International Labour Organization

1919·2019

CHILDREN'S WORK-RELATED ILLNESS AND INJURY:

EVIDENCE FROM GEORGIA

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Fundamental Principles and Rights at Work (FUNDAMENTALS)
International Labour Organization (ILO)

FUNDAMENTALS

Children's work-related illness and injury: Evidence from Georgia / International Labour Office, Fundamental Principles and Rights at Work Branch (FUNDAMENTALS) - Geneva: ILO, 2018.

ISBN: 978-92-2-132736-3 (Print); 978-92-2-132737-0 (Web PDF)

International Labour Office; ILO Fundamental Principles and Rights at Work Branch

ILO Cataloguing in Publication Data

ACKNOWLEDGEMENTS

This publication was elaborated for FUNDAMENTALS by:

Understanding Children's Work (UCW) Programme, a joint research initiative by the International Labour Organization (ILO), the United Nations Children's Fund (UNICEF), and the World Bank.

Funding for this ILO publication was provided by the United States Department of Labor under the framework of the Project "Global Research on Child Labour Measurement and Policy Development" (GLO/13/21/USA), under cooperative agreement number IL-244921-13-75-K.

This publication does not necessarily reflect the views or policies of the United States Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the United States Government. 100 per cent of the total costs of the Project "Global Research on Child Labour Measurement and Policy Development" (GLO/13/21/USA) is financed with federal funds, for a total of 7,000,000 dollars.

Photocomposed by Romy Kanashiro, Lima, Peru

Table of contents

Figures

Introduction

Child labour remains a concern in Georgia. The Georgia National Child Labour Survey conducted in the 2015 (NCLS 2015) indicated that 5 percent of all children are engaged in child labour, more than 577,000 children in absolute terms. The worst off are those whose work harms their health, safety and moral development, and effectively reaching this group therefore constitutes a particular priority within the wider effort to eliminate all forms of child labour.

The current study reviews available data from NCLS 2015 on work-related injuries and illnesses as starting point for identifying the forms of children's work that are most hazardous to their health and that should be consequently prioritised in child labour elimination efforts.

Each country, upon ratification of ILO Convention No. 182 (Worst Forms),[1] commits to establishing a list of hazardous forms of work in consultation with the organizations of employers and workers concerned.[2] The Georgia Labour Code prohibits entering into an employment contract with a minor to perform unhealthy and hazardous work, where, in accordance with the Civil Code of Georgia, a person is a minor from the moment of birth to 18 years of age. However, legislation in Georgia does not provide a definition of hazardous work for children, and thus a national list of designated hazardous industries and occupations is not yet in place.[3]

The present study provides initial indications of the industries and occupations that pose the greatest threat to children's health and safety, and therefore provides a starting point for the development of a detailed national list of hazardous industries and occupations.[4]

1 Georgia ratified ILO Convention No. 182 in 2002.
2 Article 4.1 of ILO Convention No. 182 reads as follows: "The types of work referred to under Article 3(d) shall be determined by national laws or regulations or by the competent authority, after consultation with the organizations of employers and workers concerned, taking into consideration relevant international standards, in particular Paragraphs 3 and 4 of the Worst Forms of Child Labour Recommendation, 1999." Article 3(d) of the Convention reads as follows: "work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children."
3 Georgia National Child Labour Survey 2015: Analytical Report / International Labour Office, Fundamental Principles and Rights at Work Branch (FUNDAMENTALS), National Statistics Office of Georgia (GEOSTAT). –Geneva: ILO, 2016
4 It should be noted that the recently published Analytical Report on child labour in Georgia, based on the Georgia NCLS 2015, presented estimates of child labour on the basis of the list of hazardous industries and occupations recommended by the international standards. (See: Georgia National Child Labour Survey 2015: Analytical Report / International Labour Office, Fundamental Principles and Rights at Work Branch (FUNDAMENTALS), National Statistics Office of Georgia (GEOSTAT). –Geneva: ILO, 2016.)

1. Literature review[5]

Concern about the health consequences of child labour derives primarily from the belief that work increases the child's exposure to health hazards that could in turn lead to illness or injury. The hazards may be obvious and threaten immediate damage to health, such as those risks arising from the use of dangerous tools and machinery, from exposure to high temperatures, or from work at high heights. Alternatively, the hazards may be less perceptible and less immediate in terms of their consequences for health, such as exposure to dust, toxins, chemicals and pesticides, the lifting of heavy loads or the forced adoption of poor posture. Hazards may also threaten psychological health, such as exposure to abusive relationships with employers, supervisors or clients (ILO, 1998).

The health consequences of child labour will vary with the type of hazards to which the child worker is exposed and with the average time spent on work. Variation in the nature and intensity of child work across industries and across countries means there is no one relationship between child work and health but a variety of such relationships.

One factor that increases the health risks faced by children in child labour relative to adult workers derives from the fact that children often work in informal, small scale and illegal settings which, by their very nature, are difficult to regulate (Fassa et al, 2000). Children working in small scale farming and manufacturing are often not given the protection promised by health and safety regulation. Even when this protection is available, it is likely to be much less effective for children since the measures are usually designed for adult, and not child, workers (ILO, 1998; Fassa et al, 2000). Hence, safety devices and clothing may not be usable by children and permissible exposure limits are usually established for adults and may not be appropriate for children.

Given their physiological and psychological immaturity and the biological process of growth, children may be more vulnerable than adults to abuse and to given health risks. Children are more prone to injury through accidents and have been found to be more sensitive to noise, heat, lead and silica toxicity, and ionising radiation (Bequele and Myers, 1995; Forastieri, 1997; ILO, 1998; Fassa et al, 2000; and Woodhead, 2004). Working long hours also takes a greater

5 This review builds on Owen O'Donnell O., Rosati F.C., and van Doorslaer E. (2002). Child labour and health: Evidence and research issues, Understanding Children's Work (UCW) Project working paper.

physical toll on children. Tired children may be at greater risk of contracting disease and have less strength to combat them.

While many of the health risks children in child labour are exposed to threaten immediate damage to health, others are likely to develop over many years and might only become manifest in adulthood. Exposures to pesticides, chemicals, dusts and carcinogenic agents in agriculture, mining and quarrying and manufacturing increase the risks of developing bronchial complaints, cancers and a wide variety of diseases (Forastieri, 1997; ILO, 1998; Fassa et al, 2000). Ergonomic factors such as heavy lifting and poor posture raise the chances of musculoskeletal problems developing in later life (Forastieri, 1997; ILO, 1998; Fassa et al, 2000). Individuals who have worked as a child are at particular risk of developing chronic health problems not only because they are exposed to risk factors for longer periods but because the biological process of rapid cell growth reduces the latency period of some diseases (Fassa et al, 2000).

For the obvious reason of the strenuous data requirements, empirical examination of the long-term health consequences of child labour is limited. One small-scale study following children over a 17 year period in a rural region of India finds that children who work in agriculture, small-scale industry and services grow up shorter and lighter than those who attend school (Satyanararayanan et al, 1986). Two larger-scale studies based on different Brazilian data sets provide further support for a negative impact of child labour on health in adulthood (Kassouf et al, 2001; Guiffrida et al, 2001). Kassouf et al use a cross-section of adults living in both urban and rural settings in north-east and south-east Brazil to examine the correlation between participation in work as a child and self-reported health in adulthood. Simple bivariate analysis reveals that the probability of reporting less than good health in adulthood rises as the age of entry into the labour force falls, although the correlation attenuates with increasing current age.

