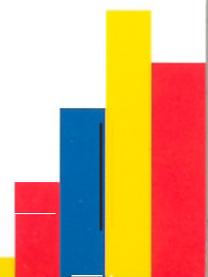SIMPOC

International Labour Office

Global child labour trends 2000 to 2004

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Statistical Information
and Monitoring Programme
on Child Labour (SIMPOC)

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International Labour Office
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Cover photographs: ILO

Summary of highlights

Four years after the publication of its last detailed global estimates of children's involvement in various forms of work, the ILO is now presenting new data, together with an analysis of child labour trends from 2000 to 2004.

The estimates are based on an extrapolation of child labour data from 60 national household surveys. Key results are presented according to
- form of children's work,
- age group,
- sector of activity, and
- region.

New estimates on the unconditional worst forms of child labour, such as children in bonded labour or trafficked children, are not available.

Working children. The incidence of children's work in the sense of economic activity declined among all major age groups (see Table 1). About one-sixth of the total child population—i.e. 191 million children aged 5-14 years—was involved in some kind of economic activity in 2004. In total, there were some 20 million fewer working children in this age group than there had been four years earlier. Boys continue to be slightly more exposed to work than girls, especially in the older age groups.

Child labour. Child labour, a more restricted category than is "working children", excludes all children working legally in accordance with ILO Conventions Nos. 138 and 182. The global number of child labourers aged 5-17 years declined by 28 million from 246 million in 2000 to 218 million in 2004 (see Table 1). The incidence dropped to an average rate of 13.9 per cent. We note that gender differentials with regard to child labour become more pronounced with increasing age. Significantly more boys than girls are exposed to child labour in the older, 12- to 14-year and 15- to 17-year age groups.

Children in hazardous work. The number of children in this worst form of child labour (WFCL) dropped considerably, from an estimated 171 million in 2000 to 126 million in 2004 (see Table 1). The decrease was particularly strong among children in the 5- to 14-year-old age cohort. Boys continue to be more involved in dangerous jobs than girls.

Sectoral distribution of working children. Much of children's work is agricultural and rural in nature. We estimate that more than two-thirds (69 per cent) of all working children are involved in agriculture, compared to 22 per cent in services and 9 per cent in industry.

Table 1.   Estimates of various forms of children's work, 2000 and 2004

Age Groups		Child population		Working children		Child labourers		Children in hazardous work	
		2000	**2004**	**2000**	**2004**	**2000**	**2004**	**2000**	**2004**
5-17	No. (million)	1531.4	1566.3	351.9	317.4	245.5	217.7	170.5	126.3
	Incidence (Percentage of age group)	100.0	100.0	23.0	20.3	16.0	13.9	11.1	8.1
	Percentage change from 2000 to 2004	–	2.3	–	-9.8	–	-11.3	–	-25.9
5-14	No. (million)	1199.4	1206.5	211.0	190.7	186.3	165.8	111.3	74.4
	Incidence (Percentage of age group)	100.0	100.0	17.6	15.8	15.5	13.7	9.3	6.2
	Percentage change from 2000 to 2004	–	0.6	–	-9.6	–	-11.0	–	-33.2
15-17	No. (million)	332.0	359.8	140.9	126.7	59.2	51.9	59.2	51.9
	Incidence (Percentage of age group)	100.0	100.0	42.4	35.2	17.8	14.4	17.8	14.4
	Percentage change from 2000 to 2004	–	8.4	–	-10.1	–	-12.3	–	-12.3

Regional distribution of working children. The Asian-Pacific region continued to harbour the largest number of child workers, 122 million in total (see Table 2). It is followed by Sub-Saharan Africa (49.3 million) and Latin America and the Caribbean (5.7 million). Due to data gaps, there are no new estimates for the Middle East and North Africa and the group of industrialized countries. The number of child workers declined in Asia/Pacific and in Latin America and the Caribbean, but not in Sub-Saharan Africa. The decline in the Latin American/Caribbean region was most significant. From 2000 to 2004, the region's number of child workers and it's child activity rate dropped to about one third of their previous levels. In the Asian-Pacific region, there was a slight decrease both in relative and absolute terms. The number of economically active children was reduced by 5 million in the four-year period under review. The regional activity rate also fell. The picture in Sub-Saharan Africa is more mixed. While the number of child workers increased slightly, the incidence of work dropped by more than two percentage points.

Table 2.   **Regional trends in children's work, 2000 - 2004 (5 to 14 year olds)**

Region	Child population (million)		Economically active children (million)		Activity rate (%)	
	2000	**2004**	**2000**	**2004**	**2000**	**2004**
Asia and the Pacific	655.1	650.0	127.3	122.3	19.4	18.8
Latin America and the Caribbean	108.1	111.0	17.4	5.7	16.1	5.1
Sub-Saharan Africa	166.8	186.8	48.0	49.3	28.8	26.4
Other regions	269.3	258.8	18.3	13.4	6.8	5.2
World	1'199.3	1'206.6	211.0	190.7	17.6	15.8

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1 Introduction

This publication presents the ILO's global estimates of child labour in 2004 and compares them with the previous estimates for 2000.

Both estimates are based on the same underlying definitions and use comparable methodologies. The exercise was facilitated by a rich database of national-level child labour statistics derived from SIMPOC[1] surveys and other sources. UCW, an inter-agency project on child labour statistics and research, provided access to non-ILO data and assisted in the analysis[2].

For the first time, a credible analysis of global and regional child labour trends is possible. We regard this as a milestone in the worldwide debate on child labour and, with it, hope to mark the beginning of regular four-yearly trend assessments.

The document is structured as follows. We start with a presentation of the main estimation results for 2004 and compare these to the 2000 data. This includes the analysis of trends in children's work and the more restricted categories of child labour and hazardous work by children. As far as possible, data are broken down by age group, sex, and region. Following a presentation of the sectoral distribution of working children, Section 3 discusses the underlying definitions and statistical cut-offs applied. In Section 4 we introduce our data sources and explain the different estimation methodologies used.

Despite a surge in surveys in recent years, child labour data collection remains in its infancy. The data at hand allowed us to assess global and regional trends in children's work and the global magnitude of child labour. It was also rich enough to follow the global developments with regard to children's involvement in hazardous work. But it fell short of estimating trends in some of the unconditional worst forms of child labour, among these child victims of bonded labour, armed conflict, and human trafficking. The ILO is currently developing specific survey instruments for these forms of child labour, which are notoriously difficult to quantify. We hope to include the unconditional WFCL in our next global estimates.

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[1] ILO/IPEC's Statistical Information and Monitoring Programme on Child Labour (SIMPOC) helps countries with the collection, processing, and analysis of child labour data. To date, SIMPOC has provided assistance to more than 300 surveys, of which 56 were national household surveys on child labour. Data from the latter serve as an important basis for the ILO's global child labour estimates.

[2] UCW, or "Understanding Children's Work", is a joint project by the ILO, UNICEF and the World Bank.

2 Main results

2.1 Trends in children's work

2.1.1 Children's work by age group

In 2004, an estimated global population of 191 million children aged 5-14 years were at work. This accounts for less than one-sixth (15.8 per cent) of the world's population in that age group. The total economically active child population aged 5-17 years was estimated at 317 million.

As Table 3 shows, incidence of work among children declined in both absolute and relative terms. The trend is consistent across all major age groups. It means that

- fewer children were working in 2004 than there were four years earlier, and

- the percentage of working children among the total child population also declined.

Table 3. Global trend (2000-2004) in the number of working children 5-17 years old

	Population ('000)		Number at work ('000)		Incidence rate		Change of incidence rate
Year	**2000**	**2004**	**2000**	**2004**	**2000**	**2004**	
World	1'531'400	1'566'300	351'900	317'400	23.0%	20.3%	-2.7%
Boys	786'500	804'000	184'200	171'500	23.4%	21.3%	-2.1%
Girls	744'900	762'300	167'700	145'800	22.5%	19.1%	-3.4%
5-9	600'200	601'100	73'200	64'600	12.2%	10.7%	-1.5%
10-14	599'200	605'400	137'800	126'100	23.0%	20.8%	-2.2%
(5-14)	1'199'400	1'206'500	211'000	190'700	17.6%	15.8%	-1.8%
15-17	332'000	359'800	140'900	126'700	42.4%	35.2%	-7.2%

From 2000 to 2004, the number of working children in the most relevant, 5- to 14-year core age group declined by some 20 million. Among 15- to 17-year-olds, 14 million[3] fewer children were at work. The incidence rate in the two age categories dropped from 17.6 to 15.8 per cent and from 42.4 to 35.2 per cent, respectively. It is interesting to note that the older the age group, the more pronounced was the downward change of incidence rate. Table 3 shows

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[3] For details of the 2000 estimates, see ILO/IPEC, *Every child counts. New global estimates on child labour* (Geneva, SIMPOC, 2002).

that incidence rates declined by 1.5 percentage points among the 5- to 9-year-olds versus 2.2 and 7.2 percentage points among those aged 10-14 and 15-17 years, respectively.

The terms "children's work", "working children", "children at work", and "economically active children" are used interchangeably in this publication. All denote a broader concept than child labour. It comprises all persons of either sex who furnish the supply of labour for the production of goods and services defined by the System of National Accounts during a specified reference period.

The notion of working children[4] is based on the concept of economic activity, and encompasses most activities undertaken by children involving production of goods and services, whether

- for the market or not;
- paid or unpaid;
- part time or full time;
- performed on a casual or a regular basis;
- in the formal or informal sector;
- the activities are legal or illegal.

It excludes

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

2.1.2 Children's work by sex

As was the case in 2000, the 2004 data do not reveal any major difference by sex in terms of overall magnitude of children's work and its relative incidence. Boys, especially in the older age groups, tend to be slightly more involved in work than are girls. The differentials, however, remain minor. Overall, in 2004, 172 million boys were working compared to 146 million girls. The incidence rate was about two percentage points higher among boys (21.3 per cent versus 19.1 per cent for girls).

The number of working children decreased among both sexes from 2000 to 2004. It is noteworthy that economic activity rates seem to have declined somewhat faster among girls than among boys. As Table 3 shows, the incidence rate among girls dropped by 3.4 percentage points compared to 2.1 percentage points among boys.

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[4] For further details see Section 3 (below), on general definitions, and SIMPOC: *Child labour statistics: Manual on methodologies for data collection through surveys* (Geneva, ILO, 2004). See also SIMPOC: *Manual for child labour data analysis and statistical reports* (Geneva, ILO, 2004)

2.1.3 Children's work by region

Charts 1 and 2 depict regional activity rates and the extent of children's work by region, respectively. Both concentrate on the 5- to 14-year age group. We note that, while the Asia-Pacific region has the most child workers, the incidence is highest in Sub-Saharan Africa.

In 2004, an estimated 122.3 million children were at work in the Asia-Pacific region, compared to 49.3 million in Sub-Saharan Africa and 5.7 million in Latin America and the Caribbean. Reliable survey data were too limited to provide numbers for either the Middle East and North Africa (MENA) region or for the group of industrialized countries.

In terms of incidence, Sub-Saharan Africa ranks highest. About 1 in 4 children younger than 15 years works in the region (26.4 per cent). This compares to about 1 in 5 in the Asia-Pacific region (18.8 per cent) and 1 in 20 in Latin America and the Caribbean (see Chart 1).

Chart 1.   Children's activity rate by region, 2004 (5-14 years old)
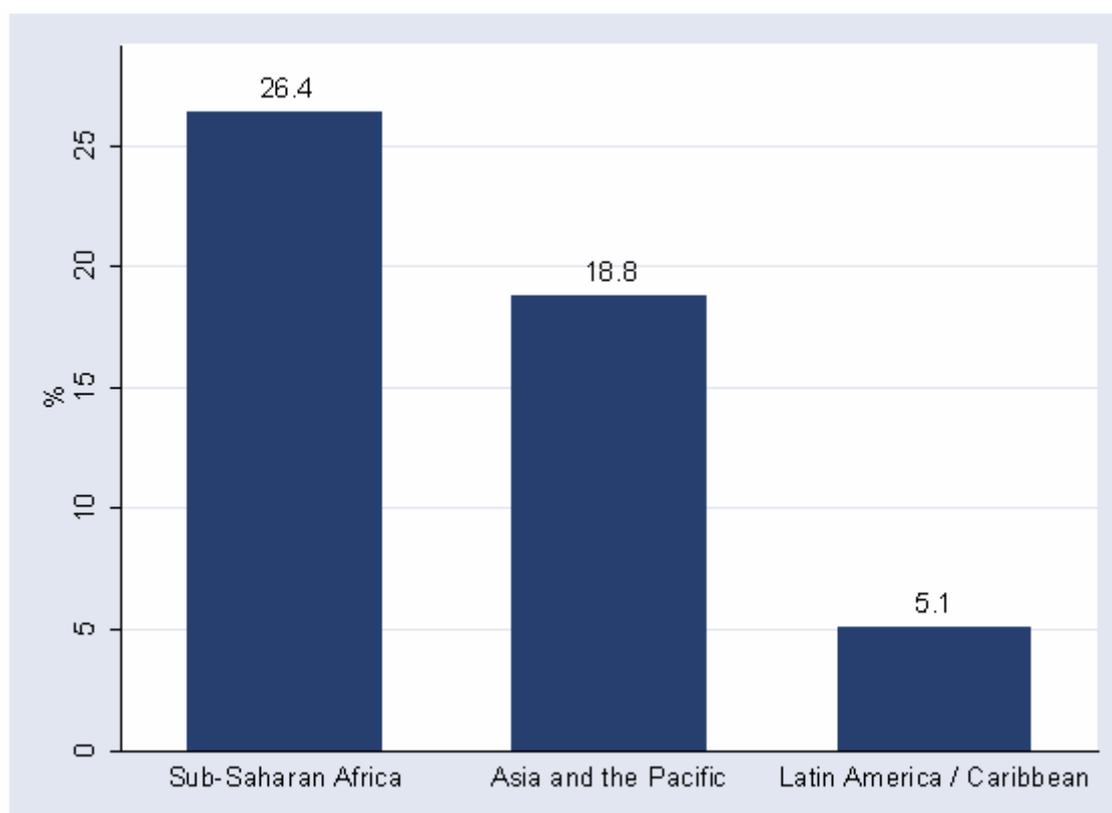
Chart 2. **Economically active children in the World (5-14 years old), by region (million)**
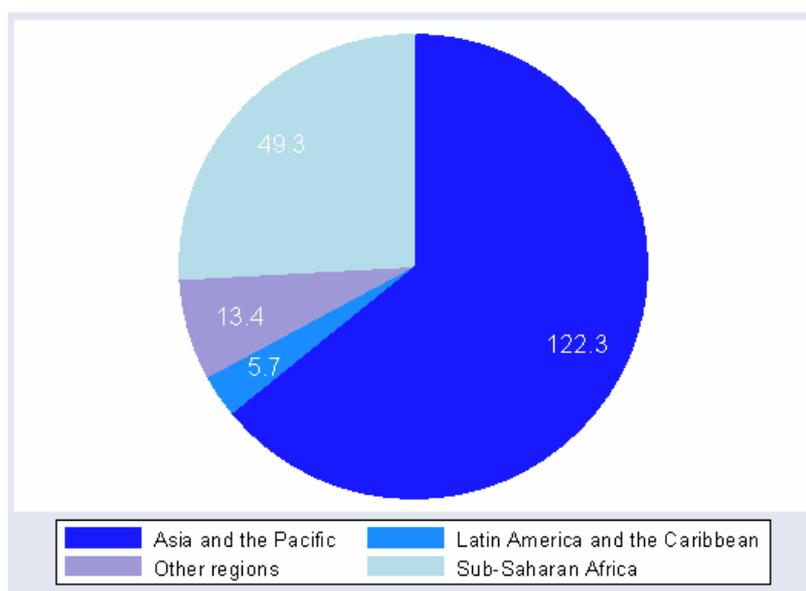
Table 4 and Charts 3 and 4 reveal regional trends from 2000 to 2004. In Asia and the Pacific, the situation among working children has remained more or less stable, both in absolute and in relative terms. The incidence decreased slightly from 19.4 to 18.8 per cent. The absolute number of child workers dropped by 5 million to a total of 122 million. In Sub-Saharan Africa, we discern a more mixed development. While the incidence rate declined by 2.4 percentage points to 26.4 per cent, the absolute number of African child workers increased by 1.3 million to a total of 49.3 million. High population growth offset the relative progress in the region.

