

UNDERSTANDING TRENDS IN CHILD LABOUR

A joint ILO-UNICEF-The World Bank report

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Understanding Children's Work (UCW) Programme

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INTRODUCTION

1. Eliminating child labour is an important facet of the ILO's Decent Work Agenda and of broader ILO efforts to address inequality. It is also directly linked to achieving the wider goals articulated in the G20 Labour and Employment Ministerial Declaration of September 2014 (Melbourne), including creating quality jobs, promoting youth employment, addressing informality and creating safer workplaces.¹ Child labour not only undermines the basic rights of children to be able to acquiring the skills and education they need for a better future, it also perpetuates poverty and inequality and it inhibits national economies through losses in competitiveness, productivity, and income. In addition, withdrawing children from child labour, providing them with education, and assisting their families with training and employment opportunities contributes directly to creating decent work for adults and youth of legal working age.

2. The international community, through Target 8.7 of the Sustainable Development Goals (SDGs), has committed to ending child labour in all its forms by 2025. Honouring this commitment will require detailed information about the forces driving changes in child labour in recent decades. In particular, it will require a better understanding of the role of policy *vis-à-vis* demographic trends, of broader changes in economic conditions, and of other forces beyond the realm of child labour policy that have influenced recent changes in child labour.

3. This report is aimed at helping to explain the recent trends in child labour. It is designed to provide constituents with robust evidence concerning *whether* child labour policies have been significant, and, if so, *which* policy approaches have been most relevant and effective to date and have the greatest potential for accelerating progress moving forward. Research results will help inform the deliberations of the Global Conference on Child Labour to be held in Argentina in 2017.

4. Addressing the reasons for the observed trends in child labour presents a number of challenges. First, the data requirements for establishing a *causal* link between child labour policies and outcomes are stringent and are met only in a small group of countries. Secondly, fully addressing the research questions also requires reliable evidence concerning policy *impact*, information that is available for only a limited set of policy interventions implemented in specific settings. Thirdly, a complete explanation of child labour trends requires extending the analysis to include difficult-to-quantify policy areas such as advocacy, social mobilization, legislation, and regulation, which are often beyond the reach of empirical research methods.

5. In response to these challenges, this report employs two separate research approaches, which together are designed to provide the most complete and robust evidence possible when it comes to the factors driving child labour trends. Chapter 1 first provides a *cross-country* analysis of correlations

¹*Preventing structural unemployment, creating better jobs and boosting participation*, G20 Labour and Employment Ministerial Declaration Melbourne, 10-11 September 2014, (http://www.ilo.org/global/about-the-ilo/how-the-ilo-works/multilateral-system/g20/WCMS_307551/lang--en/index.htm).

between a set of explanatory factors and observed child labour trends. This is followed in Chapter 2 by a more rigorous *within*-country causal analysis of the determinants of trends in child labour and schooling for two countries, Brazil and Mexico. Chapter 3 concludes.

6. The evidence presented here highlights the importance of an active policy response in explaining child labour trends. Progress against child labour, in other words, did not happen by itself – only a limited share of progress appears attributable to structural factors not directly relating to policy. On the contrary, much of the decline we have witnessed in recent years appears to be traceable to active policy efforts to extend and improve schooling, to extend social protection floors, to expand basic services, and to establish adequate legal frameworks against child labour. There is also a lot that is still not known about the factors driving child labour trends, even in countries such as Brazil and Mexico with rich data, pointing to the need for further research to guide efforts in the lead-up to the 2025 target date for ending all forms of child labour.

CHAPTER 1. DATA AND DEFINITIONS

1.1. Data sources

7. This report makes use of two separate sets of data, in accordance with the two different research approaches employed and the unique data requirements of each. Chapter 3, the cross-country analysis, makes use of data from nationally representative household surveys from a total of 43 countries, while Chapter 4, the within-country analysis, makes use of repeated cross-sections for Brazil and Mexico. The data used in each chapter are described below.

8. As reported in Table 1, the data sources for Chapter 3 include national child labour surveys undertaken as part of the ILO Statistical Information and Monitoring Programme on Child Labour (SIMPOC), the Demographic and Health (DHS) survey programme, the UNICEF Multiple Indicator Cluster (MICS) survey programme, and the World Bank Living Standards Measurement (LSMS) survey programme. Sources also include a range of national labour force surveys. The reference years for the surveys range from 2000 to 2015.

