly, no imputed count of children in child labour is greater than the corresponding count of children in employment, and so on. The procedure is described more fully below.

5.1 Missing count of children in employment

Let EMP_{ijh} denote the missing count of children in employment in a given sex and age group *i* for country *j* in subregion *h*. The imputed value marked with a hat over the variable is given by

6. $$\hat{EMP}_{ijh} = POP_{ijh} \times r_{ih}$$

where the ratio r_{ih} is calculated on the basis of the available data as follows

7. $$r_{ih} = \frac{\sum_{k \in s_{ih}} w_{ikh} \times EMP_{ikh}}{\sum_{k \in s_{ih}} w_{ikh} \times POP_{ikh}}$$

where s_{ih} is the set of all national data sets in subregion *h* with non-missing data on children in employment (EMP) for sex and age group *i*, and w_{ikh} is the extrapolation weight of country *k* in s_{ih}. The calculation of the extrapolation weights is described in section 6.

Where s_{ih} is empty, in other words that there are data sets with non-missing data on children in employment in that sex and age group in subregion *h*, then the ratio is calculated over the broader region *h+*; in other words

8. $$r_{ih+} = \frac{\sum_{k \in s_{ih+}} w_{ikh} \times EMP_{ikh}}{\sum_{k \in s_{ih+}} w_{ikh} \times POP_{ikh}}$$

where s_{ih+} is the set of all national data sets in the broad region *h+* with non-missing data on children in employment (EMP) for sex and age group *i*.

Where s_{ih+} is also empty, the ratio is then calculated over the world as a whole,

9. $$r_{i++} = \frac{\sum_{k \in s_{i++}} w_{ikh} \times EMP_{ikh}}{\sum_{j \in s_{i++}} w_{ikh} \times POP_{ikh}}$$

where s_{i++} is the set all of available national data sets with non-missing data on children in employment (EMP) for sex and age group *i*, irrespective of region or subregion.

A numerical example illustrates the calculations. Consider the national data set of Afghanistan based on the MICS 2011. The size of the male child population aged 15 to 17 years is reported as 1,073,301 in template 1 and the number of children in employment in that sex and age group in template 2 is, however, missing. Based on the above imputation formulae, the missing value is calculated as

10. $$\hat{EMP}_{ijh} = 1{,}073{,}301 \times 0.219 = 235{,}238$$

where *i*=male/15–17 years, *j*=Afghanistan, *h*=southern Asia (ILO code2=42), where r_{ih}=0.219 is the proportion of children in employment, male and 15–17 years old, among the child population in that sex and age group, calculated on the basis of all countries in southern Asia (*h*=42) with valid non-missing data on children in employment in that sex and age group. The final figure calculated for 2016 population is 238,630.

5.2 Missing count of children in child labour

A similar procedure is adopted for the imputation of missing counts of children in child labour, but this time the base population is the children in employment, and not the child population at large. Let CL_{ijh} denote the missing count of children in child labour in a given sex and age group i for country j in subregion h. The imputed value marked with a hat over the variable is given by

11. $$\hat{CL}_{ijh} = EMP_{ijh} \times r_{ih}$$

where the ratio r_{ih} is calculated this time as a proportion of children in employment,

12. $$r_{ih} = \frac{\sum_{k \in s_{ih}} w_{ikh} \times CL_{ikh}}{\sum_{j \in s_{ih}} w_{ikh} \times EMP_{ikh}}$$

with corresponding s_{ih}, s_{ih+}, s_{i++}, and r_{ih+}, r_{i++} defined similarly as in the case of a missing count of children in employment. The set s_{ih}, for example, is now the set of all national data sets in subregion h with non-missing data on children in child labour (CL) for sex and age group i.

5.3 Missing count of children in hazardous work

The same approach is used for the imputation of missing counts of children in hazardous work, but this time the base population is children in child labour, and not the child population at large, nor children in employment. Child labour is the next broadest variable including children in hazardous work. Let HW_{ijh} denote the missing count of children in hazardous work in a given sex and age group i for country j in subregion h. The imputed value marked with a hat over the variable is given by

13. $$\hat{HW}_{ijh} = CL_{ijh} \times r_{ih}$$

where the ratio r_{ih} is accordingly calculated as a proportion of children in child labour

14. $$r_{ih} = \frac{\sum_{k \in s_{ih}} w_{ikh} \times HW_{ikh}}{\sum_{k \in s_{ih}} w_{ikh} \times CL_{ikh}}$$

with corresponding s_{ih}, s_{ih+}, s_{i++}, and r_{ih+}, r_{i++} defined similarly as in the previous cases. The set s_{ih}, for example, is now the set of all national data sets in subregion h with non-missing data on children in hazardous work (HW) for sex and age group i.

5.4 Missing count of children in unpaid household services

For the imputation of a missing count of children in unpaid household services, the base population is the child population at large. Any child may be engaged in unpaid household services and children in unpaid household services may or may not be in employment, or in child labour or in hazardous work. Let *HSijh* denote the missing count of children in unpaid household services in a given sex and age group *i* for country *j* in subregion *h*. The imputed value marked with a hat over the variable is thus given by

15. $$\hat{HS}_{ijh} = POP_{ijh} \times r_{ih}$$

where the ratio r_{ih} is calculated as a proportion of child population at large, as was the case for children in employment,

16. $$r_{ih} = \frac{\sum_{k \in s_{ih}} w_{ikh} \times HS_{ikh}}{\sum_{k \in s_{ih}} w_{ikh} \times POP_{ikh}}$$

with corresponding s_{ih}, s_{ih+}, s_{i++}, and r_{ih+}, r_{i++} defined similarly, as in the case of a missing count of children in employment.

5.5 Missing subcounts

In addition to missing values on the main counts, many national data sets also have missing values on subcounts such as a missing value on school attendance among children in a specified sex and age category, or a missing value on the number of child domestic workers among children in employment, or among children in child labour, or among children in hazardous work, or in all or a different combination of categories.