Table 4. Regional trends in the number of working children 5-14 years old (2000-2004)

	Population ('000)		Number at Work ('000)		Incidence rate		Change of incidence rate
	2000	**2004**	**2000**	**2004**	**2000**	**2004**	
World	1'199'400	1'206'600	211'000	190'700	17.6%	15.8%	-1.8%
Asia and the Pacific	655'100	650'000	127'300	122'300	19.4%	18.8%	-0.6%
Latin America & Caribbean	108'100	111'000	17'400	5'700	16.1%	5.1%	-11.0%
Sub-Saharan Africa	166'800	186'800	48'000	49'300	28.8%	26.4%	-2.4%
Other regions	269'300	258'800	18'300	13'400	6.8%	5.2%	-1.6%

Latin America, the region with the smallest population of working children, made the biggest progress in the four years following 2000. The incidence was reduced by 11 percentage points to 5.1 per cent, and the absolute number of working children aged 5-14 years dropped to 5.7 million.

Chart 3.   Global trends in children's economic activity by region, 2000 (5 to 14 years old) (million)
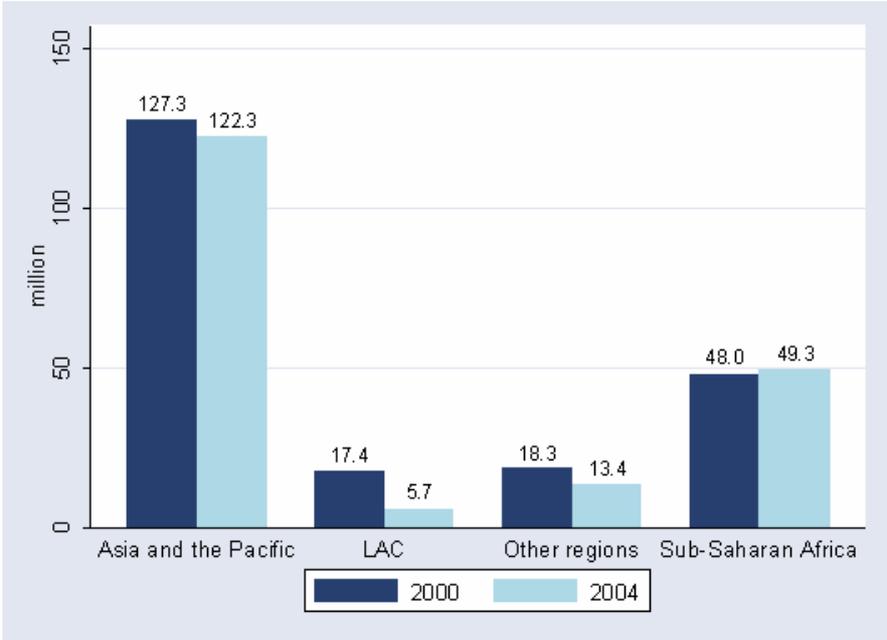
Chart 4.   Global trends in children's activity rate by region, 2000-04 (5-14 years old) (%)
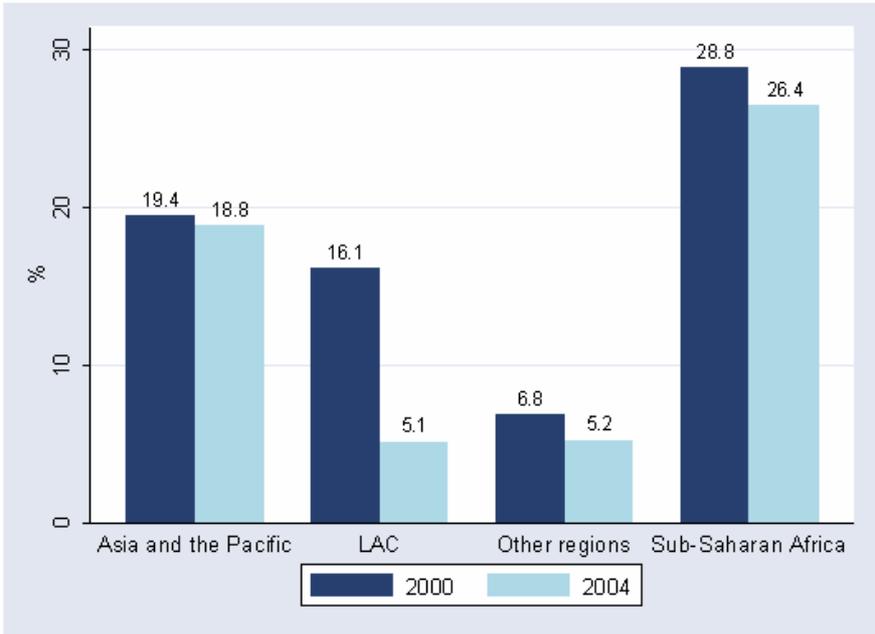
2.2 Trends in child labour [5]

2.2.1 Child labour by age group

We estimate that in 2004 there were about 218 million child labourers in the world. Three quarters of them (166 million) were younger than 15 years. As Table 5 shows, child labour is by no means only a problem among older children. In fact, 108 million—almost half of all child labourers in the world—were younger than 12 years.

Child labour declined during the period 2000 to 2004, reflecting trends in children's economic activity. The overall number decreased by 28 million from 246 to 218 million (see Chart 5). The drop was most pronounced in the lower secondary-education, 12- to 14-year age cohort, leaving 18 million fewer child labourers.

Table 5.   Global number of child labourers by major age group, 2000 and 2004

Major age group	Child labour (in '000s), 2000	Child labour (in '000s), 2004
5-11	109'700	107'647
12-14	76'600	58'105
Total 5-14	186'300	165'752
Total 15-17	59'200	51'911
Total 5-17	245'500	217'663

Chart 5.   Global trends in child labour by age group and year (million)

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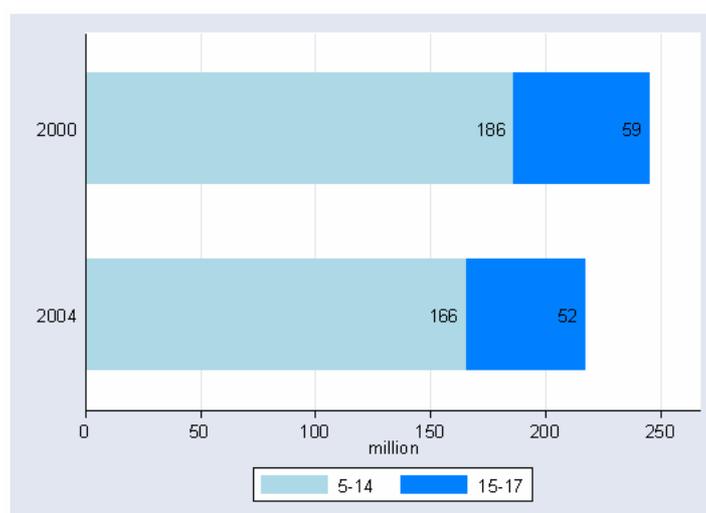
[5] Note that "child labour" is a narrower concept than that of "working children" or "economically active children". It includes all working children 5-11 years of age; excludes those in the 12- to 14-year age group engaged in "light work"; and, from among the 15- 17-year-olds, includes only those in hazardous work or other WFCL. For more details see Section 3 (below), which deals with definitions, and SIMPOC (2004), op.cit.

The worldwide incidence of child labour[6] also dropped over the four-year period under observation from a rate of 16 per cent to 13.9 per cent.

2.2.2 Child labour by sex

Data emerging over the last few years have shown that gender differentials with regard to the work children do increase both with age and with the dangers children face in the workplace. Generally, boys are more involved than are girls in child labour and hazardous work. Boys dominate in the older age groups.

Our estimates for 2004 corroborate these earlier findings. As Table 6 shows, child labour distribution by sex among those aged 5-11 years is almost on par. The gap widens, however, among those aged 12-14 years—about 55 per cent of child labourers in this category are boys.

The difference becomes most pronounced among youth aged 15-17 years. Here, boys clearly dominate and girls constitute only a little more than one third of child labourers (38 per cent).

Note that the distribution by sex remained largely unchanged in the period 2000 to 2004.

Table 6.   Child labour and its sex distribution, 2004

Sex & age group	Number of child labourers (in `000s)	Distribution by sex (%)
5-11	107'647	100.0
Boys	53'103	49.3
Girls	54'544	50.7
12-14	58'105	100.0
Boys	31'848	54.8
Girls	26'257	45.2
Total 5-14	165'752	100.0
Boys	84'951	51.3
Girls	80'801	48.7
Total 15-17	51'911	100.0
Boys	32'250	62.1
Girls	19'661	37.9
Total 5-17	217'663	100.0
Boys	117'201	53.8
Girls	100'462	46.2

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[6] Percentage of overall child population in child labour aged 5-17 years.

2.3 Trends in hazardous work by children

2.3.1 Hazardous work by age group

The majority of working children are in hazardous work. This means they are engaged in activities that endanger their safety, health, and moral development. We estimate that in 2004 126 million children were involved in this worst form of child labour.

Chart 6 shows that from 2000 to 2004 the number of children in hazardous work declined by about 44 million, a significant decrease most apparent among children in the 5- to 14-year age group.

Chart 6.   Global trends in hazardous work by age group and year (million)
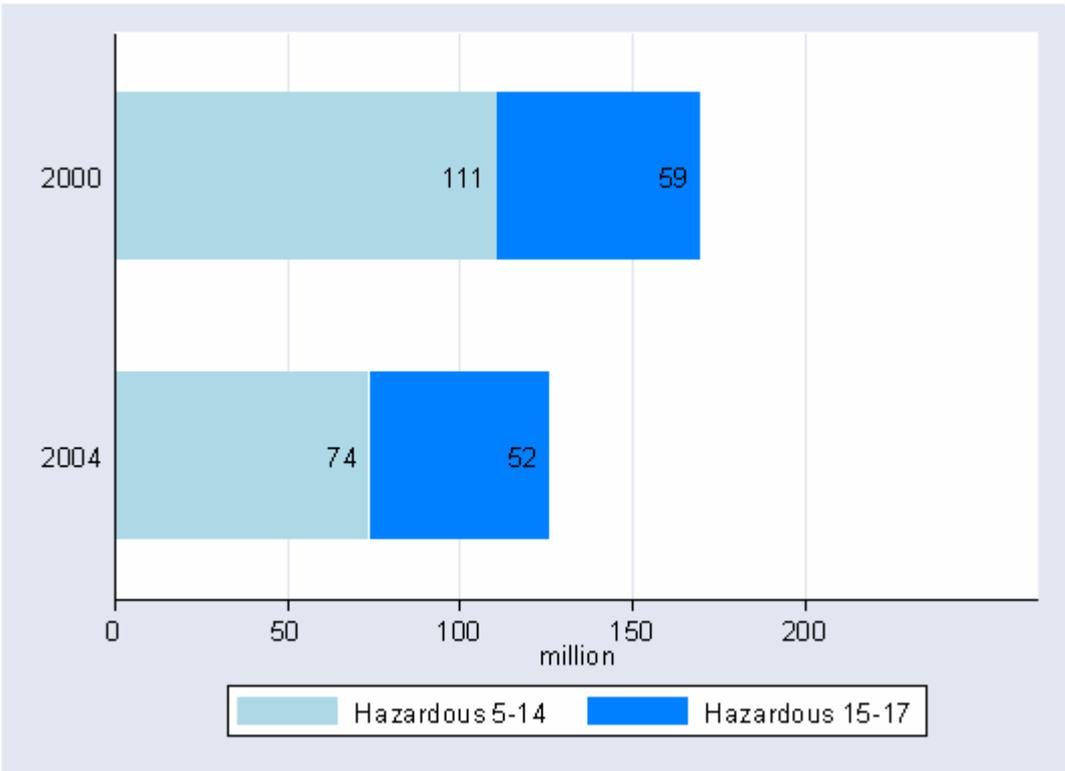
2.3.2 Hazardous work by sex

As detailed in Section 2.2.2, above, boys tend to be involved in more dangerous jobs than are girls, especially at older ages, as indicated in Chart 7. The older the age group, the more boys dominate in the child workforce. In the group aged 5-11 years, male and female participation is almost equivalent, but it declines significantly with increasing age. Among those aged 12-14 and 15-17 years, boys constitute more than 60 per cent of children in hazardous work.