Guiffrida et al employ a nationally representative cross-section survey of 18-60 year old Brazilian adults. After controlling for age, education, (latent) wealth, housing conditions, unemployment status and race, entry to the labour force at or below the age of 9 has a statistically significant and substantial negative effect on (latent) health in adulthood.[6] Given the inclusion of so many control variables, this result provides even stronger support for a direct effect of child labour on adult health.[7] The magnitude of the effect for women is roughly twice that for men. On average, a 40-year-old woman who started work at or below 9 years of age is estimated to have the health status of a 45-year-old woman who did not work before the age of nine.

Straub and Rosati (2004) offer more solid evidence on the long-term effects of child labour. By using retrospective information about the age of entry into the labour market, they analyze the effects of child labour on adult health. The estimates are based on a sample of siblings for Guatemala, helping to deal with the role of unobservables. They show that adult health is significantly and negatively affected by having worked as a child.

6 Guiffrida et al (2001) estimate a latent variable structural equations model (SEM). That is health status, wealth, health care access are all treated as latent (unobservable) variables, measured, with error, by observable proxy variables. Variations in all three latent variables, plus health care utilisation, are estimated simultaneously with health status specified as a function of (latent) wealth, plus exogenous variables, wealth a function of exogenous variables, health care access a function of health status and wealth and health care utilisation a function of health status, wealth and access. Identification is through exclusion restrictions, normalisations and restrictions on the variance-covariance matrix. Health status is proxied by self-assessed health, chronic conditions and limited activity.

7 Child labour is not a central focus of Guiffrida et al (2001) and no attempt is made to test for direct and indirect effects of child labour on health and to compare their magnitudes.

Numerous studies of adult workers point to a relationship between working hours and negative health outcomes. In 16 of 22 studies included in one recent review, overtime hours were associated with poorer perceived general health, increased injury rates, more illnesses or increased mortality. These patterns were more pronounced with very long work shifts or when 12-hour shifts were combined with work weeks greater than 40 hours (National Institute for Occupational Safety and Health, 2004). Other studies point to links between long working hours, negative psychological health outcomes, cardiovascular disease, diabetes and the likelihood of workplace accidents. There is also evidence of links between long hours and dangerous health behaviours such as smoking, and alcohol and drug abuse. Again, these effects were strongest when workweeks exceeded 48-50 hours (Beswick and White, 2003).

These studies of adult workers follow a variety of methodologies and rely on a number of different health indicators. Most, however, are based on relatively small sample sizes and target a very specific sector or segment of the adult working population. As such, they are ill-suited to drawing more general conclusions concerning links between working hours and health. At any rate, conclusions relating to adult workers are unlikely to be applicable to child workers, as children are not, of course, simply "little adults". The many differences between children and adults in terms of anatomy, physiology, and psychology may translate into children facing unique risk factors for occupational injuries and illnesses. The nature of child and adult work is also different, with children often concentrated in relatively more dangerous industries.[8]

Guarcello, Rosati and Lyon (2004) looked in detail at the relationship between children's weekly working hours and children's health outcomes, making use of household survey data from Bangladesh, Brazil, and Cambodia. The effect of work hours on health outcomes obviously depends on the nature of the work performed, and, for this reason, sector of work is also included in the analysis. The paper shows the important causal relationship between working hours, on one hand, and children's health and safety, on the other. The results indicated that each additional weekly hour of work adds about 0.3 percentage points to the probability of suffering work-related ill-health in Cambodia, and about 0.1 percentage points to the probability of sustaining a work-related injury in Brazil. In both countries, kernel regressions also illustrated how the probability of work-related ill health rises with the length of a child's workweek.

Another recent review on the impact of child labour on health provides a summary of current evidence on the impacts of child labor on physical and mental health (Abdalla Ibrahim et al., 2018). They searched for studies from 1997 onwards that included participants aged 18 years or less, conducted in low- and middle-income countries and carried out using quantitative data.[9] The authors identified a total of 25 studies, the majority of which were cross-sectional. The study concludes by highlighting that child labor continues to be a major health challenge. It was found to be associated with a number of adverse health outcomes, including but not limited to poor growth, malnutrition, higher prevalence of infectious and system-specific diseases, behavioral and emotional disorders, and decreased coping efficacy.

8 More than being in relatively more dangerous activities, children could have lower ability to recognize and assess potential risks and make decisions about them. Moreover, adolescents may undertake tasks on the job to demonstrate their responsibility and independence accepting risks to which they are not ready. We thank Anaclaudia Gastal Fassa for raising this issue.

9 The study details in a table the characteristics of the 25 studies considered for the analysis.

2. Data sources and variable definitions

Data sources

The main source of data of this study is the Georgia National Child Labour survey (NCLS), conducted in 2015 by the National Statistics Office of Georgia (GEOSTAT) with the support of the International Labour organization (ILO). The survey, covering 7,700 households with children aged 5-17 years, was aimed at assessing the situation, scope, causes and consequences of child labour in Georgia. The survey collected information on children's economic activity, education, social status, living conditions, and, of most relevance for the present study, included a module relating to health and safety issues for working children aged 5-17 years.

Indicators of children's work-related injury and illness

The paper make use of two principal indicators of children's work-related injury and illness: **prevalence rate** and **incidence density**. Both are built on children's self-reported injuries and illnesses collected through the "Health and safety issues about working children" survey module. Specifically, the indicators are built using the following question: "Did you have any of the following in the past 12 months because of your work? 1. Superficial injuries or open wounds; 2. Fractures; 3. Dislocations, sprains or stains; 4. Burns, corrosions, scalds or frostbite; 5. Breathing problems; 6. Eye problems; 7. Skin problems; 8. Stomach problems / diarrhea; 9. Fever; 10. Extreme fatigue; 11. Other (specify).

The prevalence rate is defined as the number of working children suffering from injury or illness divided the number of working children. The calculation of this indicator is straightforward, but we have to underline that the reference periods for work and injury do not coincide. Information on injuries were collected using a recall period of 12 months, while the recall period for work used to build the employment indicator was the week preceding the survey, necessitating the assumption that a child had been working (and so exposed to risk of hazard) during the past 12 months. The prevalence rate does *not take into consideration that differences in observed occurrence can be due to differences in the time of exposure*.

The standard incidence density rate is computed as follows:

$$\textit{Incidence density rate} = \frac{\textit{no. of children injured during a specified period of time (T)}}{\textit{total person time}} \quad (1)$$

where "total person time" is the total hours worked during a specified period of time (i.e., the cumulated exposure for all children considered). The total person time is calculated by multiplying weekly working hours by the number of weeks in a month (i.e., 4.3) to obtain monthly working hours, and then by multiplying monthly working hours by the number of months worked per year. We must assume, however, constant weekly hours of work, because information on working hours was only collected with reference to a one-*week* period.