The statistical treatment of missing values on subcounts follows the same principle as the statistical treatment of missing values on main counts. In general, the imputation method may be expressed as

17. $$\hat{SUBCOUNT}_{ijh} = MAINCOUNT_{ijh} \times r_{ih}$$

with r_{ih} calculated on the basis of the available data as follows

18. $$r_{ih} = \frac{\sum_{k \in s_{ih}} w_{ikh} \times SUBCOUNT_{ikh}}{\sum_{k \in s_{ih}} w_{ikh} \times MAINCOUNT_{ikh}}$$

where s_{ih} is the set of all national data sets in subregion *h* with non-missing data on the subcount for sex and age group *i*, and w_{ikh} is the extrapolation weight of country *k* in s_{ih}. Where s_{ih} is empty, the ratio r_{ih} is calculated based on non-missing data in national data sets in a higher level of regional groupings h_+, that is

19. $$r_{ih+} = \frac{\sum_{k \in s_{ih+}} w_{ikh} \times SUBCOUNT_{ikh}}{\sum_{k \in s_{ih+}} w_{ikh} \times MAINCOUNT_{ikh}}$$

Where s_{ih+} is still empty, the ratio is then calculated for the world as a whole

20. $$r_{i++} = \frac{\sum_{k \in s_{i++}} w_{ikh} \times SUBCOUNT_{ikh}}{\sum_{j \in s_{i++}} w_{ikh} \times MAINCOUNT_{ikh}}$$

where s_{i++} is the set of all of available national data sets with non-missing data on the subcount for the given sex and age group i, irrespective of region or subregion.

A numerical example illustrates the procedure. The national data set for Benin (EMICOV_2011) provides data on domestic workers in all six sex and age groups. The survey also provides data on child labour for all six sex and age groups. The data on domestic workers in child labour are, however, missing. In the 5 to 11 years age group, all children in employment, by definition, are engaged in child labour. Therefore, child domestic workers in this age group are all engaged in child labour. For the other age groups, the number of domestic workers in child labour is imputed using the subcount procedure as follows

21. Boy domestic workers aged 12–14 years in child labour = 130250 x 0.004794 = 624

22. Boy domestic workers aged 15–17 years in child labour = 104358 x 0.013183 = 1376

23. Girl domestic workers aged 12–14 years in child labour = 115344 x 0.027907 = 3219

24. Girl domestic workers aged 15–17 years in child labour = 107629 x 0.123580 = 13301

where the first term in each line is the count of child labour in the given sex and age group for Benin adjusted for 2016, and the second term is the weighted ratio of the subcount (domestic workers in child labour) to the main count (child labour) calculated over all national data sets with non-missing data on domestic workers in child labour in the subregion h=11 (sub-Saharan Africa), corresponding to the ILO geographical subregion in which Benin belongs.

The idea of treating the available countries as a probability sample of all countries was introduced at the ILO's first attempt to produce global estimates of child labour. At the time, a limited number of countries with national data sets were available for global estimates, and it was considered inefficient and inappropriate to impute values for the missing countries, which at the time formed the overall majority of countries.

In 2016, however, the number of countries with available data sets on child labour in one form or another greatly increased and missing countries now form a minority. The first approach based on imputation of values for missing countries could perhaps be justified. But, for the sake of comparability, it has been decided to maintain the second approach of extrapolation for the present round of global estimates, perhaps for the last time.

6. Extrapolation of national data sets

This section describes the approach adopted for extrapolating the national data sets to regional and then global estimates of child labour. In general, regional and global estimates based on partial coverage of all countries and territories may be achieved by imputing values for the missing countries and territories and aggregating the results to regional and global totals. Another approach is to treat the countries with available data sets as a sample of countries selected with some probabilities from all countries and territories. Under this approach, the regional and global estimates are obtained by applying extrapolation weights to the available national data sets.

6.1 Extrapolation weights

The estimation procedure consists of extrapolating the sample of harmonized national data sets to regional and global values by weighting each country according to its relative share of the total number of children in the region. The weighting factors are calculated for each sex and age group separately, and are calibrated to conform to the benchmark UN population estimates and projections for 2016.

The sample of countries is assumed to have been obtained by stratification based on the ILO regional groupings (broad subregions) and within each stratum by probabilities proportional to size, where size is measured in terms of the UN estimate of child population in 2016. Accordingly, the extrapolation weights for a given sex and age group *i* in country *j* belonging to subregion *h* are calculated as follows

25. $$w_{ijh} = \frac{UNPOP_{ih}(2016)}{n_h \times POP_{ijh}(t)}$$

where $UNPOP_{ih}(2016)$ is the UN estimate of child population in sex and age group *i* in subregion *h* at the mid-year point in 2016, $POP_{ijh}(t)$ is the survey estimate of child population in the sex and age group *i* in subregion *h* in the survey reference data, and *t* and n_h are the number of countries in subregion *h* with national data sets.

The weight formula can be decomposed into three parts, as follows

26. $$w_{ijh} = w = w1 \times w2 \times w3$$

where, for the sake of simplicity, the subscripts (*ijh*) are dropped, and

27. $$w1 = \frac{UNPOP_{ih}(2016)}{n_h \times UNPOP_{ijh}(2016)}$$

where *w1* is the sampling weight, corresponding to the inverse of the assumed probability of selection of country *j* in the sample within the stratum *h*. The second component *w2* is an adjustment for the reference year of the survey, which may differ from 2016 – the reference year of the global estimates

28. $$w2 = \frac{UNPOP_{ijh}(2016)}{UNPOP_{ijh}(t)}$$

The third component *w3* is a further adjustment for differences between the survey estimate of the size of the child population in the given sex and age group for the survey reference period

29. $$w3 = \frac{UNPOP_{ijh}(t)}{POP_{ijh}(t)}$$

The adjustment factors *w2* and *w3* should generally be close to one. Any great deviation from one would be an indication of a possible bias in the coverage or execution of the national survey, or an error in the UN benchmark population data.

6.2 Implication on estimates

The weighting scheme corresponds to the procedure used for the full-sample estimation of the previous two rounds of the Global Estimates of Child Labour.[15] It is equivalent to applying arithmetic average ratios obtained from the national data sets to the corresponding UN regional population estimates. Let *xijh(t)* denote the estimate of a given variable for sex and age group *i* derived from the national data set of country *j* in region *h* with reference year *t*. Then, the regional total estimate for this variable calculated over national data sets of countries in region *h* is given by

30. Regional estimate $$= \sum_{j \in s_h} w_{ijh} x_{ijh}(t)$$

31. $$= \sum_{j \in s_h} \frac{UNPOP_{jh}(2016)}{n_h POP_{ijh}(t)} x_{ijh}(t)$$

32. $$= UNPOP_{jh}(2016) \frac{1}{n_h} \sum_{j \in s_h} \frac{x_{ijh}(t)}{POP_{ijh}(t)}$$

33. $$= UNPOP_{jh}(2016) \times \bar{r}_{ih}$$

where *sh* is the set of all countries in region *h* with available data sets and

34. $$\bar{r}_{ih} = \frac{1}{n_h} \sum_{j \in s_h} \frac{x_{ijh}(t)}{POP_{ijh}(t)}$$

Under this scheme, a national ratio from a large country provides as much information as a ratio from a small country. The reason is that a small country in the sample represents many other small countries in the region as a whole, while a large country essentially represents only itself.