Chart 7. Children in hazardous work by sex and age group (%)
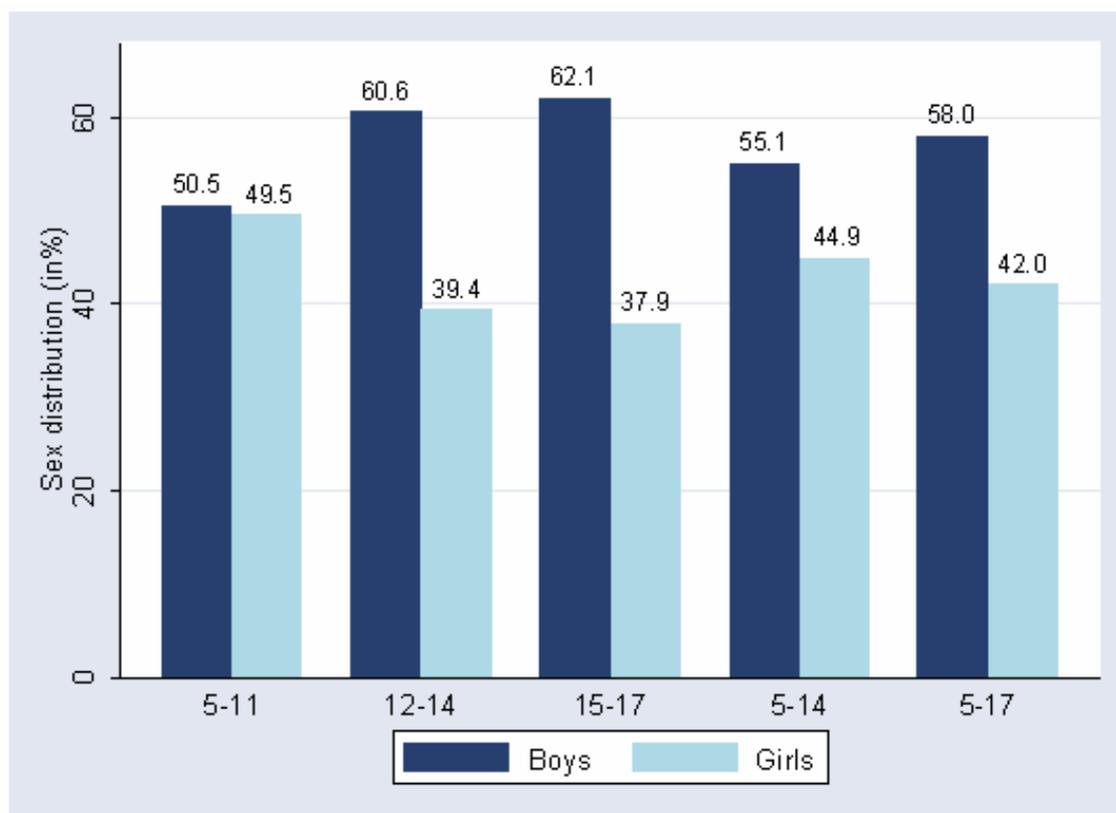
2.4 Comparative trends in different categories of work by children

Previous sections have indicated that, from 2000 to 2004, all forms of children's involvement in work—economic activity, child labour, and hazardous work—were undergoing significant changes. Global incidence rates and the overall magnitude were decreasing, albeit at varying degrees. At the same time, the situation across the various regions was highly uneven. While some regions made significant progress—e.g. Latin America and the Caribbean—others, such as Sub-Saharan Africa, tended to stagnate. Unfortunately, the data at our disposal does not allow us to present regional estimates for the sub-categories of child labour and children in hazardous work.

How do declining rates in the various forms of work relate to one another, and how does the rate of decrease of, say, "children's work" compare to that of "child labour", taking into account age and sex differentials? Table 7 and Chart 8 suggest the following:

> **The more harmful the work, the faster the decline.** The decline seems to accelerate with the degree of harm associated with the form of work. In other words, the more harmful the work, the faster the decline. Among the core group, aged 5-14 years, the number of working children declined by 9.6 per cent, from 211 million to 191 million.[7] Among child labourers, however, the drop was greater than 10 per cent. The number of children in child labour slated for abolition decreased from 186 million in

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[7] For details on the 2000 figures quoted, see ILO/IPEC (2002), op.cit.

2000 to 166 million in 2004, which represents a decline of 11 per cent. The biggest decline is observed among children in hazardous work, a sub-category of the WFCL. The global number plummeted by about one-third in the 5-14 age group, from 111 million to 74 million children.

A trend towards less hazardous types of work. As a result, and unsurprisingly, the number of children aged 5-14 years in non-hazardous child labour increased. This confirms the general trend towards less dangerous forms of work.

Table 7.   Children in economic activity, child labour, and hazardous work (by sex and age group), 2004

Sex & age group	Econom. active children (EAC) (`000s)	Child labour	Child labour as percent of EAC	Children in hazardous Work (CHW) (`000s)	CHW as per cent of EAC	CHW as per cent of child labour
5-11	107'647	107'647	100	40'235	37.4	37.4
Boys	53'103	53'103	100	20'325	38.3	38.3
Girls	54'544	54'544	100	19'909	36.5	36.5
12-14	83'072	58'105	69.9	34'157	41.1	58.8
Boys	44'706	31'848	71.2	20'693	46.3	65.0
Girls	38'366	26'257	68.4	13'464	35.1	51.3
Total 5-14	190'719	165'752	86.9	74'392	39.0	44.9
Boys	97'809	84'951	86.9	41'018	41.9	48.3
Girls	92'910	80'801	87.0	33'374	35.9	41.3
Total 15-17	126'683	51'911	41.0	51'911	41.0	100
Boys	70'609	32'250	45.7	32'250	45.7	100
Girls	56'073	19'661	35.1	19'661	35.1	100
Total	317'402	217'663	68.6	126'302	39.8	58.0
Boys	168'418	117'201	69.6	73'268	43.5	62.5
Girls	148'983	100'462	67.4	53'035	35.6	52.8

Chart 8. Global trends in child labour by form of work and year (million)
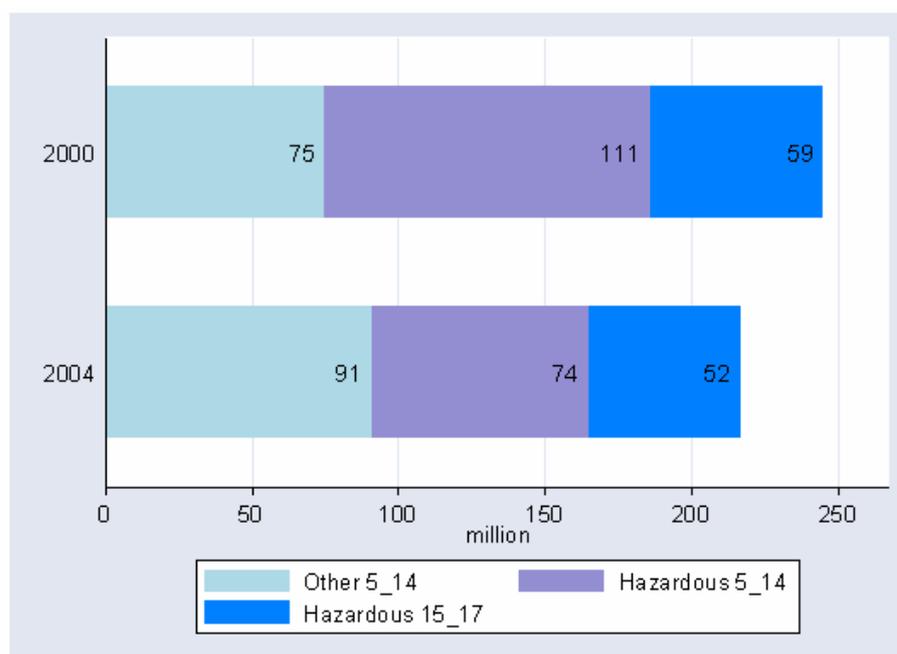
2.5 Sectoral distribution of children's work

The indicator for employment by sector—based on the International Standard Industrial Classification of All Economic Activities, Revisions 2 (1968) and 3 (1990)—breaks employment down into three broad groupings of economic activity: agriculture, industry, and services.

- **The agricultural sector** comprises activities in agriculture, hunting, forestry, and fishing. Children's work is primarily concentrated in agriculture—as Chart 9 illustrates, agriculture accounts for more than two-thirds (69 per cent) of all working children in the age group 5 to 14.

- **The industry sector** comprises mining and quarrying, manufacturing, construction, and public utilities (electricity, gas and water). Industry accounts for 9 per cent of working children.

- **The services sector** consists of wholesale and retail trade; restaurants and hotels; transport, storage, and communications; finance, insurance, real-estate, and business services; and community as well as social personal services. Services account for 22 per cent of working children.

  Note:
  This is the first time we are in a position to present reliable estimates on the sectoral distribution of working children. There are therefore no benchmark 2000 data with which we can compare these results.

Moreover, data presented here are for children's work only. The existing data material did not allow us to analyze sectoral data on the more specific groups of children in child labour and hazardous work.

Chart 9.   Working children ages 5-14 by sector (%)
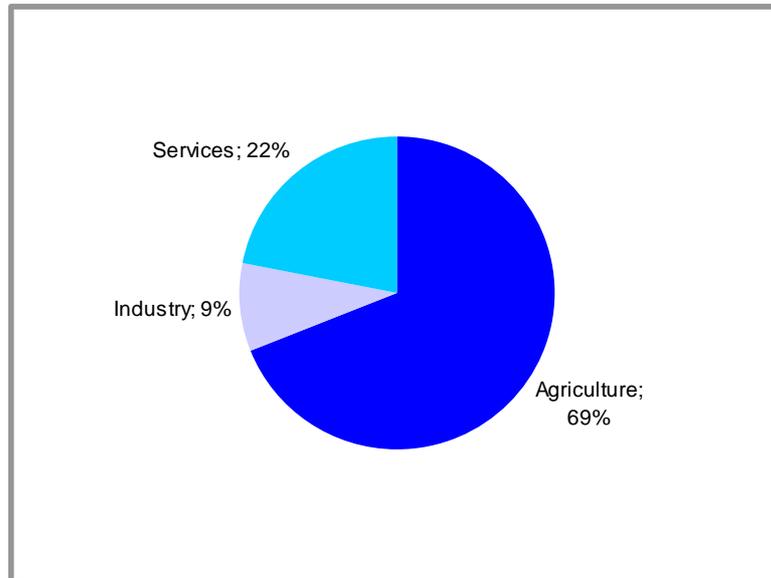
3 General definitions

The definitions underlying the 2004 estimates are identical to the ones at the basis of the exercise conducted four years earlier.[8] The objective was to achieve total comparability. For ease of reference, details are reproduced.

Note that the cut-off criteria chosen and used for the purpose of these estimates by no means replace, revise or put into question the existing international labour standards, or national legislation in force in each country.

3.1 Children and their distribution by major age group

A **child** is defined as an individual under the age of 18 years, based on the 1989 United Nations Convention on the Rights of the Child and the ILO Convention on the Worst Forms of Child Labour, 1999 (No. 182). Since it is commonly accepted that a child under 5 years of age is too young to be engaged in work (although there are cases of exploitation or abuse by adults) or to start schooling,[9] we considered only the child population aged 5-17 years for the purpose of our estimates.

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[8] See ILO (2002), op.cit.

Age is measured in number of complete years at last birthday.

Child age groups were broken down in two different ways. For the estimates on children's work or economic activity we applied the commonly used categories 5-9 years of age, 10-14 years, and 15-17 years. For the presentation of data on child labour and hazardous child work, on the other hand, we divided the first two age brackets into 5-11 and 12-14 years,[10] thereby following the logic of ILO Minimum Age Convention, 1973 (No. 138), which allows light work from the age of 12 years in a developing country context.

3.2 Working children

Work is defined in terms of **economic activity** in the sense of the System of National Accounts (SNA) 1993.[11] This corresponds to the international definition of employment as adopted by the Thirteenth International Conference of Labour Statisticians.[12]

Economic activity covers all market production (paid work) and certain types of non-market production (unpaid work), including production of goods for own use. Whether paid or unpaid, therefore, the activity or occupation could be pursued in either the formal or informal sector and in either urban or rural areas. For example, children engaged in unpaid activities in a market-oriented establishment operated by a relative living in the same household are considered as working in an economic activity. Children working as maids or other domestic workers in someone else's household are also considered economically active. Children engaged in domestic chores within their own households, however, are not classified as economically active.[13]

In line with the international definition of employment, one hour of work during the reference week is sufficient to consider a person as being at work in economic activity during that week. Also included in the classification are individuals with a job but who are temporarily absent from work due to illness, vacation, or other reasons.

Note that the concept of "working children" based on economic activity excludes children seeking work or those who are currently unemployed.[14]

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[9] UNESCO, *International standard classification of education (ISCED),* Paris, 1997, which states that the customary or legal age of entrance to primary schooling is not younger than five years.

[10] See Annex 1 on the question of age-group harmonization and standardization.

[11] *System of national accounts 1993* (Brussels/Luxembourg, New York, Paris, Washington, D.C., Inter-Secretariat Working Group on National Accounts: Eurostat, IMF, OECD, United Nations, and World Bank).

[12] ILO, *Resolution concerning statistics of the economically active population, employment, unemployment and underemployment*, Thirteenth International Conference of Labour Statisticians (Geneva, ILO, October 1982).

[13] For further explication of the concept "economic activity", see R. Hussmann, F. Mehran, V. Verma, *Surveys of economically active population, employment, unemployment and underemployment: An ILO manual on concepts and methods* (Geneva, ILO, 1990).

[14] See ILO/IPEC (2004), op.cit.

Work was measured in relation to a reference week during the school year, as opposed to a longer reference period such as a year. The reference week is a more convenient reference period, since it permits a sharper measurement of economic activity and minimizes ambiguities due to the higher incidence of multiple statuses and changes in economic activity and work intensity that may arise during a longer reference period. Moreover, most sources of data on which the estimations rely have adopted the reference week as the basic reference period. A simple activity status classification was adopted for the purpose of our global estimation. The activity status was defined in terms of three categories with a maximum of two levels each:

1. At work in economic activity
    a. At work only
    b. At work and at school

2. At school, and not at work in economic activity

3. Neither at work nor at school
    a. Household chores
    b. Other (e.g. sick or disabled, at play, or in informal education)

At each level of classification, the activity statuses are meant to be exhaustive and mutually exclusive, so that each and every child should be classifiable according to one and only one status. According to this scheme, the classification into the category *at work in economic activity"* takes precedence over the *"at school"* category. Thus, children combining work and school will be classified as *"at work"* at the basic level of the classification, but identified separately at the second level of the classification. To be considered *"at school"*, the child should be attending a regular educational institution during the reference week. School enrolment does not necessarily imply school attendance.

Work of a domestic nature (household chores) performed by children in their own household is considered to be **non-economic activities**, and thus lie outside the "production boundary" as defined by the United Nations System of National Accounts (1993 Rev. 3) for measuring GDP. Our estimates thus do not cover children working in non-economic activities. This is in line with international labour standards that provide for exceptions for household chores in the child's own household. The time children spend on these activities, however, can be substantial. In some cases, school enrolment or attendance is being thereby jeopardized. Unfortunately, data on the extent of non-economic child work are rather fragmented and not reliable enough to attempt a global estimation.

3.3 Child labour

Not all work performed by children is equivalent to "child labour" needing abolition. Work in the sense of "economic activity", as explained above, is a statistical definition. It does not necessarily match the provisions of international labour standards and national legislation. The Minimum Age Convention (No. 138) itself includes options meant, in some cases, to permit a flexible approach in light of given national conditions.

We need to draw (statistical) lines between

- **acceptable forms of work by children** (which may be regarded as positive), on the one hand, and **child labour that needs to be eliminated**, on the other;[15] and between

- various forms of child labour and the WFCL, which require urgent action for elimination.

For the purposes of our global estimates for 2000 and 2004, a single set of cut-off criteria was used for all countries. Taking international standards into account, efforts were made wherever possible to use the average level or criteria prevailing in national legislation. The choice of one set of criteria for this estimation was intended purely for the purpose of assessing the extent of the problem quantitatively. Inevitably, some situations included in these estimates may in fact be allowed in terms of national or international standards, just as certain other situations *not* included may in fact represent child labour that requires elimination.