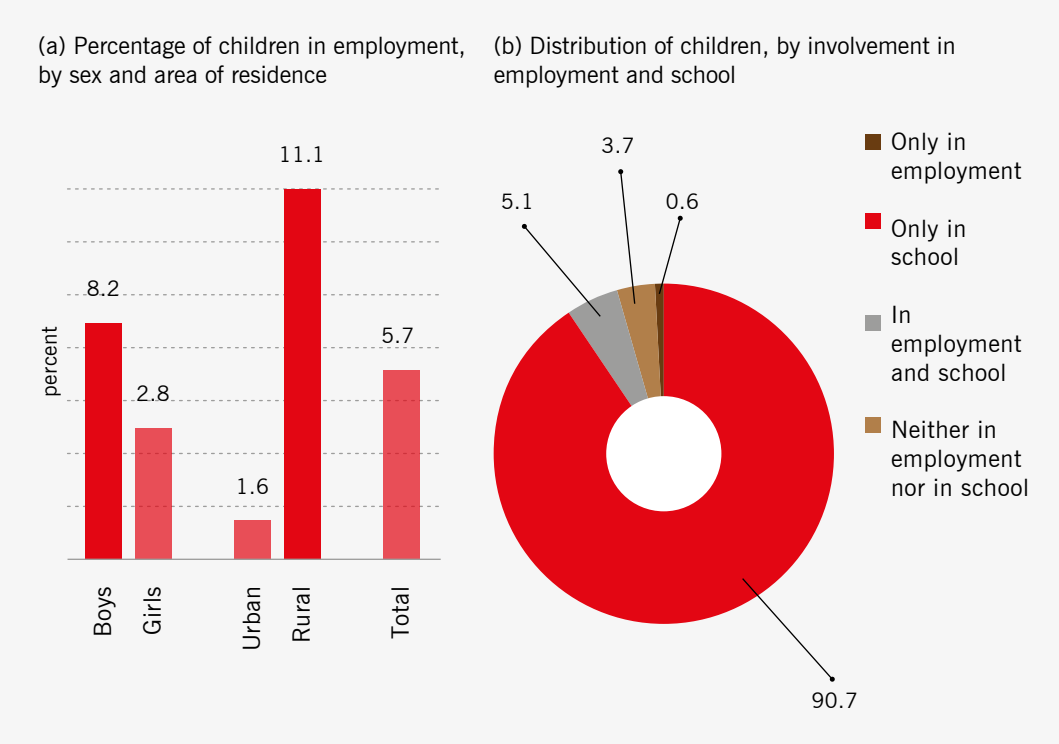
The other indicators used in the report are defined as follows. In keeping with international statistical standards, *children in employment* are defined as children involved in economic activity during the last seven days within or outside the family, paid or unpaid, for the market or not, including the production of goods for own use. The indicator of children's employment is constructed on the basis of answers provided by children.*Working hours* are defined as the average number of hours worked during the last seven days. *Sectors of employment* are defined on the basis of the International Standard Industrial Classification of All Economic Activities (ISIC)(Rev. 4), i.e., agriculture, commerce, manufacturing, services, as well as a residual "other" category made up of remaining sectors.[10] The *list of occupations* follows the International Standard Classification of Occupations (ISCO), which categorizes jobs into clearly defined groups according to the tasks and duties undertaken in the job. Finally, *status in employment*, distinguishes among wage and salaried workers (also known as employees), self-employed workers, and contributing family workers (also known as unpaid family workers).

10 The category "Other sector" includes water supply, transport, hotel and restaurant and other services non-elsewhere classified.

3. Children's involvement in employment

About 6 percent of all children aged 5-17 years – 33,700 children in absolute terms – are in employment in Georgia. This overall estimate masks important differences in employment by sex and residence. In short, as reported in Figure 1a, children's employment is higher for boys (8 percent) than girls (3 percent) and much higher for children living in rural areas (11 percent) than for their peers living in cities and towns (about 2 percent). As expected, involvement in employment also rises sharply with age, from less than 1 percent at age 5 to 15 percent at age 17 (not shown). Most of those in employment are also continuing with their education. As reported in Figure 1b, 5 percent of all children combine school and employment while less than 1 percent work without also attending school. But by far the largest share of children aged 5-17 years – 91 percent – are full-time students. Remaining children, accounting for 4 percent of total children aged 5-17 years, are neither in employment nor in school.

Figure 1. About 6 percent of all children aged 5-17 years are in employment

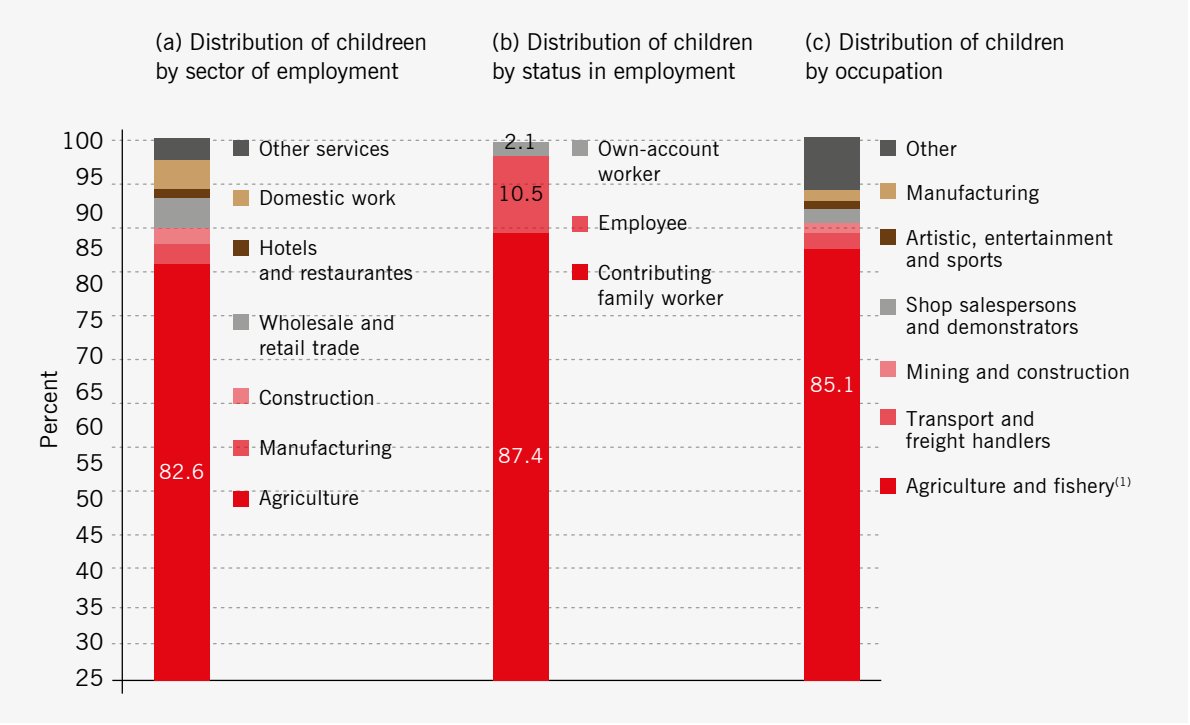


Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

The agricultural sector accounts for the bulk of children's employment in Georgia. As reported in Figure 2a, 83 percent of all children in employment are in the agriculture sector. The predominance of agriculture is a particular concern in light of the fact that this sector is one of the 3 most dangerous in which to work at any age, along with construction and mining, in terms of work-related fatalities, non-fatal accidents and occupational diseases.[11] Commerce and domestic work are a distant second in terms of importance (each accounting for 4 percent of children in employment), followed by manufacturing (3 percent), construction (2.5 percent) and hotels and restaurants (1 percent). Again, these overall estimates disguise slight variations by sex and residence, as reported in Table A2 in the Annex.

In terms of status in employment, the largest share of children are unpaid family workers (87 percent) followed by children working as paid employee (11 percent). Only a small share of children – 2 percent – work as own account workers (Figure 2b). The breakdown of children in employment by occupation is reported in Figure 2c to provide a picture of the type of occupations assigned to children. The majority of working children work in agriculture, fishery and related activities (85 percent), followed by mining and construction (about 2 percent) and services, working as "shop salesperson and demonstrators" (about 2 percent). A much lower percentage of children – around 1 percent – is found in manufacturing and in the artistic, entertainment occupational categories (Figure 2c).