Table 1. Data sources and reference years for country statistics

Country	Survey name	Survey reference years
1. Belarus	Multiple Indicator Cluster Survey (MICS) 3, 4	2005, 2012
2. Benin	<i>Enquête Démographique et de Santé du Bénin III, IV</i>	2006, 2011
3. Bolivia	<i>Encuesta Continua de Hogares (ECH)</i>	2000, 2005, 2013
4. Brazil	<i>Pesquisa Nacional por Amostra de Domicílios (PNAD)</i>	2005, 2009, 2013, 2014
5. Burundi	Demographic and Health Survey (DHS)	2010
	Multiple Indicator Cluster Survey (MICS) 2, 3	2000, 2005
6. Cambodia	Socio-Economic Survey (SES)	2003, 2007, 2012
7. Chad	Multiple Indicator Cluster Survey (MICS) 2, 4	2000, 2010
	Demographic and Health Survey (DHS)	2004
8. Colombia	<i>Gran Encuesta Integrada de Hogares (GEIH)</i>	2007, 2013, 2014
9. Congo, Dem. Rep.	Multiple Indicator Cluster Survey (MICS) 2, 4	2001, 2010
	<i>Enquête Démographique et de Santé (EDS-RDC)</i>	2007
10. Congo, Rep.	<i>Deuxième Enquête Démographique et de Santé du Congo (EDSC-II)</i>	2011
	Demographic and Health Survey (DHS)	2005
11. Costa Rica	<i>Encuesta Nacional de Hogares (ENAHO)</i>	2011, 2013, 2014
	<i>Encuesta de Hogares de Propósitos Múltiples (EHPM)</i>	2001, 2006
12. Côte d'Ivoire	<i>Enquête Démographique et de Santé et à Indicateurs Multiples (EDS-MICS)</i>	2011
	Multiple Indicator Cluster Survey (MICS) 2, 3	2000, 2006
13. Dominican Republic	<i>Encuesta Nacional de Trabajo (ENFT)</i>	2012
	<i>Encuesta Nacional de Hogares de Propósitos Múltiples (ENHOGAR)</i>	2009, 2011
	<i>Encuesta Nacional de Fuerza de Trabajo (ENFT)</i>	2005
14. Ecuador	<i>Encuesta Nacional de Empleo, Desempleo y Subempleo (ENEMDU)</i>	2001, 2015
	<i>Encuesta Nacional de Trabajo Infantil (ENTI)</i>	2012
15. El Salvador	<i>Encuesta de Hogares de Propósitos Múltiples (EHPM)</i>	2001, 2007, 2013
16. Ghana	Ghana Living Standards Survey (GLSS)	2005, 2012
17. Guatemala	<i>Encuesta Nacional de Empleo e Ingreso (ENEI)</i>	2002, 2011, 2014, 2015
18. Haiti	<i>Enquête Mortalité, Morbidité et Utilisation des Services (EMMUS-V)</i>	2012
	Demographic and Health Survey (DHS)	2005
19. Honduras	<i>Encuesta Permanente de Hogares de Propósitos Múltiples (EPHPM)</i>	2003, 2007, 2013, 2014
20. India	National Sample Survey Round 55, 61, 66, 68	2000, 2005, 2010, 2012