Our concept of **child labour** is based on Convention No. 138, which represents the most comprehensive and authoritative international definition of minimum age for admission to employment or work, implying "economic activity". Convention No. 138 stipulates that ratifying States fix a minimum age, and it defines a range of minimum ages below which no child should be allowed to work. Minima vary according to the level of development and according to the type of employment or work (Table 8).

Table 8.   Minimum ages according to ILO Convention No. 138

General minimum age	Light work	Hazardous work
In general:		
Not less than age of completion of compulsory schooling, and in any case not less than 15 years	13 years	18 years (16 years under certain strict conditions)
Where the economy and educational facilities are insufficiently developed:		
Not less than 14 years for an initial period	12 years	18 years (16 years under certain strict conditions)

As Table 8 indicates, the minimum age for employment or work should normally not be younger than 15 years, but developing countries may fix it at 14, and a number of countries have fixed it at 16 years. For our global estimates, we used the age of 15 as a cut-off point for all countries.

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[15] Note that child labour will figure prominently on the agenda of the 18th International Conference of Labour Statisticians (ICLS), likely to be held at the end of 2008. The objective is to develop and adopt a set of global standards for child labour data collection and measurement, including agreed global statistical indicators on child labour and its worst forms.

The same Convention exempts children from the ages of 12 or 13 years if engaged in "light work". For the purpose of our estimates, we used 12 years as the global cut-off for light work. Thus, all children aged 5-11 years working in economic activities are considered child labour that requires elimination. Working children aged 12-14 years are considered to be in child labour, unless they perform light work.

Light work is difficult to define. Convention No. 138, Article 7, stipulates that light work should neither

- be harmful to a child's health and development, nor
- prejudice attendance at school and participation in vocational training or "the capacity to benefit from the instruction received".

What does this mean in statistical terms? We decided on the following for the purpose of our estimates:

- Light work by children aged 12-14 years is work which is not hazardous in nature (see definition of hazardous work, below) and which does not exceed 14 hours per week. This cut-off point is supported by ILO Minimum Age (Non-Industrial Employment) Convention, 1932 (No. 33)[16] and research findings regarding the impact of child labour on school attendance/performance and on health.[17]

- Children aged 15-17 years are in principle allowed to work because they have reached and surpassed the general minimum age. If they are engaged in work that is hazardous due to its nature or conditions, however, their work becomes a WFCL in urgent need of elimination.

- "Child labour" as estimated in this document therefore comprises all children under 15 years of age who are economically active, excluding (i) those under 5 years of age and (ii) those aged 12-14 years who spend fewer than 14 hours a week on their jobs, unless their activities or occupations are hazardous by nature or circumstance. Added to this are children aged 15- 17 years, who are involved in hazardous work.[18] Table 9 presents the forms of work classified according to the above principles.

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[16] ILO Convention No. 33, Art. 3 (1) (c) sets two hours per day, on either schooldays or holidays, as the maximum for light work from 12 years of age. ILO Convention No. 138 also requires such restriction of hours, but leaves the exact maximum to determination at the national level.

[17] See, for example: Guarcello, L., Lyon, S., Rosati, F.*: Impact of working time on children's health* (Geneva, IPEC/UCW, 2004)

[18] Note that the category of children in hazardous work also includes a number of children in the unconditional WFCL. Many children in the latter category—e.g. those in bonded labour —are exposed to severe hazards in the workplace and are thus contained in our global estimates.

Table 9.   "Child labour" as defined for the purpose of the 2000 and 2004 global estimates

Age groups	Forms of work			
	Non-hazardous work (in non-hazardous industries & occupations and <43 hrs./week)		Worst forms of child labour	
	Light work (<14 hrs/week)	Regular work (≥14 hrs/week and <43 hrs/week)	Hazardous work (in specified hazardous industries & occupations plus ≥43 hrs/week in other industries and occupations)	Unconditional worst forms (trafficked children; children in forced & bonded labour, armed conflict, prostitution & pornography, and illicit activities)
5-11	■	■	■	■
12-14		■	■	■
15-17			■	■

Note: The blue areas are considered to be forms of child labour in need of elimination as per ILO Conventions Nos. 138 and 182.

3.4 Hazardous work and other worst forms of child labour

Hazardous work by children is any activity or occupation which, by its nature or type, has or leads to adverse effects on the child's safety, physical or mental health, or moral development. Hazards could also derive from excessive workload, physical conditions of work, and/or work intensity in terms of the duration or hours of work even where the activity or occupation itself is known to be non-hazardous or "safe".

ILO Conventions Nos. 138 and 182 both define hazardous work only very generally as "likely to jeopardize/harm the health, safety or morals of children." The list of such work must be determined at the national level after tripartite consultation.

Taking account of national classifications of hazardous child work, where they exist, we established and applied for all countries the following criteria solely for the purpose of the estimates:

- Any child working in mining and construction was considered to be in hazardous work.

- Beyond mining and construction, a number of occupations were considered to be of a hazardous nature if they involved, for instance, work with heavy machinery or exposure to pesticides. The classification was based on (i) the stipulations contained in ILO Recommendation No. 190 accompanying the ILO Convention on

the Worst Forms of Child Labour, 1999 (No. 182) and (ii) stipulations on hazardous work in national legislation (see Annex 3 for a list of such occupations and processes).

- Any child younger than 18 years working 43 hours[19] or more a week was considered to be in hazardous work (see also Recommendation No. 190, Para. 3 [e]).

Recommendation No. 190 on the Worst Forms of Child Labour (excerpt):

II. Hazardous work

3. In determining the types of work referred to under Article 3 (d) of the Convention, and in identifying where they exist, consideration should be given, inter alia, to:

(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.

It is important to note that our *statistical determination of hazardous work* by children does *not* take into account the criterion set out in ILO Convention No. 138, Art. 3 that provides for exceptional authorization of work of a potentially hazardous nature under strict conditions from 16 years of age (ILO Recommendation No. 190, Para. 4 contains the same idea). For the purposes of this study, we decided to apply a single cut-off point of 18 years of age.

Unconditional worst forms of child labour

Due to data imbalances, it was not possible to recalculate the extent of the unconditional WFCL in the 2004 global child labour estimates.

It is however important to note that the term "unconditional worst forms of child labour" refers to those forms covered by items (a) to (c) of Article 3 of ILO Convention No. 182 which read:

"(a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment, of children for use in armed conflict;

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[19] Forty-three hours is longer than the usual work-week for adults. Almost all countries have "normal" hours of work per week as established by national labour legislation. Stipulations vary from 35 hours to 46 hours, but most range from 40 to 44 hours.

(b) the use, procuring or offering a child for prostitution, for the production of pornography or for pornographic performances;

(c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties; ..."

4 Estimation methodologies

4.1 Working children and their regional distribution

4.1.1 Global trend estimation of the number of working children

In 2002, we estimated the worldwide number of working children based on a sample of 29 countries with national household surveys conducted in the late 1990s. These surveys were designed either

- to measure child labour under the ILO's SIMPOC programme, or
- for broader purposes but containing special modules dealing with the employment of children or teenagers younger than 15 years of age.[20]

Since the publication of the last estimates in 2002, 17 of the 29 countries have conducted a second survey to collect data on the work of children.[21] These data present a matched sample to estimate the evolution of the number of working children in the world over the last four years. Furthermore, new data on the economic activity of children are available for a number of additional countries that have conducted special surveys under SIMPOC or other programmes since the 2002 publication. This larger set of data has been used to prepare regional trend estimates for working children for Asia and the Pacific, for Latin America and the Caribbean, and for Sub-Saharan Africa.

The next two sections present the methodologies underlying the estimation of global and regional trends. This is followed by an evaluation of the results using independent school-enrolment data compiled by UNESCO.

The methodology first of all involves estimation of the changing incidence of working children, separately for boys and girls and for each age group (5-9, 10-14, and 15-17 years). These rates of change are then used to calculate the current incidence of children's work in each sex and age group. The results are finally applied to the total number of children published by the UN Population Division for 2004 to obtain the ILO current estimate of working children in the world.

The calculation of the global rate of change involves five steps:

1. **Incidence of working children**. Let x_{ijk} denote the number of working children in particular sex (i) and age category (j) in a sample country (k). The total number of children in that sex-age category is denoted by y_{ijk}. The incidence of working children is the percentage of children working in a particular sex-age category. It is defined by the following ratio:

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[20] ILO (2002), op.cit.

[21] Azerbaijan (1995, 2000), Bangladesh (1999, 2002-3), Bolivia (1999, 2000), Brazil (1998, 2003), Cambodia (1996, 2002), Cameroon (1996, 2001), Colombia (1998, 2001), Costa Rica (1998, 2002), El Salvador (1999, 2001), Ghana (1997, 2000), India (1992, 1999-2000), Kenya (1999, 2000), the Philippines (1998, 2002), Portugal (1998, 2001), Sénégal (1995, 2000), Turkey (1994, 1999), and Yemen (1999, 2001).

$$r_{ijk} = 100 * x_{ijk} / y_{ijk}$$

In the process of calculating r_{ijk} for the 17 sample countries, the national data have been harmonized where the age limits differed from the standard age groups, and the missing data estimated where values for a particular age group were unavailable. The harmonization and the missing value methods are based on a modified version of the triangular model of Appendix 1 from *Every child counts*. The modified version is described separately in Annex 1 of the present report. This aims to harmonize the data for differences in survey methodologies in line with the logistic model[22] described in Appendix 2 of *Every child counts*.

2. **Rate of change**. For two points in time t_o and t_1, the rate of change of the incidence of working children is measured by the difference between the incidence rate at time t_o, and the incidence rate at time t_1. It is expressed by

$$\Delta_{ijk} = r_{ijk}(t_1) - r_{ijk}(t_o).$$

Given that the time-lag between the national surveys differs from one country to another, the values of Δ have been harmonized to a standard time-lag of 4 years by simple proportional adjustment. Thus, for example, for a country with $t_o = 1996$ and $t_1 = 2002$, the computed values of Δ are adjusted proportionally downward by the factor $4/(2002-1996) = 4/6 = 2/3$. The calculation of Δ_{ijk} and the resulting values are shown in Annex 2.

3. **Test of statistical significance**. Observed changes of small magnitude may be due to the sampling and non-sampling errors inherent in sample surveys, and thus may not represent statistically significant evolutions in the incidence of working children. Similarly, abnormally large rates of change, in either direction, may not represent typical situations, and these should be treated as outliers in statistical calculations. Accordingly, the data used for global estimation, d, are plus or minus or zero values depending on the statistical significance of Δ, measured in terms of the standard deviation. More precisely, the variable d is defined by

$$d = \begin{cases} 1 & \text{if } \Delta > \gamma\,\sigma \\ 0 & \text{if } |\Delta| \leq \gamma\,\sigma \\ -1 & \text{if } \Delta < -\gamma\,\sigma \end{cases}$$

where σ is the standard deviation of the Δ values, calculated over all sex and age groups and countries, and γ is a constant chosen such that the pattern of significant increases or decreases is smooth and not erratic across sex and age categories. A process of trial and error led to the choice of $\gamma = 7/24$, the harmonic average of the two values 1/2 and 1/12.

4. **Significant decline against significant increase**. The next step is to count, for each sex and age category, the number of countries that registered a significant increase in the incidence of working children (n^+_{ij}), the number that registered a significant decline (n^-_{ij}), and the number that registered no significant change (n^o_{ij}). The excess of increases over decreases is measured by

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[22] For a description of logistic models, see Vittinghoff, E.: *Regression methods in biostatistics* (Springer, 2004).

$$n_{ij} = n^{+}_{ij} - n^{-}_{ij}$$

The results are presented in Table 10, below. The table indicates, for example, that for boys in the 5- to 9-year age group there is one more country showing a decline in the incidence of working children than there are countries showing increases. Similarly, for girls in the 15- to 17-year age group, the table indicates that there are six more countries registering a significant decline in the incidence of working children than there are countries registering significant increases.

Table 10. **Excess of significant increases over significant declines in the incidence of working children in 17 sample countries (2000-2004)**

Age group	Boys	Girls
5-9 yrs	-1	-1
10-14 yrs	-1	-2
15-17 yrs	-4	-6

5. The last step in the estimation of global change in the incidence of working children is to quantify the qualitative results shown in Table 10, above. This quantification is performed by evaluating the typical value of a significant decrease or significant increase over four years in a sample country, and assigning the resulting value to each unit reported in Table 10. The typical value is calculated by the median values of $|\Delta|$ for cases where $|\Delta| > \gamma \sigma$, over all sex and age categories. The calculation assumes that a typical significant increase has the same value as a typical significant decrease, except for the direction of the change, and this value is the same, on average, for boys and girls and for the three different age groups. The resulting common value is:

$$\text{median} (|\Delta| : |\Delta| > \gamma \sigma) = 0.25$$

For the estimation procedure to be as robust as possible, the median value calculated above is for a typical country, un-weighted for the population size of the country. Calculating a weighted median had been considered, but rejected due to the possible bias that the procedure could have introduced. Indeed, as the countries on which the calculations are made have not been selected on the basis of their size, each represents equally the other non-selected countries, independently of their size.

Multiplying this value for each entry of Table 10 and dividing by 17 for the total number of sample countries gives the estimated average global change in the incidence of working children by sex and age group, as shown in Table 11, below. Applying these estimates to the global incidence of working children for 2000 (*Every child counts*, Table 1, p. 15), we obtain the corresponding estimates for 2004, as shown in Table 12 on the right.

Table 11. **Estimated global change in the incidence of working children (2000-2004)**

Age group	Boys	Girls
5-9 yrs	-1.5%	-1.5%
10-14 yrs	-1.5%	-2.9%
15-17 yrs	-5.8%	-8.7%

Table 12.   Estimated global incidence of working children (2004)

Age group	Boys	Girls
5-9 yrs	10.8%	10.5%
10-14 yrs	21.5%	20.0%
15-17 yrs	38.3%	32.0%

Finally, the resulting global estimates of the number of working children in 2004 are obtained by multiplying the incidence figures by the total number of children in each sex and age category published by the UN Population Division (2004 edition).[23]

Section 2, above, presents the results in detail.

4.1.2 Regional breakdown of the trend

The regional trends of the number of working children are estimated by combining the results of two methodologies:

(a) matched sample regional estimates, derived by applying the same methodology developed for the estimation of the global trend to the matched sample of countries in three regions (Asia and the Pacific, Latin America and the Caribbean, and Sub-Saharan Africa); and

(b) model-based regional estimates, derived by applying a logistic regression model to the full sample of countries, matched or unmatched, grouped into five categories (developed economies, Asia and the Pacific, Latin America and the Caribbean, Sub-Saharan Africa, and others). The regional trends are obtained by re-applying the logistic regression model to the sample countries used in the 2000 exercise reported in ILO, *Every child counts. New global estimates on child labour* (Geneva, IPEC, April 2002).

The two methods are further described in the following two sub-sections. A third sub-section describes the method used in combining the two sets of results.