Figure 2. Children in employment are concentrated in family-based agriculture



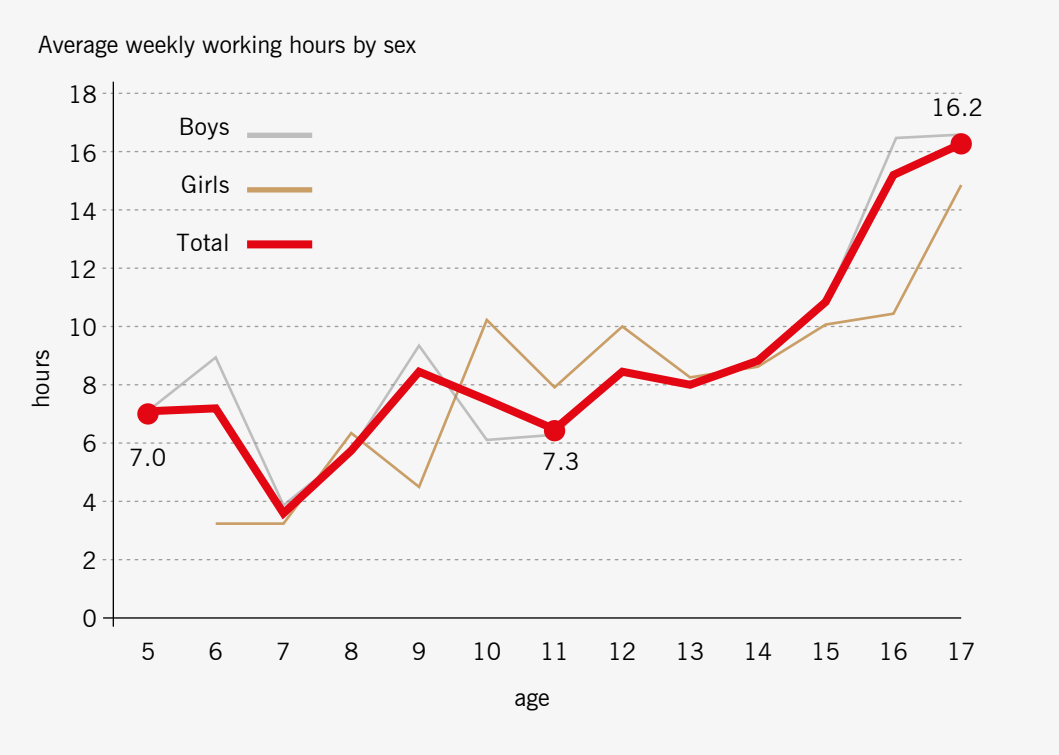
Notes: (1) Includes related activities.

Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

11 For further details, please visit the "Child labour in agriculture" section of the ILO-IPEC website: www.ilo.org/ipec/areas/Agriculture/lang--en/index.htm.

Working hours are important for the purposes of the present study because that reflect the degree of children's exposure to any eventual risks to their health in their workplaces. Children aged 5-17 years in employment log an average of 11 working hours per week (Annex Table A3). Working hours rise with age; children aged 10 years work for 7 hours per week, and average working hours increase to more than 16 for children aged 17 years (Figure 3). Longer hours also mean more exposure to any hazards present in children's workplaces.

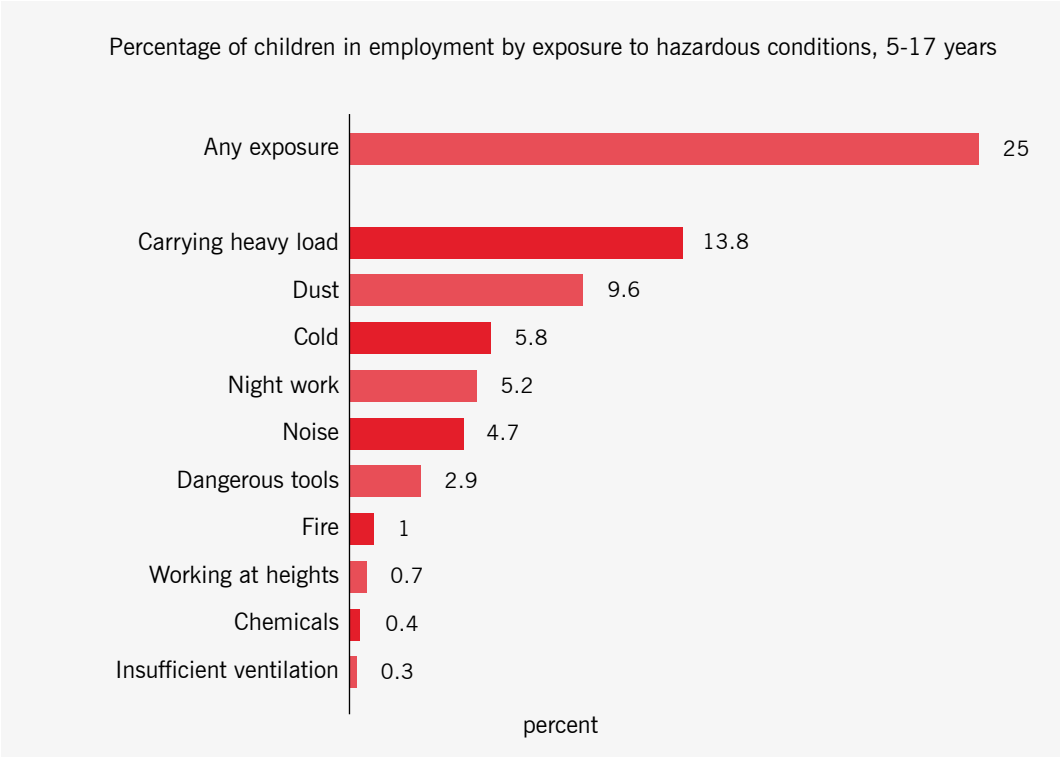
Figure 3. Children's average weekly working hours rises with age



Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

The survey collected also information on exposure to hazardous conditions. As reported in Figure 4, over one-fourth of all children in employment are exposed to hazardous conditions in the workplace. Carrying heavy loads and exposure to dust are by far the most common hazards, experienced by 14 percent and 10 percent, respectively, of all those in employment. Other common hazards include working in extreme cold (6 percent) and working during the night (5 percent), among others (Figure 4). These hazards are not of course necessarily mutually exclusive. Indeed, 10 percent of all working children experience at least 2 workplace hazards, and 4 percent experience 3 or more.

Figure 4. About 60 percent of all children in employment are exposed to some form of workplace hazard



Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

4.Children's work-related injury and illness

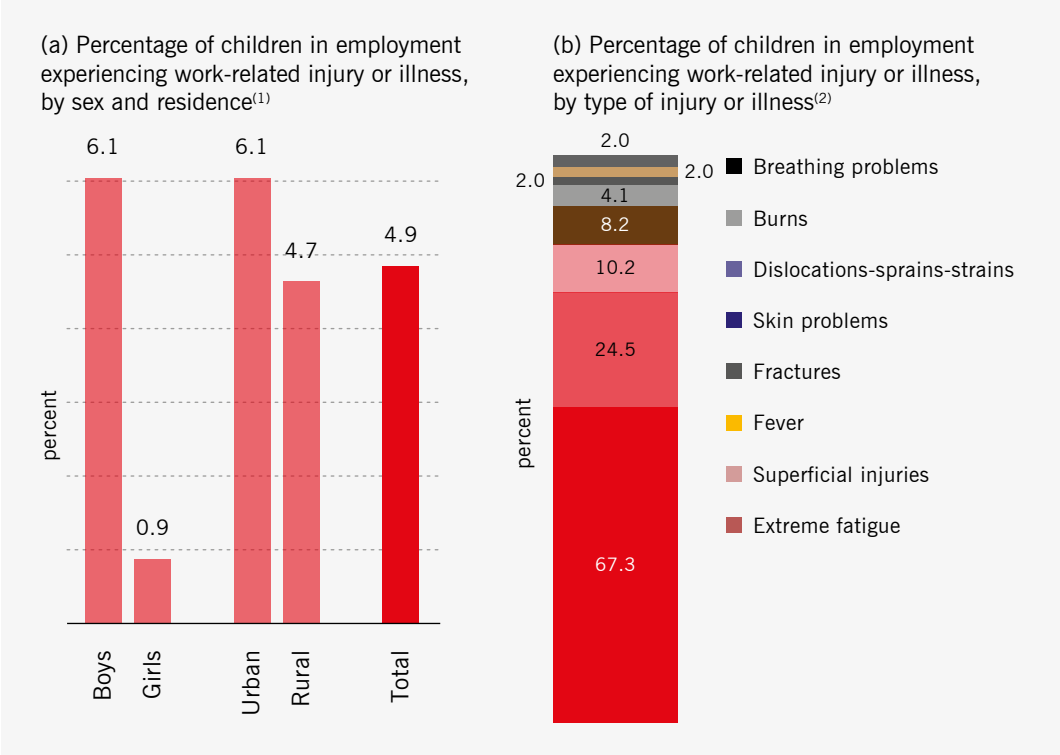
We now turn to evidence from the National Child Labour Survey on the impact of children's employment on their health, making use of the two broad indicators discussed earlier: the prevalence rate and the incidence density rate. The prevalence rate indicates how widespread the phenomenon is, while the incidence density conveys information about the risk of being injured or falling ill faced by working children. Taken together, the two indicators offer an as complete as possible picture within the limits of the NCLS 2015 dataset of work-related illness and injury experienced by children.

Prevalence of work-related injury and illness

The Georgia NCLS 2015 survey collected information on work-related health problems experienced by children aged 5-17-years through the module on health and safety issues. This survey module includes questions on injuries and ill-health due to work within a recall period of 1 year (*during the last 12 months*).

Nearly 5 percent of all children in employment experienced some form of work-related illness or injury during the 12-month recall period (Figure 5a). There were large differences in the prevalence of health problems by sex: work-related health problems affected 6 percent of boys against 1 percent of girls. Differences by residence, however, were less pronounced. The results of a regression analysis controlling for possible confounding background factors support these estimates (Table A4 and Table A5 in the Annex). The regression results underscore in particular the significance of the high risk faced by working boys.

Figure 5. About 5 percent of all children in employment experienced at least one episode of work-related injury or illness during the 12 months prior to the NCLS 2015 survey



Notes: (1) Occurrence of work-related injury for girls have to be read with caution becouse of the low number of reported cases. (2) The sum is greater than 100 because individual children can experience multiple work-related injuries or illnesses.

Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

The specific type of injuries experienced by working children are reported in Figure 5b. Over 67 percent of children reporting episodes of work-related injury or illness experienced extreme fatigue, followed by superficial injuries (24 percent), fever (10 percent) and fractures (8 percent). Most of those experiencing work-related health problems actually suffered from more than 1, thus adding to the total adverse health impact of their work.

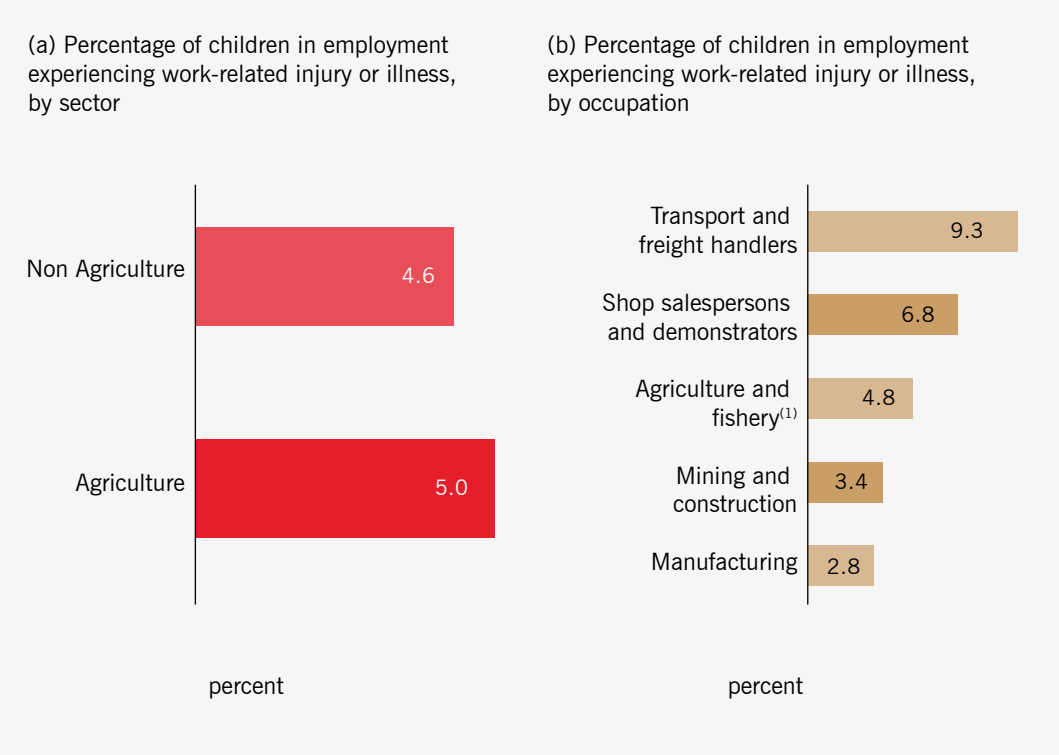
Two important caveats should be kept in mind in interpreting these results. First, they relate only to children who were working at the time of the survey, and not to possible additional children who were forced to stop working because of work-related injuries or illnesses sustained prior to survey date. Second, critically, *not* reflected in these figures is the *severity* of the illnesses or injuries caused by work, information that is also essential to understanding the degree to which work compromises children's health.

Work-related illness and injury by type of work

As the majority of children work in agriculture and few observations are available on reported work-related illness or injury for the other sectors of employment, it was not possible to disaggregate children's reported injuries by the sectors of employment. For this reason, the percentage of children experiencing work-related ill-health is presented for children working in the agriculture sector and in non-agricultural sectors. As reported in Figure 6a, the prevalence

of work-related ill-health differs little between working in and those working outside the agricultural sector.

Figure 6. The share of working children experiencing injury or illness relating to their work varies considerably across sectors and occupations



Note: (1) including related activities.

Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

The health consequences of children's work appear to depend more on the occupation or tasks assigned to working children. As reported in Figure 6b, prevalence of work-related ill-health varies from 9 percent for children working as transporters to around 3 percent for those working in manufacturing.