Table 1.Cont'd

Country	Survey name	Survey reference years
21. Iraq	Multiple Indicator Cluster Survey (MICS) 2, 3, 4	2000, 2006, 2011
22. Jamaica	Multiple Indicator Cluster Survey (MICS) 3, 4	2005, 2011
23. Macedonia	Multiple Indicator Cluster Survey (MICS) 3, 4	2005, 2011
24. Mali	<i>Enquête Démographique et de Santé au Mali (EDSM)</i>	2001, 2006, 2012
25. Mauritania	Multiple Indicator Cluster Survey (MICS) 3, 4	2007, 2011
26. Mexico	<i>Encuesta Nacional de Ocupación y Empleo, Módulo de Actividades de Niños, Niñas y Adolescentes (MANNA)</i>	2013
	<i>Encuesta Nacional de Ocupación y Empleo, Modulo Trabajo Infantil (ENOE-MTI)</i>	2007, 2009, 2011
27. Mongolia	Labour Force Survey with Child Activities Module (LFS-NCLS)	2002, 2006, 2011
28. Namibia	Labour Force Survey (LFS)	2012, 2014
	Namibia Household Income and Expenditure Survey (NHIES)	2009
29. Nicaragua	<i>Encuesta Continua de Hogares (ECH)</i>	2012
	<i>Encuesta de Hogares para la Medición del Empleo (EHME)</i>	2007
	<i>Encuesta Nacional de Trabajo Infantil y de Adolescentes (ENTIA)</i>	2000
30. Niger	<i>Enquête Démographique et de Santé et à Indicateurs Multiples (EDSN-MICS IV)</i>	2012
	Demographic and Health Survey (DHS)	2006
	Multiple Indicator Cluster Survey (MICS) 2	2000
31. Nigeria	Multiple Indicator Cluster Survey (MICS) 3, 4	2007, 2011
32. Pakistan	Labour Force Survey (LFS)	2005, 2008, 2010
33. Panama	<i>Encuesta de Trabajo Infantil (ETI)</i>	2000, 2010, 2014
34. Paraguay	<i>Encuesta Permanente de Hogares (EPH)</i>	2004, 2009, 2014
35. Philippines	Survey on Children (SOC)	2011
	Labour Force Survey (LFS)	2001
36. Rwanda	Integrated Household Living Conditions Survey I, II, III	2001, 2005, 2010
37. Sierra Leone	Demographic and Health Survey (DHS)	2008, 2013
	Multiple Indicator Cluster Survey (MICS) 2	2000
38. Suriname	Multiple Indicator Cluster Survey (MICS) 3, 4	2006, 2010
39. Swaziland	Multiple Indicator Cluster Survey (MICS) 2, 4	2000, 2010
40. Togo	Multiple Indicator Cluster Survey (MICS) 2, 4	2000, 2010
	Demographic and Health Survey (DHS)	2014
41. Ukraine	Multiple Indicator Cluster Survey (MICS) 3, 4	2005, 2012
42. Tanzania, United Rep.	Integrated Labour Force Survey (ILFS)	2006, 2014
	Integrated Labour Force and Child Labour Survey (ILFS-CLS)	2001
43. Venezuela	<i>Encuesta de Hogares por Muestreo (2nd Semester) 2001, 2006, 2012, 2013</i>	2001, 2006, 2012, 2013

9. The 43 countries included in this report represent all those that have undertaken at least two nationally representative surveys with child labour information in the period since 2000. The absence from this list of many less-industrialised countries where child labour is present is testimony to the ongoing need for statistics on child labour and on the progress of efforts against it. As work intensifies towards the Sustainable Development Goal (SDG) of ending child labour in all its forms by 2025 (Target 8.7), filling this data gap will grow in importance.

10. Two important considerations should be kept in mind in comparing the child labour estimates across the 43 included countries. First and most obviously, the surveys relate to different years across the 2000-2015 period. In some countries, very recent (i.e., 2014 or 2015) data is available, while for others the most recent estimates are several years older. Second, while we have tried to use comparable surveys, at least within countries, some of the

survey instruments nonetheless employ different methodologies, limiting their comparability across time and countries.

11. Chapter 4 relies on longitudinal data from two principal survey programmes - the *Pesquisa Nacional por Amostra de Domicílios* (PNAD) for Brazil and the *Encuesta Nacional de Ocupación y Empleo* (ENOE) for Mexico. The Brazil PNAD survey, a national household survey conducted annually since 1981, investigates population characteristics including household composition, education, labour, income, and fertility.² The Mexico ENOE survey, also a long-running national household survey programme,³ is implemented every trimester, and collects information on demographic, economic, and occupational characteristics of individuals aged 12 and above.

1.2. Definition of child labour

12. The definition used in Chapter 3 for estimating child labour is based on international legal and measurement standards for child labour (see Panel 1) and the methodology utilized for the ILO global child labour estimates. In brief, child labour is defined as:

- (a) children aged 5-11 years engaged in any form of employment during the reference week;
- (b) children aged 12-14 years engaged in any form of employment during the reference week *except for* children engaged in employment that constitutes permissible light work. Permissible light work is in turn defined as any non-hazardous work by children in this age range of less than 14 hours during the reference week;⁴ and
- (c) children aged 15-17 years engaged in any form of hazardous work. Hazardous work is in turn defined as work in designated hazardous industries, work in designated hazardous occupations, work exceeding 40 hours per week, and work involving exposure to other hazardous conditions.⁵

The ILO methodology is presented in more detail in Annex 3 of this report.