Regional estimates based on a matched sample

Because of the data limitations, matched-sample estimates have been restricted to the age group of primary concern, i.e. children aged 5-14 years, and to the three major regions for which at least four matched sample countries exist:

Asia and the Pacific:
        Bangladesh – 1999 and 2002-3
        Cambodia – 1996 and 2002
        India – 1992 and 1999-2000

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[23] Http://box.net/public/UNPD.PEP/files/250089.html (medium-fertility variant).

Philippines – 1998 and 2002

Latin America and the Caribbean:
      Bolivia – 1999 and 2000
      Brazil – 1998 and 2003
      Colombia – 1998 and 2001
      Costa Rica – 1998 and 2002
      El Salvador – 1999 and 2001

Sub-Saharan Africa:
      Cameroon – 1996 and 2001
      Ghana – 1997 and 2000
      Kenya – 1999 and 2000
      Senegal – 1995 and 2000

The estimates are calculated separately for boys and girls, and for the groups aged 5-9 and 10-14 years, before aggregating the results into a single category covering both girls and boys in the 5- to 14-year age group.

The first step in the regional estimation methodology involves examining—for each matched sample country in the region and for each sex and age category—the trend in the incidence of working children as harmonized for age group and methodological differences in the earlier estimation of the global trend. An account is made of (i) the number of matched sample countries with significant increase, (ii) the number with significant decrease, and (iii) the number with no significant movement. Statistical significance is determined in a fashion similar to that used in the global trend methodology, by measuring differences of trend that exceed a fixed fraction of the standard deviation of all incidence rates in the matched sample countries of the region irrespective of sex and age group.

On the basis of these results, the difference between the number of countries with significant increases and the number of countries with significant decreases are calculated and reported for each region and each sex and age category, as shown in the table below.

Table 13.   **Regional change in the incidence of working children (more matched sample countries are showing significant decreases than increases)**

Sex and age group	Asia and the Pacific	Latin America and the Caribbean	Sub-Saharan Africa
Boys			
- 5 – 9 yrs	-2	-2	-1
- 10 –14 yrs	1	-1	-1
Girls			
- 5 – 9 yrs	-2	-1	-1
- 10 –14 yrs	-1	-1	-2
Median absolute value of a significant change	0.93%	10.40%	1.01%

Entry "-2", in the top row and first column of Table 13, indicates that there were two more countries showing a significant decline in the incidence of working children among 5- to 9-year-old boys in Asia and the Pacific than countries showing a significant increase among the same sex and age category in that region. Similarly, the last entry of the row, "-1", indicates that in Sub-Saharan Africa there was only one extra country showing a significant decline in the incidence of working children relative to the number showing a significant increase among the same sex and age category in that region. In general, the table indicates that, in every region and every sex and age category, the trend in the incidence of working children has been a decline, except for girls aged 10-14 years among the matched sample countries in Asia and the Pacific.

The last row of the table gives the median absolute value of a significant change in the incidence of working children, whether it is a significant increase or decrease. For example, a significant increase or decrease of the incidence of working children in a country in Asia and the Pacific is typically about 0.93 percentage points for any sex and age group. The largest median absolute value is in Latin America and the Caribbean, indicating that typically the matched sample countries in that region have exhibited by far the largest decline in the incidence of working children over all sex and age categories. Note that this rather significant decline may require further examination.

Table 14.   Matched-sample calculation of the number of working children in 2004 in three regions by sex and age group ('000)

	Boys		Girls		Total
	5-9 yrs	10-14 yrs	5-9 yrs	10-14 yrs	
Asia and the Pacific					
- Population 2000	168 800	170 900	156 700	158 800	655 200
- Working children 2000	17 900	42 300	22 100	45 000	127 300
- Incidence rate 2000	10.60%	24.75%	14.10%	28.34%	
- Change 2000-2004	-1.86%	0.93%	-1.86%	-0.93%	
- Incidence rate 2004	8.74%	25.68%	12.24%	27.41%	
- Population 2004	166 178	170 145	155 142	158 491	649 956
- Working children 2004	14 531	43 695	18 995	43 438	120 660
Latin America and Caribbean					
- Population 2000	27 700	27 300	26 700	26 400	108 100
- Working children 2000	3 800	7 500	2 000	4 100	17 400
- Incidence rate 2000	13.72%	27.47%	7.49%	15.53%	
- Change 2000-2004	-20.80%	-10.40%	-10.40%	-10.40%	
- Incidence rate 2004	0.00%	17.07%	0.00%	5.13%	
- Population 2004	28 433	27 986	27 450	27 105	110 974
- Working children 2004	0	4 778	0	1 391	6 168
Sub-Saharan Africa					
- Population 2000	44 700	39 200	44 100	38 800	166 800
- Working children 2000	10 400	14 700	10 500	12 400	48 000
- Incidence rate 2000	23.27%	37.50%	23.81%	31.96%	
- Change 2000-2004	-1.01%	-1.01%	-1.01%	-2.02%	
- Incidence rate 2004	22.26%	36.49%	22.80%	29.94%	
- Population 2004	49 915	44 371	48 955	43 596	186 837
- Working children 2004	11 109	16 191	11 162	13 052	51 514

Based on these estimated parameters, the next step consists of converting the values into equivalent estimated numbers of working children, as shown in Table 14, above. The starting point is the set of regional estimates of the number of working children for 2000 reported in *Every child counts: New global estimates on child labour* (Geneva, ILO/IPEC, 2002). For each region and sex and age category, the estimated change of incidence, derived in the present paper, is added to the incidence rate of working children in 2000, to obtain the resulting incidence rate in 2004. These incidence rates are then multiplied by the 2004 estimates of the number of children in each sex and age category for each region, according to the population estimates, 2004 edition, of the UN Population Division. The resulting estimates of the number of working children are added across the age groups and sex categories, as shown in Table 14.

Thus we find that, in Asia and the Pacific, the matched sample estimate of the number of working children aged 5-14 years is about 121 million for 2004, a decrease from about 127 million in 2000. Similarly, in Latin America and the Caribbean, the matched sample estimate is 6.2 million working children in 2004, as opposed to 17.4 million in 2000. The corresponding estimates for Sub-Saharan Africa are 51.5 million and 48.0 million in 2004 and 2000, respectively.

Regional estimates based on the full sample

The method used to compute the model-based regional estimates of the trend in the numbers of working children is based on two separate logistic regressions:

- the national surveys used in the global estimation of the number of working children in 2000; and

- the subsequent national surveys, including the 17 matched surveys used for the global trend between 2000 and 2004.

To make the estimation more robust, a single group of children is used, namely those children aged 5-14 years. The constant coefficients of both regressions are then set in order to reflect the global estimate numbers in the years 2000 and 2004. The trend is measured by subtracting the proportion of working children in a given region in the second regression from the proportion in the first.

The full-sample data

Region by region, the national surveys for the first regression are from the following countries:

- **Asia and the Pacific**—Bangladesh, Cambodia, India, Pakistan, the Philippines, and Sri Lanka.

- **Latin America**—Bolivia, Brazil, Columbia, Costa Rica, El Salvador, Mexico, and Paraguay.

- **The Middle East and Northern Africa**—Egypt and Yemen.

- **Sub-Saharan Africa**—Cameroon, Ghana, Kenya, Mauritania, Namibia, Nigeria, South Africa, Senegal, and Zambia.

- **Developed economies**—Portugal and Turkey.

- **Transition economies**—Azerbaijan, Kazakhstan, and Ukraine.

Region by region, the national surveys for the second regression are from these countries (* indicates a matched survey):

- **Asia and the Pacific**—Bangladesh*, Cambodia*, India*, the Philippines,* and Mongolia.

- **Latin America**—Bolivia*, Belize, Brazil*, Colombia*, Costa Rica*, El Salvador*, Guatemala, Venezuela.

- **Middle East and Northern Africa**—Yemen*.

- **Sub-Saharan Africa**—Cameroon*, Congo, Ethiopia, Ghana*, Kenya*, Lesotho, Malawi, Madagascar, Senegal*, and Swaziland.

- **Developed economies**—Portugal* and Turkey*.

- **Transition economies**—Albania, Bosnia-Herzegovina, Georgia, Moldova, and Uzbekistan.

Annex 4 provides a listing of all data sources used.

For each survey, to compute the ratio of working children in that category, the total population and the total number of working children aged 5-14 years are summed from the following categories: boys 5-9, boys 10-14, girls 5-9, and girls 10-14 years.

The logistic model

The logistic regression model is given by

$$\log\left(\frac{p}{1-p}\right) = c + c_{AP}d_{AP} + c_{DE}d_{DE} + c_{LA}d_{LA} + c_{TE}d_{TE} + c_{ME}d_{ME}$$

where p is the ratio of working children in a country, c is the regression constant, c_{AP}, c_{DE}, c_{LA}, c_{TE} and c_{ME} are the coefficients for Asia and Pacific, developed economies, Latin America, transition economies, and Middle East and northern Africa, d_{AP}, d_{DE}, d_{LA}, d_{TE} and d_{ME} are the indicators for Asia and the Pacific, developed economies, Latin America,

transition economies, and Middle East and northern Africa. Sub-Saharan Africa is used as reference, but this has no influence on the final results.

The proportion of working children in a region R is

$$p_R = \frac{\exp(c + c_R)}{1 + \exp(c + c_R)} \; .$$

From a lack of (matched) surveys, the regions "transition economies" and "Middle East", judged unreliable, are grouped together and independently of time. An estimated proportion p_{RW} for this rest of the world *(RW)* and its corresponding regression coefficient c_{RW} are estimated with

$$p_{RW} = \frac{p_{TE}^{(1)} pop_{TE}^{(2000)} + p_{ME}^{(1)} pop_{ME}^{(2000)} + p_{TE}^{(2)} pop_{TE}^{(2004)} + p_{ME}^{(2)} pop_{ME}^{(2004)}}{pop_{TE}^{(2000)} + pop_{ME}^{(2000)} + pop_{TE}^{(2004)} + pop_{ME}^{(2004)}} \; ,$$

where $pop_R^{(200X)}$ is the population of children 5-14 years old in region R in year 200X and $p_R^{(i)}$ is the proportion of working children in region R estimated in the ith regression.

Adjustment to the global estimates

From the regressions, only the regional coefficients are retained. New regression constants $c^{(1)}$ and $c^{(2)}$ are estimated so that the total number of working children match the global estimates of working children for 2000 and 2004 (w[(2000)] and w[(2004)] respectively).

Find $c^{(1)}$ so that:

$$p_{SSA}^{(1)} pop_{SSA}^{(2000)} + p_{AP}^{(1)} pop_{AP}^{(2000)} + p_{DE}^{(1)} pop_{DE}^{(2000)} + p_{LA}^{(1)} pop_{LA}^{(2000)} + p_{RW} pop_{RW}^{(2000)} = w^{(2000)}$$

with

$$p_{SSA}^{(1)} = \frac{\exp(c^{(1)})}{1 + \exp(c^{(1)})} \text{ for Sub-Saharan Africa and } p_R^{(1)} = \frac{\exp(c^{(1)} + c_R^{(1)})}{1 + \exp(c^{(1)} + c_R^{(1)})} \text{ for the other regions.}$$

And find $c^{(2)}$ so that:

$$p_{SSA}^{(2)} pop_{SSA}^{(2004)} + p_{AP}^{(2)} pop_{AP}^{(2004)} + p_{DE}^{(2)} pop_{DE}^{(2004)} + p_{LA}^{(2)} pop_{LA}^{(2004)} + p_{RW} pop_{RW}^{(2004)} = w^{(2004)}$$

with

$$p_{SSA}^{(2)} = \frac{\exp(c^{(2)})}{1 + \exp(c^{(2)})} \text{ for Sub-Saharan Africa and } p_R^{(2)} = \frac{\exp(c^{(2)} + c_R^{(2)})}{1 + \exp(c^{(2)} + c_R^{(2)})} \text{ for the other regions.}$$

Calculation of the regional trends

The regional trends are finally simply calculated from the differences between the proportions of working children computed with the regression constants adapted to the global estimates for 2000 and 2004, e.g. for Asia and the Pacific the trend is

$$t_{AP}=p_{AP}^{(2)}-p_{AP}^{(1)}=\frac{\exp(c^{(2)}+c_{AP}^{(2)})}{1+\exp(c^{(2)}+c_{AP}^{(2)})}-\frac{\exp(c^{(1)}+c_{AP}^{(1)})}{1+\exp(c^{(1)}+c_{AP}^{(1)})}\ .$$

Final combined estimates

The following table presents the results of the full-sample logistic estimates described in the preceding section, and combines it with the matched sample regional results given earlier.

The two methods lead to similar results, although they are based on very different methodologies and essentially distinct sets of data. In order to combine the results into a single set, it is necessary to adjust one set to the total of the other. This is done here by adjusting the matched sample regional estimates to the total of the corresponding full-sample estimates, because the full-sample estimates have been derived by insuring correspondence to the world estimates. In that sense, the final regional estimates obtained in this paper are in fact the regional break-down of the global estimate obtained in section 2 of the report.

Table 15. **Combining the full-sample logistic estimates and matched sample estimates of working children (aged 5-14 years) by region**

Region	Full-sample logistic estimate	Matched sample		Arithmetic average
		Estimate	Adjusted[1]	
Asia and the Pacific	124 600	120 660	119 955	122 300
Latin America & Caribbean	5 300	6 168	6 132	5 700
Sub-Saharan Africa	47 400	51 514	51 213	49 300
Other regions	13 400	-	13 400	13 400
World Total	190 700	178 342	190 700	190 700

Note: Adjusted by pro-rata to the total of full-sample logistic estimates of the corresponding regions.

4.1.3 Distribution of working children by sector of economic activity

The global estimation of the percentage of children working in the agricultural, industrial, and service sectors is based on data from the following countries: Bangladesh, Belize, Brazil, Cambodia, Cameroon, Columbia, Costa Rica, Ghana, Guatemala, India, the Philippines, Madagascar, Portugal, Turkey, and Venezuela.

The estimation is conducted similarly to that of the regional breakdown, using a logistic regression adjusted so that the percentages over all three sectors total 100. Ninety-five per

cent confidence intervals were computed from 9,999 bootstrap replications.[24] The result of the estimation is that 69 per cent of the working children aged 5-14 year work in the agricultural sector (with confidence intervals ranging from 59 to 80 per cent), 22 per cent in the service sector (CI: 14 to 30) and 9 per cent in the industrial sector (CI: 5 to 12).

4.1.4 Evaluation of the results

In this final section, the global and regional estimates on working children are evaluated by comparing the estimated annual rates of change of the number of working children aged 5-14 years with the corresponding estimates of the number of children enrolled in primary and secondary education. We shall also review regional data on primary school-age children out of school for the time period relevant to our estimates.