Work-related illness and injury by exposure to hazardous conditions

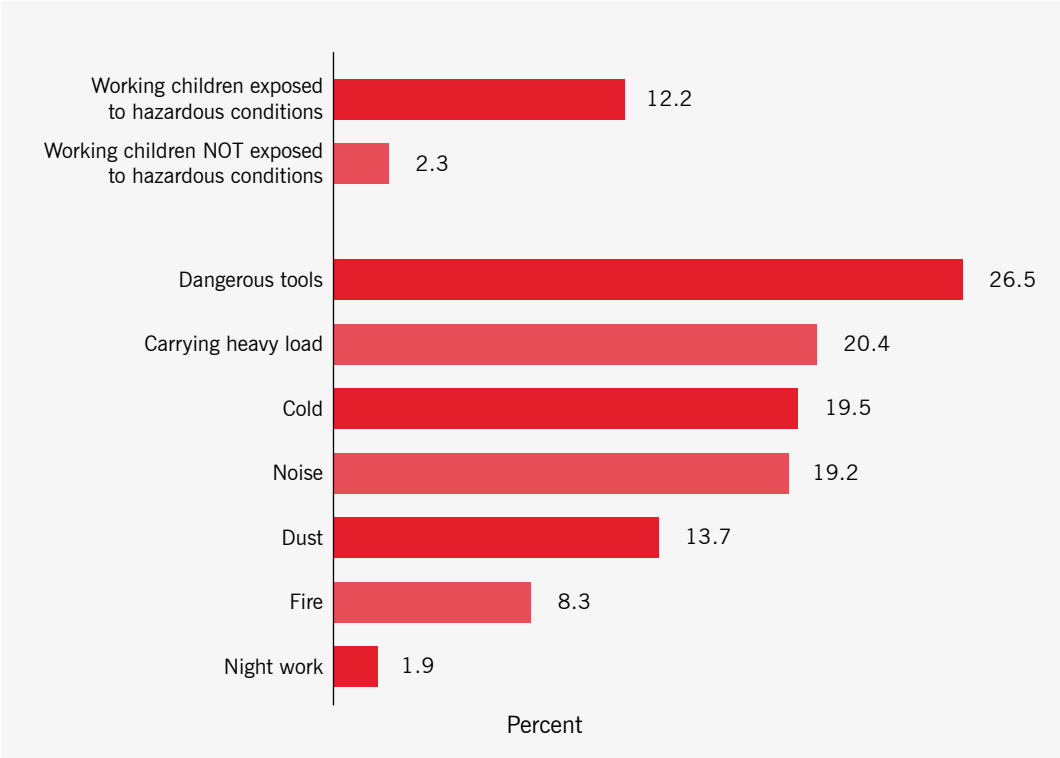
The analysis of the health impact of exposure to hazardous *conditions* in the workplace offers another lens through which to view the health risks of children's work. Children's exposure to hazardous conditions in the workplace correlates even more closely to work-related health problems. As reported in Figure 7, health problems among working children exposed to hazardous conditions is about 6 times higher than for those not exposed to any hazardous conditions (12 percent versus 2 percent).

Figure 7 also reports the prevalence of work-related health problems associated with exposure to specific workplace hazards. Workplaces where children are exposed to or use dangerous tools are associated with the highest prevalence of work-related health problems. About 27 percent

of working children using dangerous tools suffer from work-related illness or injury. Prevalence of work-related health problems is next highest for children having to having to carry heavy loads (20 percent), followed by those exposed to extreme cold (about 20 percent), noise (19 percent) and dust (14 percent). Children can of course be exposed to more than one type of hazard, increasing the probability of suffering of work-related illness or injury.

Using a regression analysis to control of possible confounding background factors, heavy loads, exposure to extreme cold and exposure to dust emerge as particularly significant risks to children's health in the workplace (Table A4 and Table A5).

Figure 7. Percentage of children in employment experiencing work-related health problems, by exposure to hazardous conditions, 5–17 years



Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

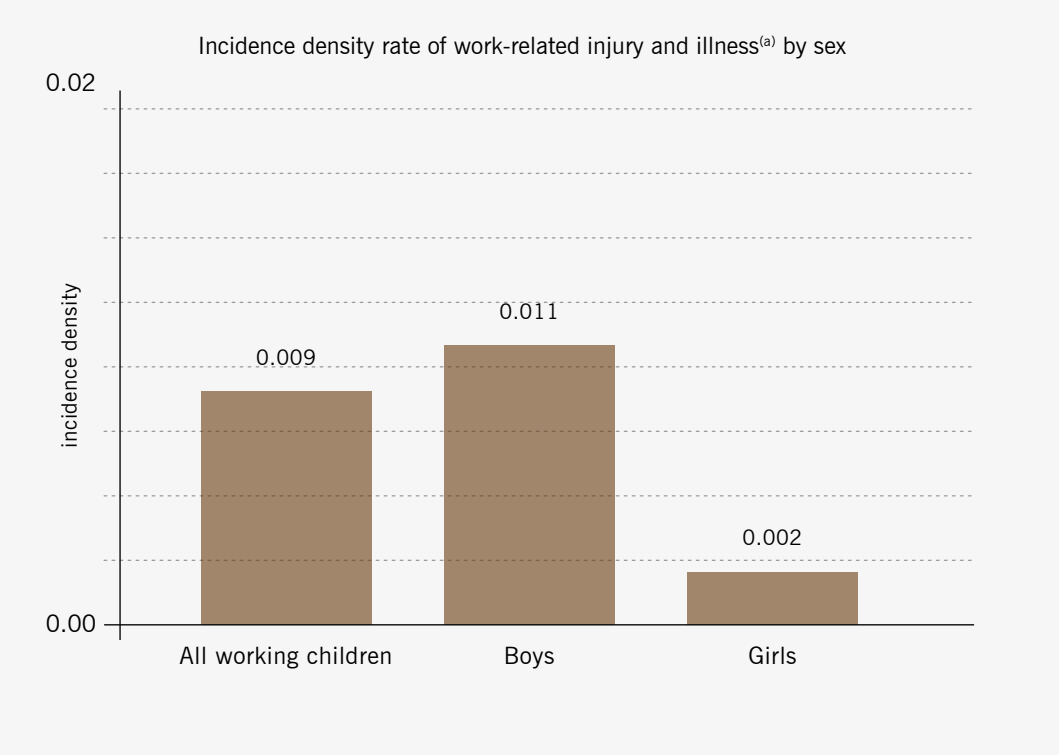
It should be stressed that this does *not* necessarily mean that the children who remain healthy are immune to the effects of the hazardous conditions, as it is possible, indeed, even probable, that health problems will emerge in the future with further exposure to the hazardous conditions. It should also be recalled that we capture only children who are *currently* working, and not children who have had to stop working as a result of health problems relating to the hazardous conditions they faced in the workplace.

Incidence density rate and relative risk

The incidence density rate provides an indication of the relative risk of work-related illness or injury faced by working children. Unlike the simple estimates of incidence rates presented above, the incidence density accounts for the possibility that observed differences in incidence can be due to differences in the time of exposure.[12]

Figure 8 reports the incidence density rates for work-related ill-health by gender. As shown, boys face a higher risk of injury or illness at work than girls.

Figure 8. The risk of work-related injury or illness is highest for boys than for girls



Notes: (a) We report the incidence density rate multiplied by 100; results for girls have to be read with caution du to the limited number of observations of reported injuries among working girls.