6.3 An alternative weighting scheme

An alternative weighting procedure is described below, although it was not used in the current round of global estimates of child labour. It consists of replacing the component *w1* in the three-complement extrapolation weights described earlier by

35. $$w1 = \frac{UNPOP_{ih}(2016)}{\sum_{j \in s_h} UNPOP_{ijh}(2016)}$$

where s_h is the set of all countries in region *h* with available data sets.

Under this scheme, the regional estimate of any particular variable may be expressed as

36. Regional estimate $$= \sum_{j \in s_h} w_{ijh} x_{ijh}(t)$$

37. $$= UNPOP_{jh}(2016) \times \bar{r}_{ih}$$

where the estimated ratio r_{ih} is a weighted average of the national ratios

38. $$\bar{r}_{ih} = \sum_{j \in s_h} \omega_{ijh} \frac{x_{ijh}(t)}{POP_{ijh}(t)}$$

where the country weight here is the share of the population in sex and age group *i* of the country *j* of region *h* in the corresponding total for all countries with national data sets in region *h* measured in terms of the UN population estimates for 2016

39. $$\omega_{ijh} = \frac{UNPOP_{ijh}(2016)}{\sum_{j \in s_h} UNPOP_{ijh}(2016)}$$

This weighting procedure gives more weight to ratios calculated for large countries than to ratios calculated for small countries, and is considered by some analysts as more appropriate for certain forms of global estimation.

7. Evaluation of results

The global estimates of child labour are evaluated in terms of their standard errors and compared with United Nations Educational, Scientific and Cultural Organization (UNESCO) data on school attendance and national trends in child labour in selected countries with data sets in different years. The methodology used for harmonizing age groups is also evaluated based on national data for two countries.

7.1 Standard errors

When a sample, rather than the entire population, is used to measure aggregate values, the resulting estimates differ from the aggregate values that they represent. This difference, or sampling error, occurs by chance and its variability may be measured by the standard error of the estimate if the sample was drawn based on known probabilities.

Accordingly, the standard errors of the global and regional estimates for 2016 were calculated to assess the sampling variability. The calculation assumes that the national data sets used for estimating the child labour categories have themselves negligible variability relative to the variability due to differences that would occur had the sample included different countries to the ones used here. The calculation also assumes that the countries covered in the study form a random sample of the countries in the world. Although both of these assumptions are not fully satisfied in practice, the results may still be indicative of the margin of error of the estimates that can be attributed to the selection variability of the countries in the sample.

The results are shown in Table 12. The standard error of the global estimate of the number of children in employment is 3,442,000, corresponding to a relative standard error of 1.6 per cent. The relative standard error of the global estimate of child labour is slightly higher at 1.8 per cent and considerably higher for children in hazardous work, at 2.5 per cent. As expected, the relative standard error is lowest for the global estimate of children in unpaid household services at 1.1 per cent, as it involves the highest number of children among the different categories. The relative standard error of the global estimate of children combining employment and unpaid household services is 1.7 per cent, slightly higher than the relative standard error of children in employment.

Table 12

Standard errors of global estimates of child labour, 5–17 years age group, 2016

	Estimate (thousands)	Standard error (thousands)	Relative standard error (%)
Children in employment	218 019	3 442	1.6%
Children in child labour	151 622	2 785	1.8%
Children in hazardous work	72 525	1 809	2.5%
Children in unpaid household services	799 813	9 017	1.1%
Children combining employment and unpaid household services	173 091	2 906	1.7%

The values of the standard error can be used to construct approximate confidence intervals for the estimates. Thus, for child labour, one may interpret that the true number of children in child labour in the world lies around 151,622,000 plus or minus 2,785,000 with about 67 per cent probability (corresponding to a deviation of one standard error). This means that, if the process of selecting sample countries were possible and it had been repeated many times, the resulting estimates would, for 67 per cent of the time, lie between 145,875,000 and 156,815,000. Similar calculations may be carried out to obtain confidence intervals with 95 per cent probability, corresponding roughly to a deviation of two standard errors.

It may be noted that, in general, the higher the size of an estimate, the lower the relative standard error and the higher the precision of the estimate; vice versa, the lower the size of an estimate, the higher the relative standard error and the lower the precision of the estimate. This is reflected in the approximate generalized standard errors calculated using the values in Table 12, and shown in Table 13.

APPROXIMATE GENERALIZED STANDARD ERRORS

Table 13

Generalized variance of Global Estimates of Child Labour, 5-17 years age group, 2016

Estimate (thousands)	Standard error (thousands)	Relative standard error (%)
500 000	5 460	1.1%
250 000	3 598	1.4%
100 000	2 170	2.2%
50 000	1 509	3.0%
25 000	1 057	4.2%
10 000	665	6.7%
5 000	470	9.4%
2 500	332	13.3%
1 000	210	21.0%

Note: The generalized variance of an estimate *(y)* is calculated using the approximate relationship between the variance of an estimate and its size, expressed by $var(y)/y2 = b + a/y$, where here the estimates of the parameters are a=43.94769956 and b=0.00003136.

Thus, an estimate of around 500,000,000 has an approximate standard error of 5,460,000 with a relative standard error of 1.1 per cent. Similarly, an estimate of around 100,000,000 has an approximate standard error of 2,170,009 with a relative standard error of 2.2 per cent. Estimates as low as 1,000,000 have very high relative standard errors; almost 21 per cent. The table can be used to decide on the size of estimates that can be meaningfully considered as statistically significant for analysis. For the size of estimates that are not listed in the table, the approximate standard errors can be obtained by interpolation or extrapolation of the values given in the table.

Table 14 shows the standard errors of the regional estimates based on information in Table 13. As expected, the standard errors of estimates of children in employment are lower than the standard errors of estimates of child labour in all regions.