² Note that the PNAD surveys from 1992 to 2003 do not cover the rural areas of the six Northern States (i.e., Rondônia, Acre, Amazonas, Roraima, Pará, and Amapá). We drop the years 1996 and 1997 from the sample as information on work among children younger than 10 years is not available in these years.

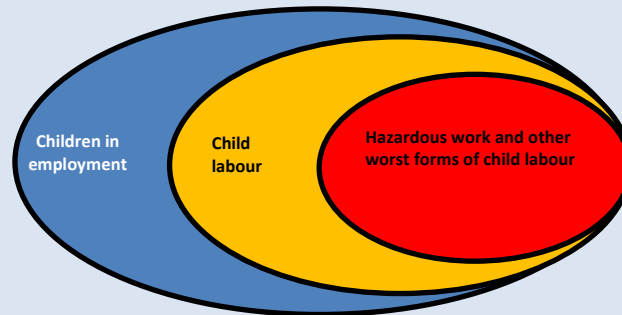
³ The survey was entitled *Encuesta Nacional de Empleo* (ENE) up to 2004.

⁴ The 14-hour threshold is based on provisions in the ILO Minimum Age (Non-Industrial Employment) Convention, 1932 (No. 33), which sets two hours per day, on either school days or holidays, as the maximum for light work from the age of 12 years. Article 3 (para. 1) of the Convention states that “Children over twelve years of age may, outside the hours fixed for school attendance, be employed on light work (a) which is not harmful to their health or normal development; (b) which is not such as to prejudice their attendance at school or their capacity to benefit from the instruction there given; and (c) the duration of which *does not exceed two hours per day on either school days or holidays*, the total number of hours spent at school and on light work in no case to exceed seven per day” (emphasis added).

⁵ Hazardous work by children is treated as a proxy category for the Worst Forms of Child Labour. This is for two reasons. First, reliable national data on the worst forms other than hazardous work, such as children in bonded and forced labour or in commercial sexual exploitation, is still difficult to come by. Second, children in hazardous work account for the overwhelming majority of those in the worst forms.

Panel 1. International legal and measurement standards for child labour

Three main international conventions – the United Nations Convention on the Rights of the Child (CRC), International Labour Organization Worst Forms of Child Labour Convention, 1999 (No. 182), and ILO Minimum Age Convention, 1973 (No. 138) – together set the legal boundaries for child labour and provide the legal basis for national and international actions against it. The Resolution concerning statistics of child labour (Res. II) approved in 2008 at the 18th International Conference of Labour Statisticians (ICLS) translates these legal standards into statistical terms for the purpose of child labour measurement.⁶



Children in employment are those engaged in any economic activity for at least one hour during the reference period. Economic activity covers all market production and certain types of non-market production (principally the production of goods and services for own use). It includes forms of work in both the formal and informal economy; inside and outside family settings; work for pay or profit (in cash or in-kind, part-time, or full-time), or as a domestic worker outside the child's own household for an employer (with or without pay).

Child labour is a narrower concept than employment and child labourers are therefore a subset of children in employment. Child labour excludes all those children in employment who are working only a few hours a week in permitted light work and those children above the minimum working age whose work is not classified as hazardous work or as any other worst form of child labour.

Hazardous work by children is defined as any activity or occupation that, by its nature or type, has or leads to adverse effects on the child's safety, health, and moral development. Hazardous work may include night work and long hours of work; work involving exposure to physical, psychological, or sexual abuse; work underground, under water, at dangerous heights, or in confined spaces; work with dangerous machinery, equipment, and tools; work that involves the manual handling or transport of heavy loads; and work in an unhealthy environment that may, for example, expose children hazardous substances, agents, or processes, or to temperatures, noise levels, or vibrations damaging their health.

⁶See Resolution II, Resolution concerning statistics of child labour in: *Report of the Conference, 18th International Conference of Labour Statisticians (ICLS), Geneva, 24 November – 5 December 2008*, ICLS/18/2008/IV/FINAL, International Labour Office, Geneva, 2008, ISBN: 978-92-2-121730-5 (print).