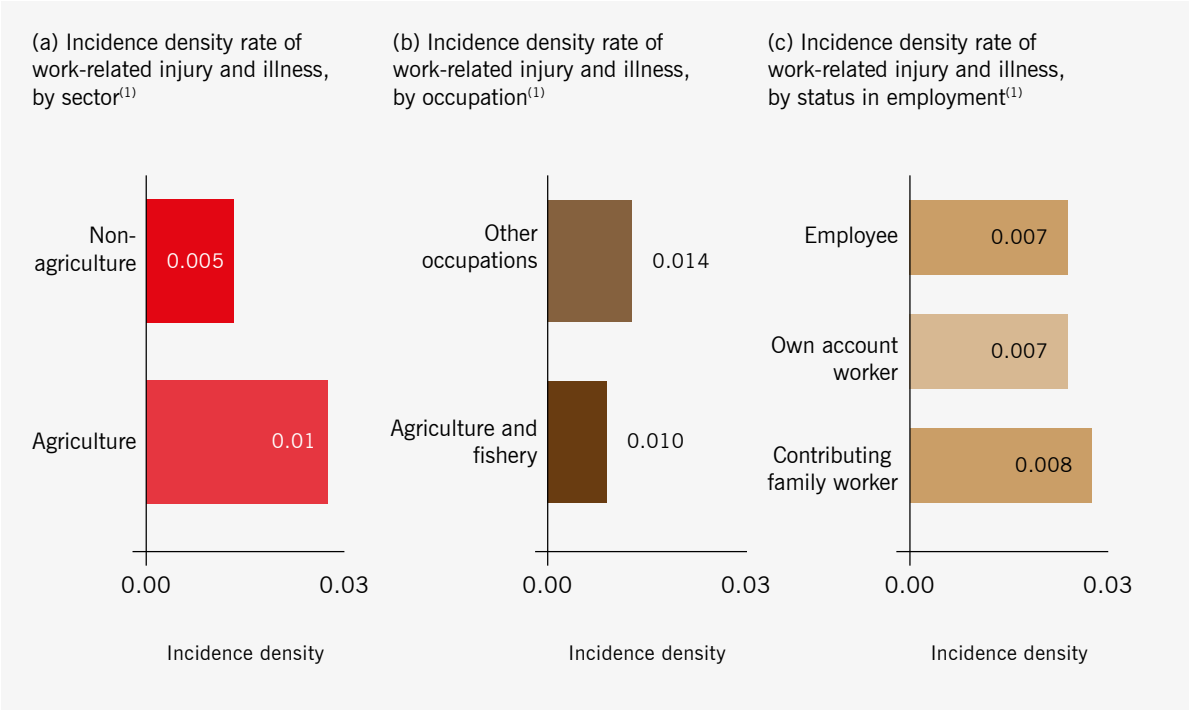
Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

The incidence density indicator allows us also to compare the health risks faced by children working in different sectors, occupations and status categories. As reported in Figure 9a, children working in agriculture face a much higher risk than those working in other non-agricultural sectors (Figure 9a). Variations in health risk faced by children in different occupational and status categories are smaller (Figure 9b and 9c); children working in agriculture and fishery face a lower risk than those in other occupations,[13] while work as a contributing family worker is associated with greater risk than work in other status categories.

12 In other words, the incidence density controls for the possibility that a larger share of children experience work-related health problems in a hypothetical sector A than from work in a hypothetical sector B not because sector A is inherently more dangerous or unhealthy, but rather because children in sector A work on average for longer hours.

13 The category "other occupations" includes children working as Shop, stall and market salespersons and demonstrators, Mining and construction labourers, Manufacturing labourers, and Transport labourers and freight handlers.

Figure 9. The risk of work-related injury or illness varies considerably across different work sectors, occupations and work arrangements



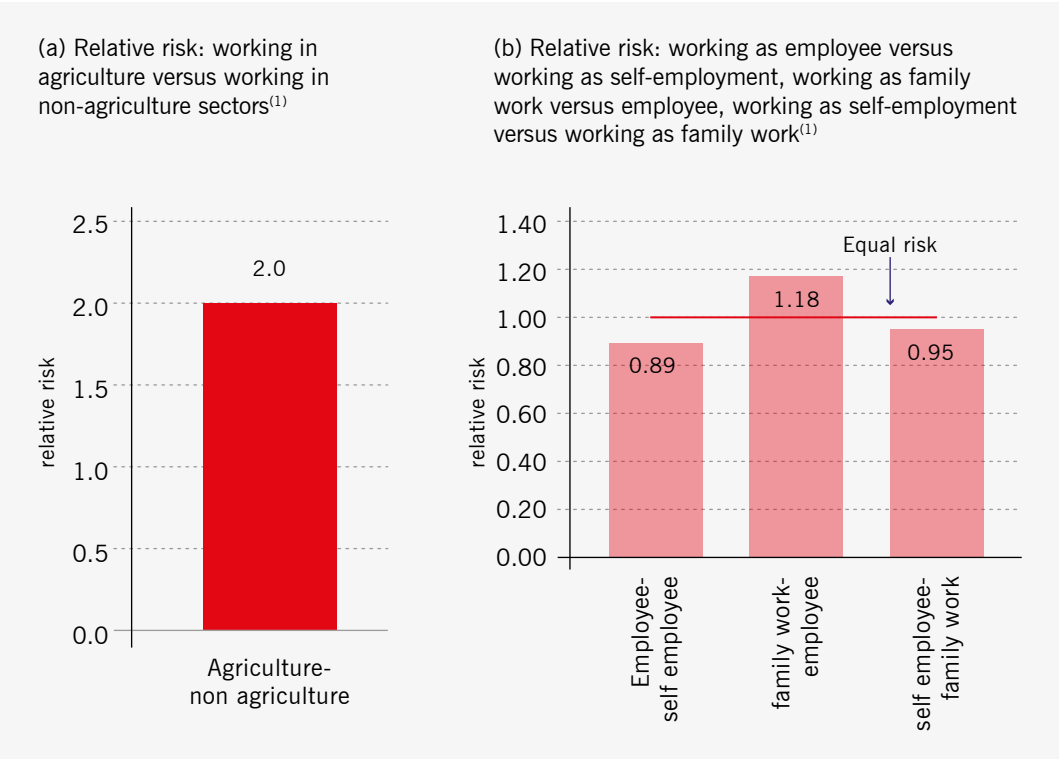
Notes: (1) We report the incidence density rate multiplied by 100.

Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

Simple values of relative risk, calculated by dividing the incidence density rate of injury or illness in one sector (or status category) with that of another sector (or status category), offer another means of illustrating these differences in health risks faced by children in different types of work.14 These relative risk values are reported in Figure 10.

14 A value of greater than one indicates that the health risk associated with work in the first sector (or status category) is greater than the risk associated with work in the second sector (or modality).

Figure 10. An index of relative risk underscores the large differences in risk associated with children's work in different sectors and work arrangements



Notes: (1) Relative risk is calculated as the incidence density of work-related ill-health of the first sector (or modality) divided by the incidence density of the second sector (or modality). A value of greater than one, therefore, indicates that the health risk associated with work in the first sector (or modality) is greater than the risk associated with work in the second sector (or modality).

Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

5. Discussion

The statistics from the National Child Labour Survey make clear that children's work in Georgia is often associated with adverse health consequences. Nearly 5 percent of all working children experienced some form of work-related ill-health during the 12-month period prior to the survey, and a third of them experienced multiple episodes of injury or illness due to work. Moreover, these prevalence rates understate the total extent of work-related health problems, because they do not capture children whose work-related ill-health meant they were unable to work at the time of the survey and nor do they reflect possible long-term health consequences associated with work during childhood. Incidence density values, which also take into account total time of exposure, underscore that the health risk posed by children's work is by no means homogeneous. Children in agriculture appear to face a higher risk of work-related health problems than those working in other industries. Children working within their own family units are slightly more likely to experience health problems than their peers who are self-employed or who work as employees.

These results provide a valuable initial indication of where in the economy the health risk posed by children's work is greatest, and a useful starting point for country efforts towards a national list of hazardous work. But large knowledge gaps persist, underscoring the importance of further research in area of children's work and health in the country to guide policy formulation.