Table 14

Standard errors of regional estimates, 5–17 years age group, 2016

	Children in employment			Child labour		
	Estimate (thousands)	Standard error (thousands)	Rel. standard error (%)	Estimate (thousands)	Standard error (thousands)	Rel. standard error (%)
World	218 019	3 442	1.6%	151 622	2 785	1.8%
Africa	99 417	2 163	2.2%	72 113	1 825	2.5%
Sub-saharan Africa	95 931	2 122	2.2%	69 985	1 797	2.6%
Americas	17 725	888	5.0%	10 735	690	6.4%
Latin America and the Caribbean	16 062	845	5.3%	10 461	681	6.5%
Arab states	1 868	287	15.3%	1 162	226	19.5%
Asia and the Pacific	90 236	2 055	2.3%	62 077	1 688	2.7%
Europe and Central Asia	8 774	623	7.1%	5 533	494	8.9%
Northern, Southern and Western Europe	3 049	366	12.0%	1 094	219	20.1%
Eastern Europe & Central and Western Asia	5 725	503	8.8%	4 439	442	10.0%

The region with the highest standard error in the estimation of children in employment is the Arab States (15.3 per cent), followed by Europe and Central Asia (7.1 per cent). The standard errors of the estimates of the subregions in this region are particularly high for Northern, Southern and Western Europe (12.0 per cent) and for Eastern Europe and Central and Western Asia (8.8 per cent). The regions with the lowest standard estimates of children in employment are Africa (2.2 per cent), Asia and the Pacific (2.3 per cent) and the Americas (5.0 per cent).

Similar results are obtained for the regional standard errors for the estimation of child labour. The region with the highest standard error is the Arab States (19.5 per cent) followed by Europe and Central Asia (8.9 per cent). The regions with the lowest standard error are Africa (2.5 per cent), Asia and the Pacific (2.7 per cent) and the Americas (6.4 per cent).

7.2 Evaluation of harmonization of age groups

The trapezoidal method for harmonization of age groups described in section 4 is a generalization of the simple linear interpolation method. The accuracy of the proposed method is evaluated here against survey data from Timor-Leste for 2016 and France for 2012. The following table compares the error rates of the linear and trapezoidal methods for extracting data for the 15 to 17 years age group from the broader 15 to 19 years age group, using information from the adjacent 20 to 24 years age group.

In Table 15, column (1) reproduces the actual survey figures on the total number of children (15 to 17 years) by sex in Timor-Leste in 2016 and France in 2012, and the number of children in employment by sex in Timor-Leste 2016. Columns (2) and (3) give the corresponding estimates based on the linear and trapezoidal methods. The last two columns (4) and (5) show the error rates of the respective interpolation methods.

Table 15

Error rates of imputation methods for harmonization of age groups

	Survey estimate	Imputation method		Error rate (%)	
	(1)	Linear (2)	Trapezoidal (3)	Linear (4)	Trapezoidal (5)
Child population (15–17 years)					
Timor-Leste CLS 2016[1]	93 755	85 339	91 861	-8.9%	-2.0%
Male	45 465	42 366	45 342	-6.8%	-0.3%
Female	48 290	42 973	46 519	-11.0%	-3.7%
France LFS 2012[2]	2 392 572	2 393 593	2 392 168	0.04%	-0.02%
Male	1 223 939	1 224 694	1 227 774	0.1%	0.3%
Female	1 168 633	1 168 899	1 164 394	0.0%	-0.4%
Children in employment (15–17 years)					
Timor-Leste CLS 2016[1]	17 400	18 108	17 237	4.1%	-0.9%
Male	9 744	9 752	9 119	0.1%	-6.4%
Female	7 656	8 356	8 118	9.2%	6.0%

Sources:
(1) Timor-Leste child labour force survey 2016, Directorate-General of Statistics, Dili, Timor-Leste.
(2) France labour force survey 2012, OECD. http://stats.oecd.org/index.aspx?DataSetCode=RPOP#

The trapezoidal method has lower error rates for estimates of totals in all cases. It also gives lower error rates for the estimation of child population by sex and female children in employment in Timor-Leste. The linear method, however, gives lower error rates for male children in employment in Timor-Leste and for both male and female child populations in France. Overall, the average absolute error rate of the trapezoidal method is about half of that of the linear method (2.2 per cent for the trapezoid method versus 4.5 per cent for the linear method).

7.3 Comparison with ILO global estimates of employment

The ILO produces estimates and projections of the labour force and employment based on the ILO Labour Force Estimates and Projections (LFEP) and the ILO Trends Econometric Models (TEM). The regional estimates of employment for the 15 to 19 years age group for 2016 are reported in the first column of Table 16. The second column shows the interpolated values for the 15 to 17 years age group. The comparison of the interpolated estimates of employment for the 15 to 17 years age group, with the corresponding estimates of children in employment obtained from the current Global Estimates (third column of the table), shows close alignment. The regional differences are less than 10 per cent except for Africa and the Americas.

Table 16

Comparison of regional estimates of children in employment (15–17 years) with corresponding ILO estimates of employment 2016

	ILO Employment 15–19 years (thousands)	Interpolated Employment 15–17 years (thousands)	Children in employment 15–17 years (thousands)
	(1)	(2)	(3)
World	155 896	93 538	87 655
Africa	45 829	27 498	29 887
Americas	22 036	13 222	9 297
Arab states	1 677	1 006	891
Asia and the Pacific	77 669	46 601	42 488
Europe and Central Asia	8 685	5 211	5 092

Notes: Data in column 1 is based on the ILO Labour Force Estimates and Projections (LFEP) and the ILO Trends Econometric Models (TEM). Data in column 2 is interpolated values using linear interpolation with 0.6. Data in column 3 is from the 2016 Global Estimates of Child Labour.

The observed differences are due in part to the linear interpolation procedure used to extract the values for the 15 to 17 years age group from the broader 15 to 19 years age group. Improved interpolated values and closer agreement between the two sets of estimates may be obtained using the trapezoidal method of interpolation, with information on the adjacent 20 to 24 years age group described in section 4.

7.4 Comparison of ILO child labour trends with selected national trends

The 2016 Global Estimates of Child Labour indicate a decline in the prevalence of children in employment from 16.7 per cent in 2012 to 13.8 per cent in 2016, representing a fall of around 0.7 percentage points per year. The corresponding annual fall in the estimates of child labour is around 0.3 percentage points and that of children in hazardous work around 0.2 percentage points. These results are checked against national trends obtained for two randomly selected countries for which multiple data sources are available during the period 2012 to 2016.