Table 16. Comparison of annual change in primary education enrolment (%) and estimates of annual change in working children aged 5-14 years (%)

Enrolment rate in primary education, ISCED 1 % change 2000 to 2001	Number of reporting countries				
	Asia and the Pacific	**Latin American & Caribbean**	**Sub-Saharan Africa**	**Other regions**	**Total**
-	5	13	5	11	34
0-4	7	11	21	7	46
5-9	1	2	9	3	15
10+	2	1	5	2	10
Total	15	27	40	23	105
UNESCO % change in primary education enrolment, 2000-2001	2.3%	0.8%	3.9%	1.6%	2.3%
ILO % annual change in working children 5-14 yrs old, 2000-2004	-1.0%	-24.3%	+0.7%	-7.5%	-2.5%

Source: UNESCO data from *Global education digest 2004. Comparing education statistics across the world* (UNESCO Institute of Statistics, Montreal, 2004), Table 2, pp. 50-59, and ILO data from the present report.

We note that the estimated negative global trend of working children derived in this report matches well with the UNESCO figures for the average global increase of enrolment in primary education. Comparison of the results by region, however, shows larger discrepancies, a result that could have been expected, given the limited number of matched sample observations within regions.

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[24] Davison, A.C., Hinkley, D.V.: *Bootstrap methods and their application* (Cambridge, 1997).

Table 17.   Primary and secondary education, change 1998/99 to 2002/03 (%)

Regions	Net enrolment rate, primary education (change 1998/99 to 2002/03)	Net enrolment rate, total secondary (change 1998/99 to 2002/03)	Gross enrolment ratio, total secondary (change 1998/99 to 2002/03)
Africa	7	3	3
Asia	not available	not available	5
South America	2	16	20

Source: UNESCO data from Global Education Digest 2005 Comparing Education Statistics Across the World, UNESCO Institute of Statistics, Montreal, 2005, Tables 3-5, pp. 54-83.

There is a clear link between child labour developments and trends in children's education, but the extent varies between individual countries and regions. Experience shows, for instance, that appropriate investment in primary and lower secondary education significantly decreases children's work participation rates. In Latin America and the Caribbean, 94 per cent of all primary school-age children are in school. The region has also made great strides towards increasing secondary schooling in the last few years (see Table 17). In contrast, Sub-Saharan Africa has the highest prevalence of primary school-age children out of school. Almost half of the children in West and Central Africa are out of school, and more than one-third in Eastern and Southern Africa. In South Asia, this proportion exceeds one-quarter (see Table 18).

Table 18.   Primary school-age children out of school by region, 2001/02

Regions	School-age population (thousands)	Percentage of all children of primary school age		Absolute number of children out of school (thousands)
		In school	Out of school	
Central and Eastern Europe/CIS	24,998	88.3	11.7	2,922
Middle East and North Africa	47,116	81.3	18.7	8,797
Eastern and Southern Africa	55,706	61.5	38.5	21,421
West and Central Africa	53,061	54.7	45.3	24,024
South Asia	162,720	74.0	26.0	42,294
East Asia and the Pacific	176,287	94.3	5.7	10,029
Latin America and the Caribbean	58,064	94.3	5.7	1,789
Industrialized countries	70,595	96.3	3.7	2,602
World	648,545	82.2	17.8	115,375

Source: UNESCO Institute for Statistics: Children out of school: Measuring exclusion from primary education (Montreal, UIS, 2005)

4.2 Child labour and hazardous work

Many factors must be considered in statistically measuring child labour and children in hazardous work. Precise criteria must be specified and used consistently as definitions of indicators, ensuring that processes are defined in a cohesive and consistent manner.

Our statistical approach to child labour and children in hazardous work is guided by ILO Conventions Nos. 138 and 182. In 2002, within the same international legal framework, the ILO estimated the number of children in child labour and hazardous work based on national household surveys conducted in the late 1990s, either (i) specifically designed to measure child labour under the SIMPOC programme, or (ii) designed for broader purposes but containing special modules dealing with the employment of children.

The goal of the new child labour estimates is to (i) present a dynamic picture and (ii) depict child labour trends from 2000 to 2004. Estimates of change are based on matched and non-matched sample parts. The extent of child labour and children in hazardous work is estimated strictly following the 2002 methodology (ILO/IPEC, 2002). The data sources and methodology underlying the estimation are presented in the next sub-section, and are followed by an evaluation of the results.

4.2.1 Data sources and methodology

Estimates on child labour and children in hazardous work are based on 19 national household surveys conducted between 2000 and 2004. The data come from three sources:

- 16 surveys specifically designed to measure child labour and conducted under the SIMPOC programme in Bangladesh (2003), Belize (2001), Brazil (2001), Cambodia (2002), Colombia (2001), Costa Rica (2002), El Salvador (2001), Ghana (2000), Guatemala (2000), Honduras (2002), Jamaica (2002), Malawi (2002), Panama (2000), the Philippines (2001), Portugal (2001), and Tanzania (2001);

- 2 surveys conducted as part of the World Bank programme of Living Standards Measurement Surveys (LSMS) in Cameroon (2001) and Venezuela (2000); and

- 1 survey conducted independently as part of the national statistical programme in India (NSSO, 2000).

Annex 4 provides a full listing of all surveys used.

The latter three surveys are a mixture of broad-based household and community surveys with modules on different social concerns including children's activities.

The key variables for which raw data were required for the purposes of the global estimates are the following:

- age groups (5-11, 12-14, and 15-17 years);

- sex;

- industry at most detailed classifications of ISIC Rev. 3 (UN, 1990);

- occupation at most detailed classifications of ISCO-88; and

- hours worked.

Global incidence of child labour. On the one hand, assuming a minimum age of 12 years for light work and a minimum age of 15 years for admission into employment or work, the global incidence of child labour includes

- children aged 5-11 years engaged in any economic activity;

- all working children aged 12-14 years except those in light work; and

- children aged 15-17 years in the worst forms of child labour (WFCL), including hazardous work.

Hazardous work, on the other hand, includes work performed for 43 hours or more per week as well as work in construction, mining and quarrying, and selected occupations considered hazardous in many countries[25]. Estimates for the number of children in hazardous work, therefore, include

- the number of economically active children in hazardous industries;

- those within non-hazardous industries but engaged in hazardous occupations; and

- those neither in hazardous industries nor in hazardous occupations, but who are working 43 hours or more per week.

These estimates thus require both detailed data at the industry and occupation levels, and judgements as to whether such work may, indeed, be classified as hazardous.

> *Most relevant data.* The smallest or most detailed units or sub-units of the international standard classifications (ISIC) of economic activities and occupations are, respectively, the 4-digit level of ISIC Rev. 3 (United Nations 1990) and the 3- or 4-digit level of ISCO (International Standard Industrial Classification of Occupations) ISCO-88. Data sufficiently detailed for the 4-digit level of the ISIC and the 3- or 4-digit level of ISCO is rarely available, however. Thus, data of countries with the most detailed classifications (3-digit level, in our case) were considered a priority for constructing absolute numbers and rations in the first three rounds of estimation on child labour and hazardous work by children at the global level.
>
> In this respect, out of all data sources, SIMPOC data collected explicitly for the purpose of making child labour estimates is the most relevant.
>
> *First-round estimates.* Among countries for which required data at the 3-digit level classification of occupations is available within each digit level of ISIC, identification of hazardous and non-hazardous occupations is based on the stipulations of ILO Convention No. 182, Recommendation No. 190, and a compilation of occupations and working environments hazardous to child workers. The "non-hazardous" occupations

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[25] See Annex 3 for the list of occupations considered here.

at the 3-digit level were analyzed further by age group and hours worked. From this data, ratios of the number of child labourers and of the number of children in hazardous work were calculated by age group and sex. These constitute the first-round estimates, based on 10 SIMPOC surveys conducted in Bangladesh, Belize, Cambodia, Colombia, Costa Rica, El Salvador, Honduras, Malawi, the Philippines, and Portugal.

Second-round estimates. Among countries for which occupational data is available only at the 1-digit level, the ratios from the first-round estimates applied to the 1-digit occupation, by age group and sex, gives the number of children in hazardous work. These constitute the second-round estimates, based on 5 SIMPOC surveys, 2 LSMS, and 2 labour force surveys in Brazil, Cameroun, Ghana, Guatemala, India, Jamaica, Panama, Tanzania, and Venezuela.

Third-round estimates. During the third-round estimates, the totals produced for all occupations at the 1 digit level and for all countries are merged together into absolute numbers and single ratios of child labour and children in hazardous work are calculated. The final global estimates on child labour and hazardous child labour were extrapolated by applying these ratios to the global estimates of economically active children. Below is the estimation process for constructing global estimates of child labour and children in hazardous work.

CONCEPTUAL FRAMEWORK
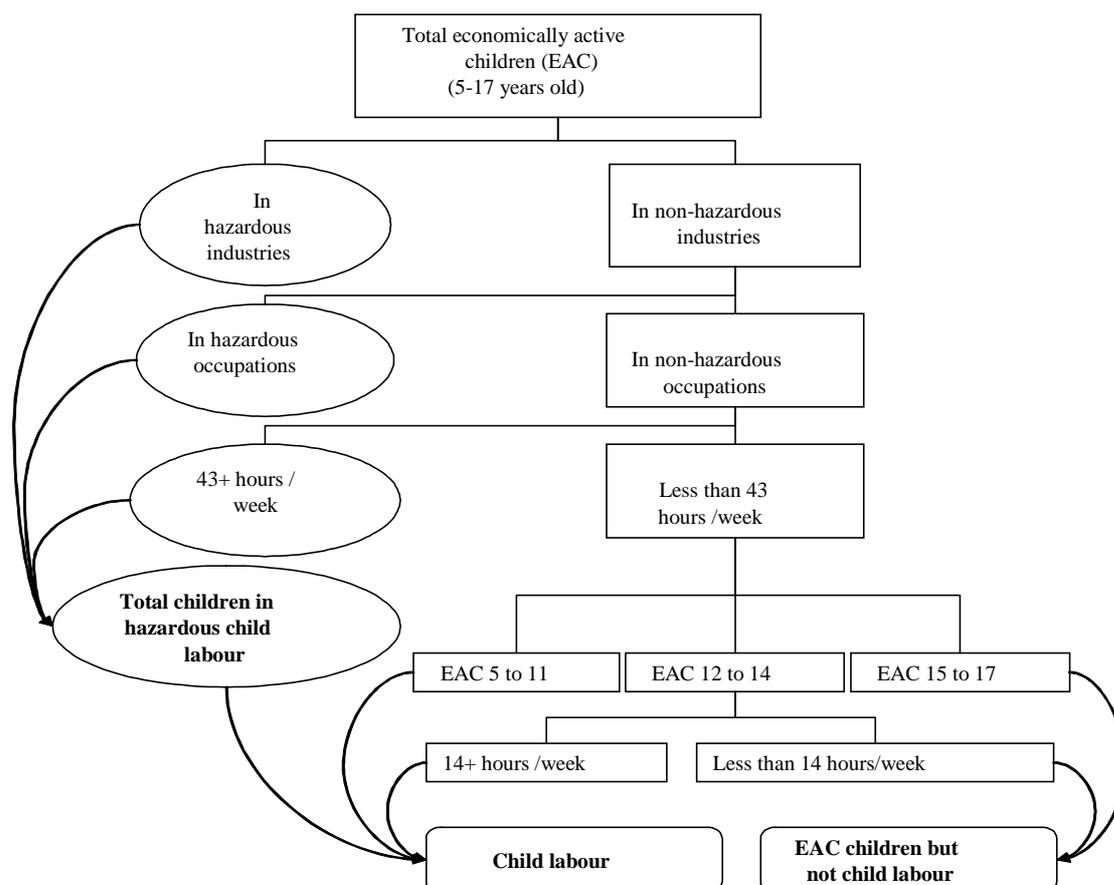
4.2.2 Evaluation

A significant limitation of the "child labour" and "children in hazardous work" estimates is the lack of adequate individual country-level raw data, which too often fails to include the required information. In this respect, the SIMPOC surveys—household-based national sample surveys whose target respondents are parents or guardians and children living in the same household—may be those most comprehensive in terms of serving the raw data needs and their relatively large sample sizes.

SIMPOC surveys. The surveys are conducted as stand-alone surveys or as modules attached to other national household-based surveys such as labour force surveys. The statistics and information generated by these surveys address the following:

- both economic and non-economic activities of children;
- demographic and social characteristics of household numbers;
- working hours;
- nature of tasks;
- health and safety issues, including injuries at work;
- and perceptions of parents about children's work.

By making the sampling error of estimates less significant (ILO/IPEC, 2002), moreover, the typical SIMPOC survey "over-sampling" has positive effects for the global estimates.

For the purpose of the new global estimates, only 10 SIMPOC surveys were used to compute the relevant ratios in the first round: Bangladesh,[26] Belize, Cambodia, Colombia, Costa Rica, El Salvador, Honduras, Malawi, the Philippines, and Portugal. The ratios obtained in the first-round estimates were applied to another relatively small number of surveys in the second round for calculating the final ratios in 9 countries: Brazil, Cameroon, Ghana, Guatemala, India, Jamaica, Panama, Tanzania, and Venezuela. Here, for analysis on industries, all the surveys (SIMPOC, LSMS, LFS) had data available. In particular, datasets for Brazil and India fortunately contained much of the needed information.

The final ratios were used in extrapolating the global estimates from the globally adjusted figures on the economically active children. Of the 19 surveys used, 15 are thus derived from SIMPOC surveys, and there are no major differences between the sources in the relevant datasets. Another positive factor affecting the quality of the final statistical results is the fact that the 3-digit ISCO analysis indicated a certain similarity of pattern in the activities and occupations of children in the SIMPOC surveys.

The survey reference years of the 10 countries included in the first round of the estimates ranged between 2000 and 2004. Out of the 19 surveys used, 8 form a matched sample with

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[26] In the case of Bangladesh, it should be noted that, because of an outlier in the ratios of children in hazardous work, the "winsorised estimation" was applied. This is a method of estimating the mean of a relatively small sample of observations by using linear systematic statistics and replacing extreme observations by those next in magnitude.

the median time spread of 4 years.[27] However, the ratios for the different categories discussed above were computed without making adjustments for the variation in the reference periods.

With both the 2000 and 2004 global estimates on children in hazardous work, it was sometimes difficult to decide whether given activities or occupations should be judged hazardous or non-hazardous. In fact, because of important differences between countries in terms of economic structures and legislation, there is no "master list" that can always and unambiguously determine which activities are "hazardous" and which are not. Moreover, since specifying the hazardous nature or circumstances of activities or occupations was not an ISIC or ISCO objective when classifications were established as international standards, neither provides, even at the most detailed level, a clear distinction between hazardous or non-hazardous work. In this context, caution should be applied in those cases where categories may not be distinguished in the classification or depend on country characteristics. In all borderline situations, conservative decisions were made (see also ILO/IPEC, 2002).

Based on those factors mentioned above, to what extent may one compare the earlier estimates with the new ones? The following has to be noted:

- First, there is a slight difference between the data sources of the two estimates, both in scope and in depth. Eight of the nineteen surveys form a matched sample with the median time spread of four years.

- Second, the same extrapolation methods were used.

- Third, the new results are an independent estimate based on sample-matched and unmatched, which we regarded as the only viable option in view of the data material at hand.