CHAPTER 2. UNDERSTANDING TRENDS: CROSS-COUNTRY ANALYSIS

1. In this chapter, we begin the discussion of the factors driving changes in child labour by reviewing correlations between a set of explanatory factors and observed child labour trends for a set of 43 countries for the period 2000-2015. There is a large variation in the progress, and lack thereof, across these countries. While many have achieved large annual reductions in child labour, there is also a significant number of countries at the other end of the spectrum that have experienced net *increases* in child labour. In the middle of the spectrum are countries where progress against child labour has stalled. This cross-variation reinforces the importance of understanding *why* some countries have been more or less successful than others, in order to guide efforts in the lead-up to the 2025 target date.

2.1. Convergence in child labour across countries

2. The countries also show widely differing levels of child labour at the beginning of 2000's. The observed differences in the rate of change between 2000 and 2015 could, therefore, be because countries with a higher initial rate of child labour show a higher rate of decline compared with countries with a relatively lower initial rate of child labour.

3. Convergence has been analysed mainly within the economic growth literature,⁷ and the approach developed in that context can be easily applied to the case of child labour to test the hypothesis that the decline in child labour rates is faster for countries with higher initial rates of child labour.

4. The basic model to study "absolute convergence" is given by:

$$\ln(y_t) = (1 - e^{-bt})\ln(y^*) + e^{-bt}\ln y_0$$

where, y_t and y_0 represent the level of child labour at time t and at the initial period (base period); y^* represents the steady-state level given the characteristics of the country, b is the rate of convergence.

5. If we consider a full period $[0, T]$, following proper transformations, the average rate of convergence over the period can be obtained through the following equation:

$$\ln\left(\frac{y_T}{y_0}\right) = \beta_0 + \beta_1 \ln(y_0)$$

where $\beta_1 = -(1 - e^{-bT})$, and $b = -\frac{\ln(1+\beta_1)}{T}$.

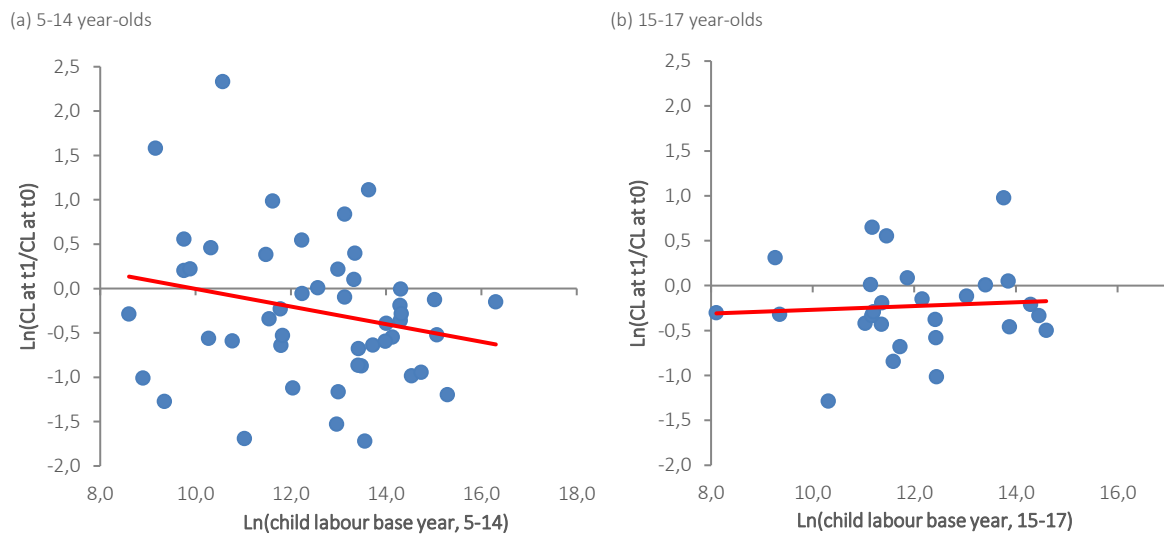
⁷A key economic issue is whether poor countries or regions tend to grow faster than rich ones. In neoclassical growth models for closed economies, as presented by Ramsey (1928), Solow (1956), Cass (1965), and Koopmans (1965), the per capita growth rate tends to be inversely related to the starting level of output or income per person. In particular, if economies are similar with respect to preferences and technology, then poor economies grow faster than rich ones. Thus, there is a force that promotes convergence in levels of per capita product and income. This is called Beta-convergence.