Table 17 presents the results for Bangladesh and Brazil. The national data for both countries shows a decrease in all three indicators of child labour. The prevalence rate of children in employment in Bangladesh dropped from 17.5 per cent in 2002–03 to 8.7 per cent in 2013, representing an annual fall of around 0.8 percentage points. In the case of Brazil, the prevalence rate of children in employment dropped from 7.5 per cent in 2013 to 6.6 per cent in 2015, representing an annual fall of around 0.4 percentage points. The arithmetic average annual rate of decline of the two countries (0.6 percentage points) corresponds roughly to the global rate of decline in children in employment (0.7 percentage points). Also, the national data for both countries show a lower annual fall in children in hazardous work than the corresponding fall in children in employment and children in child labour.

Table 17

Child labour trends in selected countries: Bangladesh and Brazil

	Prevalence at year 1	Prevalence at year 2	Annual change percentage points
Bangladesh (LFS)	**2002–2003**	**2013**	
Children in employment (5–17 years)	17.5%	8.7%	0.84
Children in child labour (5–17 years)	15.1%	6.8%	0.79
Children in hazardous work (5–17 years)	12.3%	4.5%	0.74
Brazil (PNAD)	**2013**	**2015**	
Children in employment (5–17 years)	7.5%	6.6%	0.45
Children in child labour (5–17 years)	5.0%	4.1%	0.45
Children in hazardous work (5–17 years)	4.5%	3.8%	0.35

Sources: Bangladesh, labour force survey (LFS) 2002-03 and 2013, Bangladesh Bureau of Statistics, http://www.bbs.gov.bd; Brazil, Quarterly continuous national household sample survey (PNAD), Instituto Brasileiro de Geographia e Estatística, http://www.ibge.gov.br/english/estatistica/indicadores/trabalhoerendimento/pnad_continua/default.shtm.

The evaluation of the 2016 Global Estimates of Child Labour shows that the margin of error of the global estimates of the main aggregates measured in terms of relative standard error is less than 2.5 per cent. The method used for harmonizing the age groups has an average error rate of less than 2 per cent at the national level for the two countries presented here. The comparison of the global estimates of children in employment (15–17 years old) shows close agreement with the corresponding ILO global estimates of employment 2016 (about 6 per cent difference). Finally, the trends calculated on the basis of national data sets from two selected countries (Bangladesh and Brazil) show striking similarities with the estimated global trends.

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Annexes

ANNEX 1. WORLD AND REGIONAL GROUPINGS

Table A1

Regional and subregional groupings

Region	Subregion – broad	Country
Africa	Northern Africa	Algeria
		Egypt
		Libya
		Morocco
		Sudan
		Tunisia
		Western Sahara
	Sub-Saharan Africa	Angola
		Benin
		Botswana
		Burkina Faso
		Burundi
		Cameroon
		Cabo Verde
		Central African Republic
		Chad
		Comoros
		Congo
		Congo, Democratic Republic of the
		Côte d'Ivoire
		Djibouti
		Equatorial Guinea
		Eritrea
		Ethiopia
		Gabon
		Gambia
		Ghana

Region	Subregion – broad	Country
Africa	Sub-Saharan Africa	Guinea
		Guinea-Bissau
		Kenya
		Lesotho
		Liberia
		Madagascar
		Malawi
		Mali
		Mauritania
		Mauritius
		Mayotte
		Mozambique
		Namibia
		Niger
		Nigeria
		Réunion
		Rwanda
		Saint Helena
		Sao Tome and Principe
		Senegal
		Seychelles
		Sierra Leone
		Somalia
		South Africa
		South Sudan
		Swaziland
		Tanzania, United Republic of
		Togo
		Uganda
		Zambia
		Zimbabwe
Americas	Latin America and the Caribbean	Anguilla
		Antigua and Barbuda
		Argentina
		Aruba
		Bahamas
		Barbados
		Belize

Region	Subregion – broad	Country
Americas	Latin America and the Caribbean	Bolivia, Plurinational State of
		Brazil
		British Virgin Islands
		Cayman Islands
		Chile
		Colombia
		Costa Rica
		Cuba
		Curaçao
		Dominica
		Dominican Republic
		Ecuador
		El Salvador
		Falkland Islands (Malvinas)
		French Guiana
		Grenada
		Guadeloupe
		Guatemala
		Guyana
		Haiti
		Honduras
		Jamaica
		Martinique
		Mexico
		Montserrat
		Netherlands Antilles
		Nicaragua
		Panama
		Paraguay
		Peru
		Puerto Rico
		Saint Kitts and Nevis
		Saint Lucia
		Saint Martin (French)
		Saint Vincent and the Grenadines
		Sint Maarten (Dutch)
		Suriname
		Trinidad and Tobago

Region	Subregion – broad	Country
Americas	Latin America and the Caribbean	Turks and Caicos Islands
		United States Virgin Islands
		Uruguay
		Venezuela, Bolivarian Republic of
	Northern America	Bermuda
		Canada
		Greenland
		Saint Pierre and Miquelon
		United States
Arab States	Arab States	Bahrain
		Iraq
		Jordan
		Kuwait
		Lebanon
		Oman
		Qatar
		Saudi Arabia
		Syrian Arab Republic
		United Arab Emirates
		West Bank and Gaza Strip
		Yemen
Asia and the Pacific	Eastern Asia	China
		Hong Kong (China)
		Japan
		Korea, Democratic People's Republic of
		Korea, Republic of
		Macau (China)
		Mongolia
		Taiwan (China)
	South-Eastern Asia and the Pacific	Brunei Darussalam
		Cambodia
		Indonesia
		Lao People's Democratic Republic
		Malaysia
		Myanmar
		Philippines
		Singapore
		Thailand

Region	Subregion – broad	Country
Asia and the Pacific	South-Eastern Asia and the Pacific	Timor-Leste
		Viet Nam
		American Samoa
		Australia
		Cook Islands
		Fiji
		French Polynesia
		Guam
		Kiribati
		Marshall Islands
		Micronesia, Federated States of
		Nauru
		New Caledonia
		New Zealand
		Niue
		Northern Mariana Islands
		Palau
		Papua New Guinea
		Samoa
		Solomon Islands
		Tonga
		Tuvalu
		Vanuatu
	Southern Asia	Afghanistan
		Bangladesh
		Bhutan
		India
		Iran, Islamic Republic of
		Maldives
		Nepal
		Pakistan
		Sri Lanka
Europe and Central Asia	Northern, Southern and Western Europe	Albania
		Andorra
		Austria
		Belgium
		Bosnia and Herzegovina
		Channel Islands