Since the two estimates are derived from two independent samples, we used the Mann-Whitney test, a nonparametric means of detecting differences between them. In this sense, the statistical test is formed by counting all the bivariate pairs from the two samples in which one sample value is smaller than the other. More precisely, it asks whether the estimate of the probability demonstrates that the variables for the first group (2000 global estimates) are larger than the variables of the second group (2004 global estimates).

Hypothesis testing allows us to derive conclusions about the estimated probability and the ideas we are investigating, i.e. comparing the new global estimates on child labour and children in hazardous work with the old ones. It reveals a change in the incidence of this phenomenon, and shows whether the increase or decrease is statistically significant.

We focused the test on the list of the countries selected for the first-round estimates. Based on the estimates on children in hazardous work, the results of the test are as follows:

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[27] Brazil (1997, 2001), Cambodia (1996, 2001), Cameroon (1996, 2001), Colombia (1998, 2001), El Salvador (1998, 2001), Ghana (1997, 2000), India (1994, 1999-2000), and the Philippines (1995, 2001).

Groups	Obs	Rank sum	Expected
2000 global estimates (GE)*	6	54	51
2004 global estimates (GE)**	10	82	85
Combined	16	136	136

* Children in hazardous work as per cent of economically active children (EAC) in 2000.
Cambodia, Kenya, the Philippines, South Africa, Sri Lanka, and Turkey are the countries selected for the first-round estimates in 2000 global estimates.
** Children in hazardous work as per cent of EAC in 2004.
Bangladesh, Belize, Cambodia, Colombia, Costa Rica, El Salvador, Honduras, Malawi, the Philippines, and Portugal are the countries selected for the first-round estimates in 2004 global estimates.

Unadjusted variance	85
Adjustment for ties	0
Adjusted variance	85

In the context of our exercise, the null hypothesis is that

H_o: hazardous work (group==2000 GE) = hazardous work (group==2004 GE)

$z = 0.325$

$Prob > |z| = 0.7449$

Thus, the null and alternative hypotheses are

H_o: $P(X < Y) \geq 0.5$ and

H_1: $P(X < Y) < 0.5$

The estimated probability is that

P {hazardous work (group==2000 GE) > hazardous work (group==2004 GE)} = 0.550.

Based on the test of statistical significance (0.5), the Mann-Whitney test yields two main conclusions:

- one cannot reject the hypothesis that the two samples have similar distribution; and

- the estimate of the probability shows that the variables of the 2000 global estimates are larger than the variables of the 2004 global estimates—they indicate that the trend in the incidence of children in hazardous work has been a decline.

In other words, these results confirm statistically a downward trend between the previous estimates on children in hazardous work and the new ones.

Annex 1: Standardization of age groups

Age groupings in the raw data from national surveys may differ from the standard age groups adopted for the present study in any one of three situations:

- where the available data is grouped in a broader category than prescribed, e.g. where the national data is for those aged 15-19 years, while the required age group is 15-17 years;

- where the available data is grouped in a narrower category than prescribed, e.g. where the national data is for those aged 6-9 years, with no information regarding 5-year-olds; and

- where no national data exists for the required age groups, e.g. where no data is available for the 15- to 17-year age category.

The age groups may be standardized with the help of a model for the percentage of children at work as a function of age.

Method

Our model assumes that the percentage of children at work is a linear function of the age of the children, and that the distribution of children with respect to their ages is uniform within a group. For each problematic situation, one model is fitted on the basis of the two nearest available age groups.

Let us define s and c as the slope and constant of the linear function f of the percentage y as a function of age x. We have y = x*s+c. Regardless of the slope, the percentage of working children in a group age with interval a-b will be equal to the percentage of working children for its mean age m = (a+b+1)/2. Given the percentages y1 and y2 and midpoints m1 and m2 of the nearest available age groups, the slope and constant can be estimated with s = (y2-y1)/(m2-m1) and c = y1–m1*s.

Finally, the percentage of working children for the age group of interest with midpoint m is simply computed with m*s+c.

There are special cases to consider, however, when the model percentage 100 or 0 is reached within the interval of interest. In this (general) case, the percentage p of children aged a to b will be computed with

$$p = \frac{1}{(b+1-a)} \int_a^{b+1} \max(0, \min(100, x*s+c)) \, dx$$

The method is not limited to the percentage of working children. It can be applied also to the percentages of children studying, combining both work and study or doing neither.

Application

In the present study, the age group 5-9 years is too narrow for Yemen. The available age group is limited to the 6- to 9-year-olds. In this case, the available age groups 6-9 and 10-14 years were used to estimate the ratio for the 5- to 9-year age group.

Table 1   **Estimated ratio for the age group 5-9 years for Yemen**

| Country | Sex | Available age groups | | Estimated a.g. |
		6-9	10-14	5-9
Yemen	boys	0.190	0.394	0.164
Yemen	girls	0.130	0.308	0.114

Note: The estimated ratio for the age group 5-9 is computed from the available ratios for age groups 6-9 and 10-14 years.

Another problem is the missing age group 15-17 years for Azerbaijan, Kenya, Senegal, and Yemen. For these countries, the age groups 5-9 and 10-14 are used to estimate the ratio for the age group 15-17 years.

Table 2   **Estimated ratio for the age group 15-17 years**

| Country | Sex | Available age groups | | Estimated a.g. |
		5-9	10-14	15-17
Azerbaijan	boys	0.065	0.144	0.207
Azerbaijan	girls	0.043	0.082	0.114
Kenya	boys	0.234	0.464	0.648
Kenya	girls	0.195	0.416	0.592
Senegal	boys	0.321	0.474	0.596
Senegal	girls	0.228	0.294	0.346
Yemen	boys	0.164	0.394	0.578
Yemen	girls	0.114	0.308	0.462

Note: The estimated ratio for the age group 15-17 years is computed from the available ratios for age groups 5-9 and 10-14 years.

Our study requires input from 17 countries for 3 age categories and both sexes. That amounts to a total of 102 ratios. This method was used to complete or adapt 10 of these values, just shy of 10 per cent.

Validation

The method is validated with the use of extra information. An approximation of the ratio of children at work is available on the age group 12-14 years. The same ratio is estimated with the help of the method. The average absolute difference between the two is 8.2 per cent, with a standard deviation of 7.2 and a median of 5.0.

We find the result satisfactory. It is at least much better than carrying the closest observed value (the ratio of age group 10-14 years).

Table 3   Comparison of ratio of children at work aged 12-14 years estimated by the model with an approximation measured from extra information

Country	Available ratios			12-14 age group		
	X	X-9 yrs.	10-14 yrs.	Estimated	Measured	Difference
Albania	7	0.277	0.491	0.545	0.547	-0.4%
Azerbaijan	5	0.065	0.144	0.160	0.162	-1.2%
Bolivia	5	0.171	0.350	0.386	0.371	4.0%
Bosnia and H.	5	0.112	0.269	0.301	0.306	-1.6%
Madagascar	6	0.201	0.305	0.328	0.326	0.6%
Moldova	5	0.195	0.393	0.433	0.446	-2.9%
Mongolia	5	0.200	0.249	0.258	0.249	3.6%
Senegal	5	0.321	0.474	0.505	0.481	5.0%
Uzbekistan	6	0.115	0.267	0.301	0.291	3.4%
Yemen	6	0.187	0.394	0.440	0.458	-3.9%
Congo	5	0.001	0.405	0.485	0.447	8.5%
Turkey	5	0.007	0.081	0.096	0.122	-21.3%
Cameroon	5	0.000	0.106	0.127	0.164	-22.6%
Brazil	5	0.017	0.138	0.162	0.172	-5.8%
India	5	0.005	0.079	0.094	0.111	-15.3%
Belize	5	0.026	0.123	0.142	0.164	-13.4%
Costa Rica	5	0.014	0.089	0.104	0.127	-18.1%
El Salvador	5	0.025	0.179	0.210	0.234	-10.3%
Guatemala	5	0.068	0.365	0.424	0.446	-4.9%
Malawi	5	0.153	0.366	0.409	0.495	-17.4%
Philippines	5	0.029	0.234	0.275	0.277	-0.7%
Bangladesh	5	0.019	0.358	0.425	0.516	-17.6%
Cambodia	5	0.259	0.654	0.733	0.695	5.5%

Note: The method estimates the ratio for the 12- to 14-year age group using the ratios for the age group of 9-year-olds and younger and the ratio for the 10- to 14-year age group. The difference is computed with (estimated-measured)/measured. E.g., for Bolivia, the ratios of children at work for age groups 5-9 and 10-14 years are 0.171 and 0.350, respectively. From these values, the method estimates the ratio for the age group 12-14 years to be 0.386. From the extra information, we have measured a ratio of 0.371. The difference between these values is computed with (0.386 – 0.371)/0.371 = 4%.

Annex 2 : Calculation of change of the incidence of working children by sex and age group for 16 sample countries (2000-2004)

Annex 2

Country	Sex	Age group	t_0	$r(ijk)_0$	t_1	$r(ijk)_1$	$r(ijk)_1$-$r(ijk)_0$	$\Delta(ijk)$
Cameroun	1	5-9 yrs	1996	0.15	2001	0.00	-15%	-12%
Cameroun	1	10-14 yrs	1996	0.31	2001	0.11	-21%	-17%
Cameroun	1	15-17 yrs	1996	0.49	2001	0.24	-25%	-20%
Cameroun	2	5-9 yrs	1996	0.19	2001	0.00	-19%	-15%
Cameroun	2	10-14 yrs	1996	0.33	2001	0.11	-23%	-18%
Cameroun	2	15-17 yrs	1996	0.49	2001	0.22	-27%	-21%
Ghana	1	5-9 yrs	1997	0.13	2001	0.19	6%	6%
Ghana	1	10-14 yrs	1997	0.18	2001	0.38	20%	20%
Ghana	1	15-17 yrs	1997	0.32	2001	0.52	20%	20%
Ghana	2	5-9 yrs	1997	0.13	2001	0.16	3%	3%
Ghana	2	10-14 yrs	1997	0.21	2001	0.37	16%	16%
Ghana	2	15-17 yrs	1997	0.43	2001	0.48	5%	5%
Kenya	1	5-9 yrs	1999	0.14	2000	0.23	9%	37%
Kenya	1	10-14 yrs	1999	0.52	2000	0.46	-6%	-24%
Kenya	1	15-17 yrs	1999	0.65	2000	0.65	0%	-1%
Kenya	2	5-9 yrs	1999	0.13	2000	0.20	6%	24%
Kenya	2	10-14 yrs	1999	0.47	2000	0.42	-6%	-24%
Kenya	2	15-17 yrs	1999	0.60	2000	0.59	-1%	-5%
Sénégal	1	5-9 yrs	1995	0.53	2000	0.32	-21%	-17%
Sénégal	1	10-14 yrs	1995	0.56	2000	0.47	-8%	-6%
Sénégal	1	15-17 yrs	1995	0.58	2000	0.60	2%	2%
Sénégal	2	5-9 yrs	1995	0.36	2000	0.23	-13%	-10%
Sénégal	2	10-14 yrs	1995	0.41	2000	0.29	-11%	-9%
Sénégal	2	15-17 yrs	1995	0.46	2000	0.35	-11%	-9%
Bangladesh	1	5-9 yrs	1999	0.08	2002	0.02	-6%	-8%
Bangladesh	1	10-14 yrs	1999	0.33	2002	0.36	3%	4%
Bangladesh	1	15-17 yrs	1999	0.52	2002	0.47	-5%	-6%
Bangladesh	2	5-9 yrs	1999	0.03	2002	0.01	-2%	-3%
Bangladesh	2	10-14 yrs	1999	0.27	2002	0.15	-12%	-16%
Bangladesh	2	15-17 yrs	1999	0.43	2002	0.22	-21%	-28%
Cambodia	1	5-9 yrs	1996	0.24	2002	0.26	2%	2%
Cambodia	1	10-14 yrs	1996	0.28	2002	0.65	37%	25%
Cambodia	1	15-17 yrs	1996	0.49	2002	0.83	34%	22%
Cambodia	2	5-9 yrs	1996	0.27	2002	0.25	-1%	-1%
Cambodia	2	10-14 yrs	1996	0.29	2002	0.64	35%	23%
Cambodia	2	15-17 yrs	1996	0.83	2002	0.84	1%	1%
India	1	5-9 yrs	1992	0.09	1999.5	0.01	-9%	-5%
India	1	10-14 yrs	1992	0.19	1999.5	0.08	-11%	-6%
India	1	15-17 yrs	1992	0.43	1999.5	0.35	-8%	-4%
India	2	5-9 yrs	1992	0.15	1999.5	0.01	-15%	-8%
India	2	10-14 yrs	1992	0.43	1999.5	0.08	-35%	-19%
India	2	15-17 yrs	1992	0.76	1999.5	0.22	-54%	-29%
Philippines	1	5-9 yrs	1998	0.12	2002	0.03	-9%	-9%
Philippines	1	10-14 yrs	1998	0.25	2002	0.23	-2%	-2%
Philippines	1	15-17 yrs	1998	0.37	2002	0.46	9%	9%
Philippines	2	5-9 yrs	1998	0.11	2002	0.02	-9%	-9%