6. Starting from this, the parameter β_1 can be estimated through the following simple OLS regression:

$$\ln\left(\frac{y_{T,i}}{y_{0,i}}\right) = \beta_0 + \beta_1 \ln(y_{0,i}) + \varepsilon_i$$

7. The graphical representation of the regression analysis, shown in Figure 1, points to a gradual convergence in child labour across countries, at least for the 5-14 years age range. For each country, the figure plots the child labour rate in the base year against the change in child labour between the base year and most recent year.

Figure 1. Trend data indicates a gradual convergence in child labour across countries, but only among children in the 5-14 years age range



Source: UCW calculations based on national household survey datasets (see survey listing in Table 1).

8. As shown, countries with higher rates of child labour in the base year reduced child labour more quickly than other countries. The pace of progress against child labour among younger children, in other words, is fastest in the countries where it is of greatest concern. However, the rate of convergence is relatively low, and can only partially explain the observed variation in child labour trends. Moreover, there does not appear to be any relevant convergence among countries for adolescents in child labour, as illustrated in Figure 1b. Of course, these results apply to the whole 2000-2015 period and not necessarily to any sub-period.

2.2. Key correlates of child labour changes

9. In this section, we look at correlations between the changes in the prevalence of child labour discussed above and changes in potential explanatory variables, in order to gain some initial insight into what is driving

the observed child labour trends. The analysis makes use of panel data for 42 countries spanning the period from 2000 to 2015.⁸

10. Child labour is a complex phenomenon and a full understanding of its evolution requires consideration of many potential factors. (See Annex 1 for a brief general discussion on the causes of child labour). Unfortunately, there are only a limited number of potential explanatory factors for which data is available (a) for a large set of countries and (b) across multiple years. The cross-country analysis is, therefore, restricted to only a few factors that meet these data criteria: poverty, legal commitment to child labour elimination, and the skills intensity of production.

11. Specifically, we make use of per capita GDP as a proxy for the average level of income, ratification of the principal ILO legal standards relating to child labour (i.e., ILO Convention No. 182 on the Worst Forms of Child Labour and ILO Convention No. 138 on the Minimum Age for Admission to Employment) as a proxy for legal commitment, and textiles and clothing as percentages of total exports as proxies for the relative importance of low-skill production activities.

12. The theoretical relevance of these variables to child labour is briefly discussed in Annex 1. Poverty can necessitate an increased household reliance on children's earnings or production to make ends meet. Ratification of international standards formalize the national commitment to the fight against child labour and can galvanize efforts in this regard. Children have limited skills and therefore the skills intensity of production is important to determining the suitability of, and demand for, children's labour.

2.3. Estimation approach

13. Information on the changes in the explanatory variables is analysed both across time *and* across countries. A panel fixed effects (FE) estimation is first used to identify the correlation between changes in the variables and in child labour over time within the countries. The FE model eliminates the effect of country-specific time-invariant (structural) characteristics that may influence the explanatory variables. The estimated fixed effects are then regressed on country characteristics to identify the possible role of time-invariant (structural) differences across countries in explaining cross-country differences in the incidence of child labour.

14. More formally, we estimate the following equations:

$$y_{i,t} = \alpha_i + \beta X_{i,t} + u_{i,t}$$

and

$$\hat{\alpha}_i = \gamma + \delta X_i + \varepsilon_i$$

⁸ Specifically, it uses observations for each country for three reference years, i.e., 2000, 2005, and 2012. In countries where data is not available for these precise years, the closest available reference years are used (see list of surveys in Table 1 for further details).

where $y_{i,t}$ is the percentage of child labour of children aged 5-14 in country i at time t ; α_i is the country fixed effect, $X_{i,t}$ is a vector of explicative variables, and $u_{i,t}$ is the error term.