Region	Subregion – broad	Country
Europe and Central Asia Arab States Asia and the Pacific	Northern, Southern and Western Europe	Croatia
		Denmark
		Estonia
		Faroe Islands
		Finland
		France
		Germany
		Gibraltar
		Greece
		Iceland
		Ireland
		Isle of Man
		Italy
		Kosovo
		Latvia
		Liechtenstein
		Lithuania
		Luxembourg
		Malta
		Monaco
		Montenegro
		Netherlands
		Norway
		Portugal
		San Marino
		Serbia
		Slovenia
		Spain
		Sweden
		Switzerland
		The former Yugoslav Republic of Macedonia
		United Kingdom
	Eastern Europe and Central Asia	Belarus
		Bulgaria
		Czech Republic
		Hungary
		Moldova, Republic of
		Poland

Region	Subregion – broad	Country
Europe and Central Asia Arab States Asia and the Pacific	Eastern Europe and Central Asia	Romania
		Russian Federation
		Slovakia
		Ukraine
	Central and Western Asia	Armenia
		Azerbaijan
		Cyprus
		Georgia
		Israel
		Kazakhstan
		Kyrgyzstan
		Tajikistan
		Turkey
		Turkmenistan
		Uzbekistan

Table A2

World Bank income classifications

WB income classifications
Low-income (US$1,045 or less)
Lower-middle-income (US$1,046–4,125)
Upper-middle-income (US$4,126–12,735)
High-income (US$12,736 or more)

Notes: Income groups are defined based on levels of gross national income per capita calculated using the World Bank Atlas method. See: http://data.worldbank.org/about/country-and-lending-groups.

ANNEX 2. LIST OF NATIONAL DATA SETS

Table A3

World Bank income classifications

Americas Data set	Year	Survey
Argentina	2012	Multiple indicator cluster survey
Barbados	2012	Multiple indicator cluster survey
Belize	2013	Children's activity survey
Brazil	2015	Pesquisa nacional por amostra de domicilios
Chile	2012	Encuesta nacional de actividades de niños, niñas y adolescentes
Colombia	2014	Gran encuesta integrada de hogares
Costa Rica	2014	Encuesta nacional de hogares
Dominican Republic	2011	Encuesta nacional de hogares de propósitos múltiples
Ecuador	2012	Encuesta nacional de trabajo infantil
El Salvador	2015	Encuesta de hogares de propósitos múltiples
Guatemala	2013	Encuesta nacional de empleo e ingresos
Haiti	2012	Enquête mortalité, morbidité et utilisation des services
Honduras	2013	Encuesta permanente de hogares de propósitos múltiples
Jamaica	2011	Multiple indicator cluster survey
Mexico	2015	Encuesta nacional de ocupación y empleo
Nicaragua	2012	Encuesta continua de hogares
Panama	2014	Encuesta del mercado laboral
Paraguay	2014	Encuesta permanente de hogares
Peru	2015	Encuesta sobre trabajo infantil
Saint Lucia	2012	Multiple indicator cluster survey
Suriname	2010	Multiple indicator cluster survey
United States	2015	American community survey
Venezuela, Bolivarian Republic of	2012	Encuesta de hogares por muestreo
Africa Data set	Year	Survey
Benin	2011	Enquête modulaire intégrée sur les conditions de vie des ménages
Burkina Faso	2010	Enquête démographique et de santé et à indicateurs multiples
Burundi	2010	Enquête démographique et de santé
Cameroon	2011	Enquête démographique et de santé et à indicateurs multiples
Cabo Verde	2012	Inquérito nacional sobre as actividades das criancas
Central African Republic	2010	Multiple indicator cluster survey
Chad	2010	Multiple indicator cluster survey
Comoros	2012	Enquête démographique et de santé et à indicateurs multiples

Africa Data set	Year	Survey
Congo	2012	Enquête démographique et de santé
Congo, Democratic Republic of the	2014	Enquête démographique et de santé
Egypt	2014	Enquête démographique et de santé
Ethiopia	2015	National child labour survey
Gabon	2012	Enquête démographique et de santé
Ghana	2013	Ghana living standards survey round 6
Guinea	2012	Enquête démographique et de santé et à indicateurs multiples
Liberia	2010	Labour force survey
Malawi	2015	National child labour survey
Mali	2013	Enquête démographique et de santé
Mauritania	2011	Multiple indicator cluster survey
Niger	2012	Enquête démographique et de santé et à indicateurs multiples
Nigeria	2011	Multiple indicator cluster survey
Rwanda	2010	Demographic and health survey
Senegal	2014	Enquête démographique et de santé continue
Sierra Leone	2013	Demographic and health survey
South Sudan	2008	Population and housing census
Swaziland	2010	Multiple indicator cluster survey
Tanzania	2014	National child labour survey
Togo	2014	Enquête démographique et de santé
Tunisia	2012	Multiple indicator cluster survey
Uganda	2012	Labour force and child labour survey
Arab States Data set	Year	Survey
Iraq	2011	Multiple indicator cluster survey
Jordan	2016	National child labour survey
Yemen	2013	National health and demographic survey
Asia and the Pacific Data set	Year	Survey
Afghanistan	2011	Multiple indicator cluster survey
Bangladesh	2013	Labour force and child labour survey
Bhutan	2010	Multiple indicator cluster survey
Cambodia	2012	Labour force and child labour survey
China	2010	Chinese family panel study
India	2012	National sample survey round 68
Indonesia	2009	Labour force and child labour survey
Lao, People's Democratic Republic of	2010	Labour force and child labour survey
Mongolia	2012	Labour force and child labour survey

Asia and the Pacific Data set	Year	Survey
Pakistan	2011	Labour force survey
Philippines	2011	Labour force and child labour survey
Timor-Leste	2016	National child labour survey
Viet Nam	2012	Labour force and child labour survey

Europe and Central Asia Data set	Year	Survey
Armenia	2015	National child labour survey
Austria	2015	Labour force survey
Belarus	2012	Multiple indicator cluster survey
Belgium	2015	Labour force survey
Bulgaria	2015	Labour force survey
Croatia	2015	Labour force survey
Cyprus	2015	Labour force survey
Czech Republic	2015	Labour force survey
Denmark	2015	Labour force survey
Estonia	2015	Labour force survey
Finland	2015	Labour force survey
France	2015	Labour force survey
Georgia	2015	Labour force survey
Greece	2015	Labour force survey
Hungary	2015	Labour force survey
Iceland	2015	Labour force survey
Ireland	2015	Labour force survey
Italy	2015	Labour force Survey
Kyrgyzstan	2014	National child labour survey
Latvia	2015	Labour force survey
Lithuania	2015	Labour force survey
Luxembourg	2015	Labour force survey
Macedonia	2011	Multiple indicator cluster survey
Malta	2015	Labour force survey
Netherlands	2015	Labour force survey
Norway	2015	Labour force survey
Poland	2015	Labour force survey
Portugal	2015	Labour force survey
Romania	2015	Labour force survey
Slovakia	2015	Labour force survey
Slovenia	2015	Labour force survey
Spain	2015	Labour force survey