Country	Group	Age	Year1	Val1	Year2	Val2	Δ%	Δ%2
Philippines	2	10-14 yrs	1998	0.17	2002	0.14	-3%	-3%
Philippines	2	15-17 yrs	1998	0.26	2002	0.28	2%	2%
Turkey	1	5-9 yrs	1994	0.03	1999	0.01	-2%	-2%
Turkey	1	10-14 yrs	1994	0.15	1999	0.08	-7%	-6%
Turkey	1	15-17 yrs	1994	0.53	1999	0.35	-18%	-15%
Turkey	2	5-9 yrs	1994	0.02	1999	0.01	-1%	0%
Turkey	2	10-14 yrs	1994	0.11	1999	0.06	-6%	-4%
Turkey	2	15-17 yrs	1994	0.27	1999	0.21	-7%	-5%
Bolivia	1	5-9 yrs	1999	0.67	2000	0.17	-50%	-199%
Bolivia	1	10-14 yrs	1999	0.77	2000	0.35	-42%	-166%
Bolivia	1	15-17 yrs	1999	0.64	2000	0.49	-14%	-57%
Bolivia	2	5-9 yrs	1999	0.64	2000	0.16	-49%	-195%
Bolivia	2	10-14 yrs	1999	0.98	2000	0.29	-69%	-276%
Bolivia	2	15-17 yrs	1999	0.66	2000	0.40	-27%	-107%
Brazil	1	5-9 yrs	1998	0.11	2003	0.02	-9%	-7%
Brazil	1	10-14 yrs	1998	0.47	2003	0.14	-33%	-26%
Brazil	1	15-17 yrs	1998	0.81	2003	0.38	-42%	-34%
Brazil	2	5-9 yrs	1998	0.06	2003	0.01	-5%	-4%
Brazil	2	10-14 yrs	1998	0.27	2003	0.07	-20%	-16%
Brazil	2	15-17 yrs	1998	0.48	2003	0.22	-26%	-21%
Colombia	1	5-9 yrs	1998	0.11	2001	0.07	-5%	-6%
Colombia	1	10-14 yrs	1998	0.16	2001	0.22	6%	8%
Colombia	1	15-17 yrs	1998	0.36	2001	0.40	5%	6%
Colombia	2	5-9 yrs	1998	0.02	2001	0.03	1%	2%
Colombia	2	10-14 yrs	1998	0.06	2001	0.10	4%	6%
Colombia	2	15-17 yrs	1998	0.24	2001	0.18	-5%	-7%
Costa Rica	1	5-9 yrs	1998	0.12	2002	0.01	-11%	-11%
Costa Rica	1	10-14 yrs	1998	0.19	2002	0.09	-10%	-10%
Costa Rica	1	15-17 yrs	1998	0.47	2002	0.40	-7%	-7%
Costa Rica	2	5-9 yrs	1998	0.03	2002	0.00	-2%	-2%
Costa Rica	2	10-14 yrs	1998	0.05	2002	0.03	-3%	-3%
Costa Rica	2	15-17 yrs	1998	0.25	2002	0.18	-7%	-7%
El Salvador	1	5-9 yrs	1999	0.30	2001	0.02	-27%	-54%
El Salvador	1	10-14 yrs	1999	0.34	2001	0.18	-16%	-32%
El Salvador	1	15-17 yrs	1999	0.56	2001	0.39	-17%	-35%
El Salvador	2	5-9 yrs	1999	0.08	2001	0.01	-7%	-14%
El Salvador	2	10-14 yrs	1999	0.17	2001	0.08	-9%	-18%
El Salvador	2	15-17 yrs	1999	0.25	2001	0.17	-8%	-17%
Yemen	1	5-9 yrs	1999	0.06	2001	0.16	10%	21%
Yemen	1	10-14 yrs	1999	0.24	2001	0.39	15%	30%
Yemen	1	15-17 yrs	1999	0.55	2001	0.58	3%	6%
Yemen	2	5-9 yrs	1999	0.09	2001	0.11	2%	4%
Yemen	2	10-14 yrs	1999	0.25	2001	0.31	6%	12%
Yemen	2	15-17 yrs	1999	0.29	2001	0.46	18%	35%
Azerbaijan	1	5-9 yrs	1995	0.00	2000	0.07	7%	5%
Azerbaijan	1	10-14 yrs	1995	0.00	2000	0.14	14%	12%
Azerbaijan	1	15-17 yrs	1995	0.22	2000	0.21	-1%	-1%
Azerbaijan	2	5-9 yrs	1995	0.00	2000	0.04	4%	3%
Azerbaijan	2	10-14 yrs	1995	0.00	2000	0.08	8%	7%
Azerbaijan	2	15-17 yrs	1995	0.25	2000	0.11	-13%	-11%

Annex 3: Hazardous occupations and processes in national legislation

The following *occupations or processes* have been documented to expose children to hazards to an extent that countries have prohibited the admission of children below 18 years (or a lower age, where indicated) to these occupations or processes by law:

Work in abattoirs and meat rendering
Work in the aluminium industry (16 years)
Work on airport runways
Work with dangerous or wild animals
Archaeological excavations
Brick manufacture
Cable laying
Care for mentally disturbed persons
Carpet weaving (14 years)
Catering at railway stations (14 years)
Cinder-picking, clearing ash-pits (14 years)
Work with circular saws and other dangerous cutting machines
Work in commercial agriculture (as opposed to subsistence agriculture)
Work in construction and/or demolition
Work with cranes/hoists/lifting machinery
Work in crystal and/or glass manufacture
Domestic service (16 years)
Work in entertainment establishments (night clubs, bars, casinos, circuses, gambling halls)
Excavation work
Work with fire brigades and gas rescue services
Forestry work
Work with machinery in motion (operation, cleaning, repairs, etc.)
Manufacture of matches (16 years)
Maritime work
Mining, work in quarries, underground work
Oil prospecting/work with petroleum
Work with oxyacetylene blowpipes (16 years)
Work with pedal/crank operated equipment (16 years)
Work in salt and brine processes
Shipbuilding (16 years)
Soap manufacture (14 years)
Work with steam engines or equipment
Street trades
Work in sugar mills (16 years)
Work in tanneries
Work in textile industries (specific tasks)
Operating vehicles
Underwater work
Work in the water and gas industry
Work with heavy weights and loads
Welding and smelting of metals, metal working
Work at courts, prisons or as probation officers

Countries may also prohibit the exposure of children at work to certain *hazardous agents and products* below 18 years of age (or a lower age, where indicated). The following agents or products have been subject to such legal prohibition in a number of countries:

Alcohol production and/or sale
Asbestos
Benzene
Bleaching and chlorine
Cadmium
Cement
Chemicals, general provisions for exposure to
Chromium
Compressed air/gas
Electricity
Explosives
Fumes, dust, gas and other noxious substances
Infra-red and ultraviolet rays, laser, radio-frequency emissions
Lead/zinc metallurgy, white lead, lead in paint
Manganese
Marble, stone and gypsum
Mercury
Paints, solvents, shellac varnish, glue, enamel
Pathogenic agents, exposure to (hospital work, city cleaning, work related to sewers, handling corpses, etc.)
Potassium and sodium
Radioactive substances or ionizing radiation
Rubber
Tar, asphalt, bitumen
Tobacco (inc. bidi and cigarette making) (16 years)

Finally, the admission to work below 18 years of age may also be prohibited on the basis of *hazards relating to the physical environment* in which the work takes place. Hazards that have given rise to a legal prohibition include:

Thermal stress (heat and/or cold)
Vibration and noise
Inadequate ventilation
Lack of light or abnormal levels of light
Increased or decreased air pressure
Ergonomic hazards
Accident hazards

Annex 4: Datasets underlying the 2004 global child labour estimates

Estimates on working children in 2004

Number	Country name	Source	Year	Region[28]
1	Bangladesh	SIMPOC	2002-03	Asia and the Pacific
2	Cambodia	SIMPOC	2002	Asia and the Pacific
3	India	NSSO[29]	1999-2000	Asia and the Pacific
4	Mongolia	MICS[30]	2000	Asia and the Pacific
5	Philippines	SIMPOC	2002	Asia and the Pacific
6	Portugal	SIMPOC	2001	Developed Economies
7	Turkey	SIMPOC	1999	Developed Economies
8	Yemen	Baseline Survey[31]	2001	Middle East and North Africa
9	Belize	SIMPOC	2001	Latin America and the Caribbean
10	Bolivia	MICS	2000	Latin America and the Caribbean
11	Brazil	PNAD[32]	2003	Latin America and the Caribbean
12	Colombia	SIMPOC	2001	Latin America and the Caribbean
13	Costa Rica	SIMPOC	2002	Latin America and the Caribbean
14	El Salvador	SIMPOC	2001	Latin America and the Caribbean
15	Guatemala	SIMPOC	2000	Latin America and the Caribbean
16	Venezuela	EHM, WB[33]	2000	Latin America and the Caribbean
17	Cameroon	LSMS	2001	Sub-Saharan Africa
18	Congo, Democratic Republic	MICS	2000	Sub-Saharan Africa
19	Ethiopia	WB[34]	2000	Sub-Saharan Africa
20	Ghana	SIMPOC	2000	Sub-Saharan Africa
21	Kenya	MICS	2000	Sub-Saharan Africa
22	Madagascar	WB[35]	2001	Sub-Saharan Africa
23	Malawi	SIMPOC	2002	Sub-Saharan Africa
24	Lesotho	MICS	2000	Sub-Saharan Africa
25	Senegal	MICS	2000	Sub-Saharan Africa
26	Swaziland	MICS	2000	Sub-Saharan Africa
27	Albania	MICS	2000	Transition Economies
28	Azerbaijan	MICS	2000	Transition Economies
29	Bosnia and Herzegovina	MICS	2000	Transition Economies
30	Moldova	MICS	2000	Transition Economies
31	Uzbekistan	MICS	2000	Transition Economies

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[28] Regional groupings according to the break-down used by the *ILO's Key Indicators of the Labour Market* (KILM)

[29] National Sample Survey (55th Round)

[30] Multi Indicator Cluster Survey, sponsored by UNICEF.

[31] Implemented by UNICEF with the child labour module used in the MICS

[32] Pesquisa Nacional por Amostra de Domicilios

[33] Encuesta de Hogares por Muestreo (EHM)

[34] Welfare Monitoring / Income, Consumption and Expenditure Survey

[35] Enquête prioritaire auprès des ménages

Matched sample countries

Number	Country name	Period spread	Region
1	Bangladesh	1999-2003	Asia and the Pacific
2	Cambodia	1996-2002	Asia and the Pacific
3	India	1992-1999	Asia and the Pacific
4	Philippines	1998-2002	Asia and the Pacific
5	Portugal	1998-2001	Developed Economies
6	Turkey	1994-1999	Developed Economies
7	Yemen	1999-2001	Middle East and North Africa
8	Bolivia	1999-2000	Latin America and the Caribbean
9	Brazil	1998-2003	Latin America and the Caribbean
10	Colombia	1998-2001	Latin America and the Caribbean
11	Costa Rica	1998-2002	Latin America and the Caribbean
12	El Salvador	1999-2001	Latin America and the Caribbean
13	Cameroon	1996-2001	Sub-Saharan Africa
14	Ghana	1997-2000	Sub-Saharan Africa
15	Kenya	1999-2000	Sub-Saharan Africa
16	Senegal	1995-2000	Sub-Saharan Africa
17	Azerbaijan	1995-2000	Transition Economies

Estimates on working children in 2000

Number	Country name	Source	Year	Region
1	Bangladesh	NSS	1999	Asia and the Pacific
2	Cambodia	LSMS	1996	Asia and the Pacific
3	India	NSS	1994	Asia and the Pacific
4	Pakistan	Pre-SIMPOC	1996	Asia and the Pacific
5	Philippines	LSMS	1998	Asia and the Pacific
6	Sri Lanka	SIMPOC	1999	Asia and the Pacific
7	Portugal	SIMPOC	1998	Developed Economies
8	Turkey	Pre-SIMPOC	1994	Developed Economies
9	Egypt	LSMS	1998	Middle East and North Africa
10	Yemen	NSS	1997	Middle East and North Africa
11	Bolivia	LSMS	1999	Latin America and the Caribbean
12	Brazil	LSMS	1998	Latin America and the Caribbean
13	Colombia	LSMS	1998	Latin America and the Caribbean
14	Costa Rica	LSMS	1998	Latin America and the Caribbean
15	El Salvador	LSMS	1999	Latin America and the Caribbean
16	Mexico	LSMS	1996	Latin America and the Caribbean
17	Paraguay	LSMS	1999	Latin America and the Caribbean
18	Cameroon	LSMS	1996	Sub-Saharan Africa
19	Ghana	LSMS	1997	Sub-Saharan Africa
20	Kenya	SIMPOC	1999	Sub-Saharan Africa
21	Mauritania	LSMS	1995	Sub-Saharan Africa
22	Namibia	SIMPOC	1999	Sub-Saharan Africa
23	Nigeria	SIMPOC	2000	Sub-Saharan Africa
24	Senegal	LSMS	1995	Sub-Saharan Africa
25	South Africa	SIMPOC	1999	Sub-Saharan Africa
26	Zambia	SIMPOC	1999	Sub-Saharan Africa
27	Azerbaijan	LSMS	1995	Transition Economies
28	Kazakhstan	LSMS	1996	Transition Economies
29	Ukraine	SIMPOC	1999	Transition Economies

First and second round estimates on child labour and children in hazardous work, 2004[36]

Number	Country name	Source	Year	Region
1	Bangladesh	SIMPOC	2002-03	Asia and the Pacific
2	Cambodia	SIMPOC	2002	Asia and the Pacific
3	India	NSSO	2000	Asia and the Pacific
4	Philippines	SIMPOC	2001	Asia and the Pacific
5	Portugal	SIMPOC	2001	Developed Economies
6	Belize	SIMPOC	2001	Latin America and the Caribbean
7	Brazil	SIMPOC	2001	Latin America and the Caribbean
8	Colombia	SIMPOC	2001	Latin America and the Caribbean
9	Costa Rica	SIMPOC	2002	Latin America and the Caribbean
10	El Salvador	SIMPOC	2001	Latin America and the Caribbean
11	Guatemala	SIMPOC	2000	Latin America and the Caribbean
12	Honduras	SIMPOC	2002	Latin America and the Caribbean
13	Jamaica	SIMPOC	2002	Latin America and the Caribbean
14	Panama	SIMPOC	2000	Latin America and the Caribbean
15	Venezuela	LSMS	2000	Latin America and the Caribbean
16	Cameroon	LSMS	2001	Sub-Saharan Africa
17	Ghana	SIMPOC	2000	Sub-Saharan Africa
18	Malawi	SIMPOC	2002	Sub-Saharan Africa
19	Tanzania	SIMPOC	2001	Sub-Saharan Africa

First round estimates

Number	Country name	Source	Year	Region
1	Bangladesh	SIMPOC	2002-03	Asia and the Pacific
2	Cambodia	SIMPOC	2002	Asia and the Pacific
3	Philippines	SIMPOC	2001	Asia and the Pacific
4	Portugal	SIMPOC	2001	Developed Economies
5	Belize	SIMPOC	2001	Latin America and the Caribbean
6	Colombia	SIMPOC	2001	Latin America and the Caribbean
7	Costa Rica	SIMPOC	2002	Latin America and the Caribbean
8	El Salvador	SIMPOC	2001	Latin America and the Caribbean
9	Honduras	SIMPOC	2002	Latin America and the Caribbean
10	Malawi	SIMPOC	2002	Sub-Saharan Africa

Second round estimates

Number	Country name	Source	Year	Region
1	India	NSSO	2000	Asia and the Pacific
2	Brazil	SIMPOC	2001	Latin America and the Caribbean
3	Guatemala	SIMPOC	2000	Latin America and the Caribbean
4	Jamaica	SIMPOC	2002	Latin America and the Caribbean
5	Panama	SIMPOC	2000	Latin America and the Caribbean
6	Venezuela	LSMS	2000	Latin America and the Caribbean
7	Cameroon	LSMS	2001	Sub-Saharan Africa
8	Ghana	SIMPOC	2000	Sub-Saharan Africa
9	Tanzania	SIMPOC	2001	Sub-Saharan Africa

Matched sample

Number	Country name	Spread	Region
1	Cambodia	1996-2001	Asia and the Pacific
2	India	1994-2000	Asia and the Pacific

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[36] For datasets underlying the third estimation round, see the ones listed under "Estimates on working children in 2004".

3	Philippines	1995-2001	Asia and the Pacific
4	Brazil	1997-2001	Latin America and the Caribbean
5	Colombia	1998-2001	Latin America and the Caribbean
6	El Salvador	1998-2001	Latin America and the Caribbean
7	Cameroon	1996-2001	Sub-Saharan Africa
8	Ghana	1997-2000	Sub-Saharan Africa

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