Of particular importance, information from 2015 National Child Labour Survey only permitted an analysis of the health impact of children's work in different sectors and occupations at a broad level of classification, which is insufficient for pinpointing the health risks associated with the specific work tasks and work arrangements of children. Specialized surveys are needed that allow meaningful conclusions to be drawn concerning the relative health risk of work decomposed at more detailed, 2-, 3- and 4-digit levels of classification. This is especially the case for the agriculture sector, where working children in Georgia are overwhelmingly concentrated. In addition, the NCLS 2015 did not permit insight into the severity of health problems due to work or into the impact of more prolonged exposure to work, information that is at least as important as prevalence, and that also needs to be addressed in a specialized survey.

Further research should fully exploit the extensive body of evidence on work-related health risks of different types of work contained in the ILO Encyclopaedia of Occupational Health and Safety

(OSH).[15] The Encyclopaedia does not specifically relate to children's work, but children are the group most susceptible to the occupational health and safety risks identified in it. Specialized surveys that generate more detailed information about the specific sectors where children are found working could be matched with the extant information in the Encyclopaedia on the health consequences of work in these sectors as an additional means of gaining understanding of the health risks of children's work.

15 See, ILO Encyclopaedia of Occupational Health and Safety (OSH) at www.iloencyclopaedia.org/.

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Annex: Additional statistics

Descriptive statistics

Table A1. Children's employment and schooling, 5-17 years

Sex and residence		(a) Only in employment	(b) Only in school	(c) In employment and school	(d) Neither in employment nor in school	(a)&(c) Total in employment	(b)&(c) Total in school	(a)&(d) Total out-of-school
Sex	Boys	0.9	87.9	7.2	3.9	8.2	95.1	4.9
	Girls	0.2	93.8	2.6	3.4	2.8	96.4	3.6
Residence	Urban	0.3	96.2	1.2	2.2	1.6	97.4	2.6
	Rural	0.9	83.3	10.2	5.6	11.1	93.4	6.6
Total		**0.6**	**90.7**	**5.1**	**3.7**	**5.7**	**95.7**	**4.3**

Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

Table A2. Children's employment by activity sector, sex and area of residence, 5-17 years

Sector of employment	Sex		Residence		Total
	Boys	Girls	Urban	Rural	
Agriculture	82.5	83.0	49.4	88.8	82.6
Manufacturing	3.4	0.5	7.5	1.9	2.7
Construction	3.3	0.0	5.6	1.9	2.5
Wholesale and retail	3.9	4.8	14.0	2.2	4.1
Hotels and restaurant	0.6	3.2	6.2	0.3	1.2
Domestic worker	4.0	3.2	3.0	4.0	3.8
Other services	2.4	5.3	14.4	1.0	3.1
Total	**100**	**100**	**100**	**100**	**100**

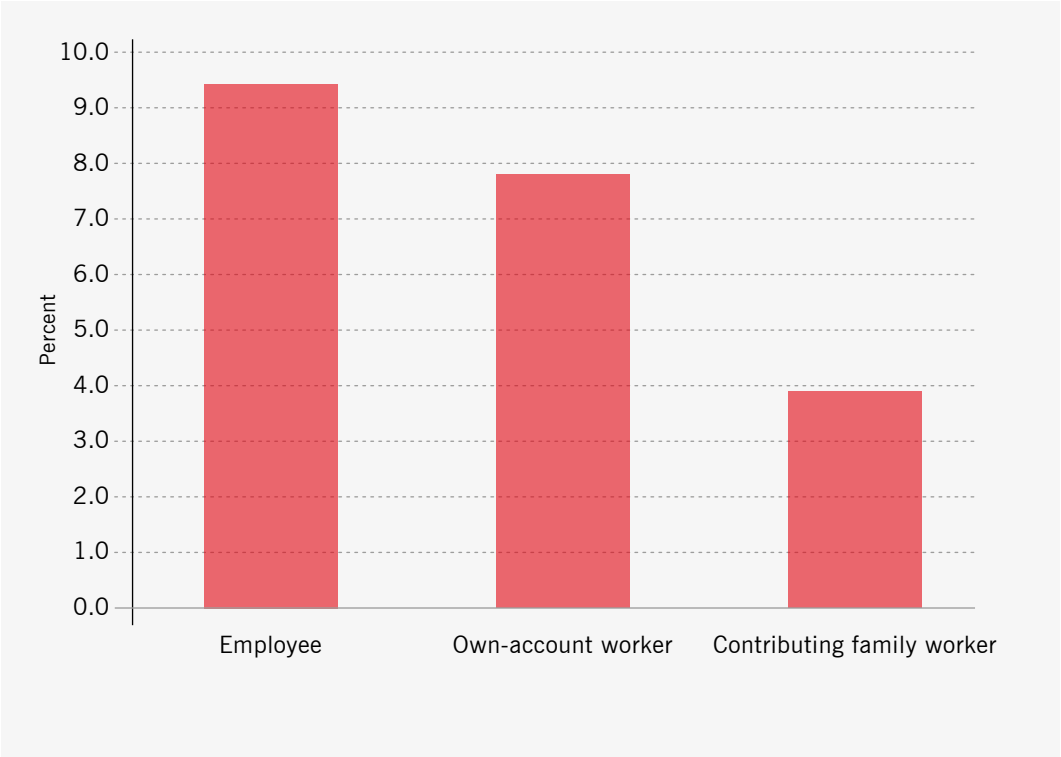
Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

Table A3. Average weekly working hours, by sex and area of residence

Sex	Urban	Rural	Total
Boys	14.3	11.1	11.6
Girls	14.7	8.9	9.9
Total	**14.4**	**10.6**	**11.2**

Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

Figure A1. Percentage of children in employment experiencing work-related injury or illness, by status in employment



Source: Calculations based on Georgia National Child Labour Survey (NCLS) 2015.

Regression analysis

Table A4. Regression analysis on experiencing any type of injuries - Marginal effects, children in employment, 5-17 years

	dy/dx	z
Age	-0.0488**	-2.92
Age square	0.0019**	2.75
Girls	-0.0497***	-4.38
Household size	-0.0011	-0.28
Education of the household head[(a)]		
Secondary education	-0.0314	-1.35
Higher education	-0.0331	-1.44
Log of household expenditure	0.0155	1.33
Area of residence: rural	-0.0200	-0.83
Weekly working hours	-0.0006	-1.11
Non-agricultural work	-0.0147	-0.68
Night work	-0.0447	-1.04
Carrying Heavy load	0.0700***	3.99
Dust	0.0292	1.91
Fire	0.0315	0.88
Noise	-0.0109	-0.38
Cold	0.0485*	2.35
Dangerous Tools	0.0411	1.15
N	969	

Note: reference categories. (a) Education of the household head: lower secondary or less.
t statistics in parentheses.
Significance level: * p<0.05; ** p<0.01; *** p<0.001.

Table A5. Logit estimation - Children in employment experiencing any type of injuries

	Coef.	z
age	-1.1836**	-2.88
age square	0.0451**	2.67
Girls	-2.0133*	-2.54
household size	-0.0273	-0.28
Education of the household head[(a)]		
Secondary education	-0.6524	-1.48
Higher education	-0.6976	-1.54
Log of household expenditure	0.3751	1.35
Area of residence: rural	-0.4355	-0.93
Weekly working hours	-0.0152	-1.14
Non-agricultural work	-0.3886	-0.61
Night work	-1.0837	-1.05
Carrying Heavy load	1.6952***	4.33
Dust	0.7080	1.84
Fire	0.7631	0.88
Noise	-0.2645	-0.38
Cold	1.1748*	2.41
Tools	0.9959	1.15
_cons	2.8246	0.92
N	969	

Note: reference categories. (a) Education of the household head: lower secondary or less.
t statistics in parentheses.
Significance level: * p<0.05; ** p<0.01; *** p<0.001.

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ISBN 978-92-2-132736-3