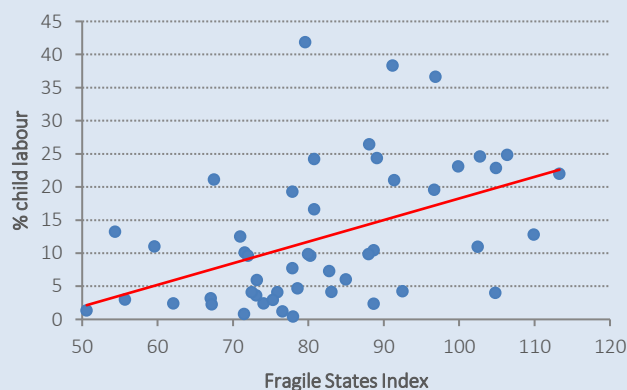
15. The set of explicative variables included in the regression analysis are as follows: logarithm of GDP per capita (ln gdp); a dummy variable (c138) equal to 1 if a country has ratified the ILO Convention No. 138, 0 otherwise; a dummy variable (c182) equal to 1 if a country has ratified the ILO Convention No. 182, 0 otherwise; two variables are used as proxies of low-skill labour demand, Export-clothing (as % of total export), and Export-textile (as % of total export). A dummy variable taking value 1 if the data belongs to a MICS survey and zero otherwise is also added to control for possible differences in estimates owing to the use of the MICS survey instrument. The descriptive statistics for the variables are reported in Annex 4, Table A3. Another set of explicative variables were used as proxies for the structure of the economy and the labour market in the different countries, but they were not significant. These variables included the value-added of agriculture, industry, and services as percentage of GDP; the percentage of employment in agriculture, industry, and services as percentage of total employment; and access to basic infrastructure.

Panel 2. Fragile states and child labour

The Fragile States Index (FSI)^(a) produced by the Fund for Peace (FFP), is a tool for measuring the array of social, economic, and political pressures contributing to state fragility. It is useful in highlighting not only the normal pressures that all States experience, but also in identifying when those pressures are pushing a State towards the brink of failure.⁹ The FSI scores should be interpreted with the understanding that the lower the score, the better.

Does state fragility place children at greater risk of child labour? To gain some initial insight into this question we plot the composite FSI scores against child labour rates for the set of countries examined in this chapter of the report. The result, reported in Figure A, indicates a strong positive correlation between fragility and child labour. States that are more fragile, in other words, tend to have higher levels of child labour than States that are relatively more stable.

Figure A. Fragile States Index (FSI) and child labour, children aged 5-14 years, multiple countries



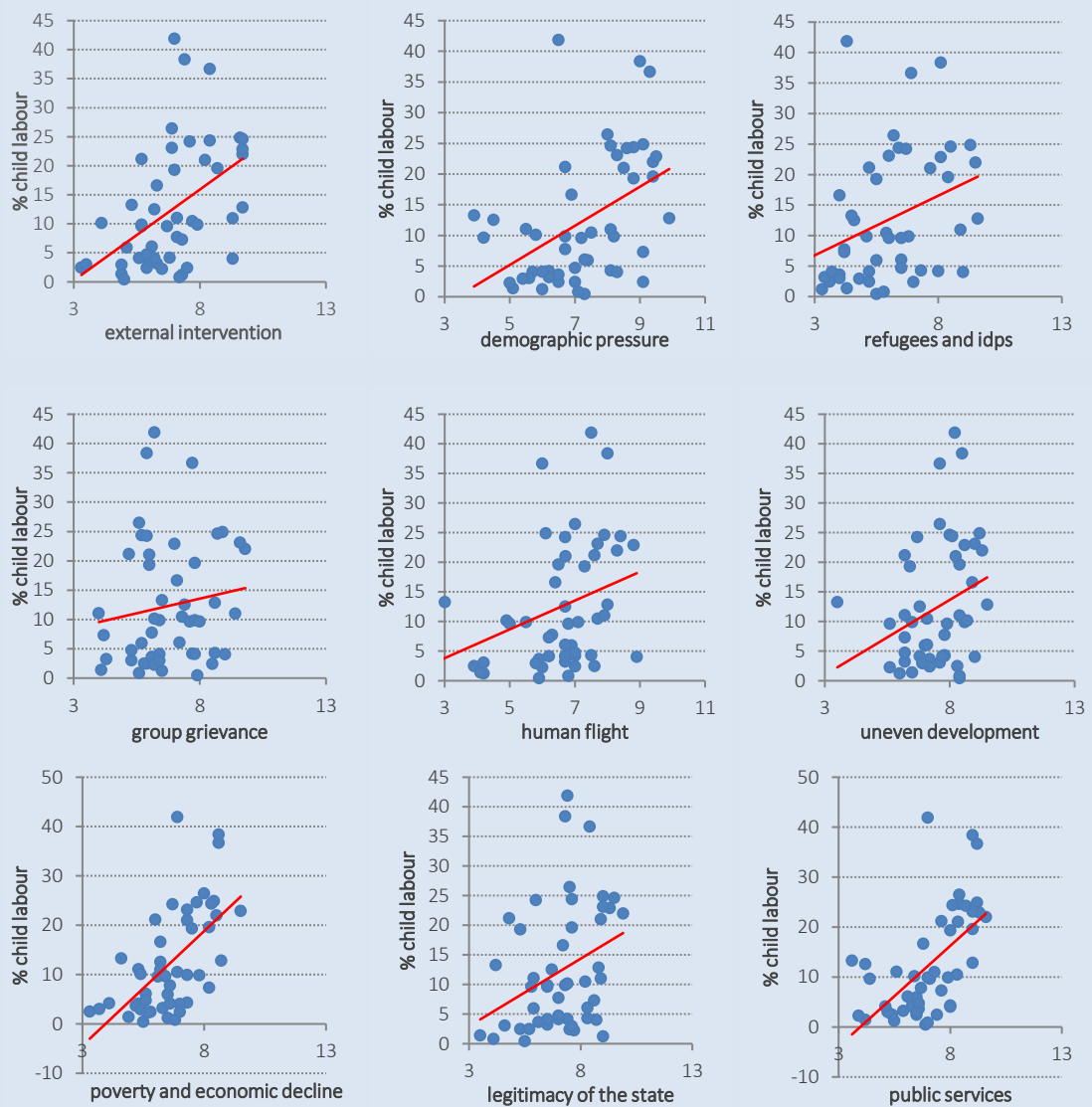
We also plot child labour rates against some of the specific indicators making up the composite FSI index (i.e., external intervention, demographic pressure, refugees and internally displaced persons, group grievance, human flight, uneven development, poverty and economic decline, state legitimacy, public services, human rights, security apparatus, and