Europe and Central Asia Data set	Year	Survey
Sweden	2015	Labour force survey
Switzerland	2015	Labour force survey
Ukraine	2012	Multiple indicator cluster survey
United Kingdom	2015	Labour force survey

ANNEX 3. ILO CHILD LABOUR MODEL QUESTIONNAIRE

The ILO's experience in providing technical assistance on child labour statistics around the globe has resulted in a wide range of survey instruments. This includes questionnaires for collecting both quantitative and qualitative data, and the use of a variety of data collection methods. For countries committed to developing a national child labour survey with relatively advanced data collection and processing capabilities, a comprehensive standard questionnaire has been devised. For other countries, a shorter questionnaire is recommended to facilitate the collection of essential child labour data. The links for stand-alone and modular national child labour surveys can be found below:

- http://www.ilo.org/ipec/Information-resources/WCMS_IPEC_PUB_4946/lang--en/index.htm
- http://www.ilo.org/ipec/Information-resources/WCMS_IPEC_PUB_5014/lang--en/index.htm

ANNEX 4. STATISTICAL TABLES

Table A4

Global estimates of child labour by sex and age, 5–17 years age group, 2016

	Total children	Children in employment		Child labour		Hazardous work	
	(thousands)	(thousands)	%	(thousands)	%	(thousands)	%
World	1 585 219	218 019	13.8	151 622	9.6	72 525	4.6
Boys	819 423	123 190	15.0	87 521	10.7	44 774	5.5
Girls	765 796	94 829	12.4	64 100	8.4	27 751	3.6
5–11 years	874 705	72 585	8.3	72 585	8.3	19 020	2.2
12–14 years	358 002	57 779	16.1	41 887	11.7	16 355	4.6
(5–14 years)	1 232 707	130 364	10.6	114 472	9.3	35 376	2.9
15–17 years	352 512	87 655	24.9	37 149	10.5	37 149	10.5

Table A5

Global estimates of child labour by region, 5–17 years age group, 2016

	Total children	Children in employment		Child labour		Hazardous work	
	(thousands)	(thousands)	%	(thousands)	%	(thousands)	%
World	1 585 219	218 019	13.8	151 622	9.6	72 525	4.6
Americas	202 492	17 725	8.8	10 735	5.3	6 553	3.2
Africa	367 042	99 417	27.1	72 113	19.6	31 538	8.6
Arab States	40 713	1 868	4.6	1 162	2.9	616	1.5
Asia and the Pacific	840 274	90 236	10.7	62 077	7.4	28 469	3.4
Europe and Central and Western Asia	134 698	8 773	6.5	5 534	4.1	5 349	4.0

Table A6

Children in employment, in child labour, and in hazardous work by region, 5–17 years age group, 2016

	Total children		Children in employment		Child labour		Hazardous work	
	Male (thousands)	Female (thousands)	Male (thousands)	Female (thousands)	Male (thousands)	Female (thousands)	Male (thousands)	Female (thousands)
Africa	185 927	181 115	54 497	44 920	39 871	32 242	17 982	13 556
Americas	103 287	99 205	10 949	6 775	7 245	3 490	5 046	1 506
Arab States	20 850	19 863	1 396	471	844	318	491	124
Asia and the Pacific	440 347	399 927	51 234	39 003	35 988	26 089	17 798	10 671
Europe and Central and Western Asia	69 012	65 686	5 113	3 660	3 573	1 961	3 455	1 894

Table A7

Global trends of child labour by sex and age, 5–17 years age group, 2000–16

	Total children	Children in employment		Child labour		Hazardous work	
	(thousands)	(thousands)	%	(thousands)	%	(thousands)	%
World							
2000	1 531 400	351 900	23.0	245 500	16.0	170 500	11.1
2004	1 566 300	322 729	20.6	222 294	14.2	128 381	8.2
2008	1 586 288	305 669	19.3	215 209	13.6	115 314	7.3
2012	1 585 566	264 427	16.7	167 956	10.6	85 344	5.4
2016	1 585 219	218 019	13.8	151 622	9.6	72 525	4.6
Boys							
2000	786 500	184 200	23.4	132 200	16.8	95 700	12.2
2004	804 000	171 150	21.3	119 575	14.9	74 414	9.3
2008	819 891	175 777	21.4	127 761	15.6	74 019	9.0
2012	819 877	148 327	18.1	99 766	12.2	55 048	6.7
2016	819 423	123 190	15.0	87 521	10.7	44 774	5.5
Girls							
2000	744 900	167 700	22.5	113 300	15.2	74 800	10.0
2004	762 300	151 579	19.9	102 720	13.5	53 966	7.1
2008	766 397	129 892	16.9	87 508	11.4	41 296	5.4
2012	765 690	116 100	15.2	68 190	8.9	30 296	4.0
2016	765 796	94 829	12.4	64 100	8.4	27 751	3.6

	Total children	Children in employment		Child labour		Hazardous work	
	(thousands)	(thousands)	%	(thousands)	%	(thousands)	%
5–14 years							
2000	1 199 400	211 000	17.6	186 300	15.5	111 300	9.3
2004	1 206 500	196 047	16.2	170 383	14.1	76 470	6.3
2008	1 216 854	176 452	14.5	152 850	12.6	52 895	4.3
2012	1 221 071	144 066	11.8	120 453	9.9	37 841	3.1
2016	1 232 707	130 364	10.6	114 472	9.3	35 376	2.9
15–17 years							
2000	332 000	140 900	42.4	59 200	17.8	59 200	17.8
2004	359 800	126 682	35.2	51 911	14.4	51 911	14.4
2008	369 433	129 217	35.0	62 419	16.9	62 419	16.9
2012	364 495	120 362	33.0	47 503	13.0	4,503	13.0
2016	352 512	87 655	24.9	37 149	10.5	37 149	10.5

Table A8

Regional trends of child labour, 5–14 years age group, 2000–16

	Total children	Children in employment		Child labour		Hazardous work	
	(thousands)	(thousands)	%	(thousands)	%	(thousands)	%
World							
2000	1 199 400	211 000	17.6	186 300	15.5	111 300	9.3
2004	1 206 600	196 047	16.2	170 383	14.1	76 470	6.3
2008	1 216 854	175 311	14.4	152 850	12.6	52 895	4.3
2012	1 221 071	144 066	11.8	120 452	9.9	37 841	3.1
2016	1 232 707	130 364	10.6	114 472	9.3	35 376	2.9
Asia and the Pacific							
2000	665 100	127 300	19.1				
2004	650 000	122 300	18.8				
2008	651 815	96 397	14.8	81 609	12.5	16 332	2.5
2012	637 579	64 419	10.1	52 702	8.3		
2016	647 789	47 748	7.4	41 580	6.4	7 972	1.2

	Total children	Children in employment		Child labour		Hazardous work	
	(thousands)	(thousands)	%	(thousands)	%	(thousands)	%
Latin America and the Caribbean							
2000	108 100	17 400	16.1				
2004	111 000	11 047	10.0				
2008	110 566	10 002	9.0	9 470	8.6	4 529	4.1
2012	110 035	8 986	8.2	7 924	7.2		
2016	110 445	8 428	7.6	6 966	6.3	2 783	2.5
Sub-Saharan Africa							
2000	166 800	48 000	28.8				
2004	186 800	49 300	26.4				
2008	205 319	58 212	28.4	52 301	25.5	26 045	12.7
2012	220 077	57 623	26.2	47 735	21.7		
2016	250 388	67 817	27.1	59 966	23.9	20 441	8.2
Other regions							
2000	269 300	18 300	6.8				
2004	258 800	13 400	5.2				
2008	249 154	10 700	4.3	9 470	3.8	5 989	2.4
2012	253 380	13 038	5.1	12 091	4.8		
2016	224 085	6 371	2.8	5 961	2.7	4 180	1.9

Table A9

Number (thousands) of children in household chores by employment status, hours in household chores, age group and sex, 2016

	5–11 years		12–14 years		15–17 years		5–17 years	
	Males	Females	Males	Females	Males	Females	Males	Females
Household chores	169 768	189 593	103 804	119 614	101 315	115 718	374 888	424 926
Employment and household chores <14 hours per week	23 560	20 834	19 289	14 480	28 437	16 890	71 286	52 204
Employment and household chores 14–20 hours per week	3 514	3 682	3 698	4 314	4 357	6 619	11 568	14 615
Employment and household chores 21–27 hours per week	1 153	1 444	1 382	1 753	1 782	2 649	4 317	5 847
Employment and household chores 28–42 hours per week	1 131	1 355	1 144	1 680	1 466	2 721	3 742	5 755
Employment and household chores 43+ hours per week	472	504	409	681	440	1 250	1 321	2 436

	5–11 years		12–14 years		15–17 years		5–17 years	
	Males	Females	Males	Females	Males	Females	Males	Females
Household chores not in employment <14 hours per week	121 573	133 685	63 103	67 063	50 964	50 549	235 639	251 297
Household chores not in employment 14–20 hours per week	10 700	15 773	8 429	15 501	8 130	16 488	27 259	47 763
Household chores not in employment 21–27 hours per week	3 592	5 964	2 994	6 596	2 986	7 906	9 571	20 466
Household chores not in employment 28–42 hours per week	3 235	5 104	2 644	5 717	2 224	8 109	8 103	18 930
Household chores not in employment 43+ hours per week	838	1 247	713	1 829	530	2 537	2 081	5 613

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End notes

1. ILO: Child Labour: Global Estimates and Trends, 2012-2016 (Geneva, International Labour Organization (ILO), 2017).

2. In the new ILO regional classification, geographic regions are in line with the ILO field structure, with the possibility of combining them with level of development as defined in the World Bank's country income classification, which is updated once per year. The regional and subregional disaggregation of the list of countries can be found in Annex 1.

3. Since approximately 60 per cent of 5–11-year-olds and 12-14 year-olds are in hazardous work for less than 43 hours per week, the only criteria for them to be in hazardous work is that they are either engaged in hazardous industries or hazardous occupations.

4. 18th International Conference of Labour Statisticians (ICLS) Resolution II concerning statistics of child labour (ILO, Geneva, 2008).

5. ILO: *Unpaid household services and child labour*, 19th International Conference of Labour Statisticians (ILO, Geneva, 2013).

6. http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_221638.pdf

7. ILO: *Child labour: Targeting the intolerable* (ILO, Geneva, 1996); and ILO: *Statistics on Working Children and Hazardous Child Labour in Brief* (ILO, Geneva, 1997 (rev. 1998)).

8. ILO: *Every Child Counts: New Global Estimates on Child Labour* (ILO, Geneva, 2002); ILO: *Global child labour trends 2000 to 2004* (ILO, Geneva, 2006); ILO: *Global child labour developments: Measuring trends from 2004 to 2008* (ILO, Geneva, 2010); and ILO: *Global child labour trends 2008 to 2012* (ILO, Geneva, 2013).

9. 18th ICLS Resolution II concerning statistics of child labour (ILO, Geneva, 2008).

10. 19th International Conference of Labour Statisticians Resolution I concerning statistics of work, employment and labour underutilization (ILO, Geneva, 2013).

11. UN International Standard Industrial Classification of All Economic Activities (ISIC Rev. 4), https://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27.

12. ILO International Standard Classification of Occupations (ISCO-88), http://www.ilo.org/public/english/bureau/stat/isco/isco08.

13. The country groupings are according to the ILO regional groupings, ILO Department of Statistics. The coverage here comprises 199 countries and territories representing 99.7 per cent of the world's population.

14. The population figures refer to 2016 and are obtained from the UN *World Population Prospects: The 2015 Revision*. Medium fertility variant, 2015–2100, POP/DB/WPP/Rec.2015/INT/F03-2 and F03-3.

15. In the previous two rounds in 2008 and 2012, the ILO global estimates of child labour were based on combining an estimate based on the so-called "full sample" and an estimate based on the matched sample. The full sample comprised all available national data sets, while the matched sample was limited to the subset of national data sets of countries that were also included in the preceding round of global estimates. This combined scheme was meant to provide more accurate estimates of trends. It was decided, however, not to pursue it in the present round in order to concentrate on the automation of the process of global estimation.

16. As defined in UN Security Council resolution No. 1244 of 1999.

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