⁹ For a detailed definition of the variables, refer to Fund for Peace (FFP): Fragile State Index Methodology and Framework, The Fund For Peace (Washington DC, 2005).

fractionalised elites). Again, each of these specific indicators is positively correlated with child labour, as reported in Figure B.

While these simple correlations should not be over-interpreted, they do support a wide range of anecdotal reports and evidence from limited sample surveys suggesting that children are commonly forced to work in situations of crisis and state failure.

Figure B. State fragility indicators and child labour rates, children aged 5-14 years, multiple countries



Estimation results

16. The results of the panel fixed effects estimation and of the regression on the predicted fixed effects are reported in Table 2 and discussed below. To reiterate, the panel fixed effects estimates measure the role of changes in the explanatory variables in explaining changes in child labour *across time within countries*. The estimates from the regression on the predicted fixed effects

instead measure the importance of differences in the explanatory variables across countries in explaining differences in child labour *across countries at a given point in time*. Differences in the explanatory variables across countries, in turn, are a reflection of time-invariant structural factors, such as changes in the composition of the economy and population.

Table 2. Estimation results: correlates of child labour

Dependent variable Child labour (children aged 5-14)	Panel fixed effects estimation		Regression on predicted fixed effects	
	Coef.	SE	Coef.	SE
Logarithm of GDP per capita	4.029	(5.659)	-12.708***	(1.573)
c182	-5.996**	(2.476)	-6.481	(6.131)
c138	2.436	(2.955)	3.011	(4.768)
Export-clothing (as % of total export)	0.511**	(0.242)	-0.530***	(0.155)
Export-textile (as % of total export)	1.171	(1.086)	-1.022**	(0.458)
(mean) MICS	--		5.353*	(3.151)
_cons	-23.643	(48.331)	114.520***	(14.270)
R ²	0.16		0.75	
Number of observations	111		42	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: UCW calculations based on national household survey datasets

Focusing on the panel fixed effects estimates, one of the more striking and encouraging findings is the strong correlation between **ratification of international legal standards** and progress against child labour. ILO Convention No. 182 on the Worst Forms of Child Labour and ILO Convention No. 138 on the Minimum Age for Admission to Employment are the two principal legal pillars for the global fight against child labour. A total of 26 of the study countries ratified either Convention No. 182 (11 countries), Convention No. 138 (five countries), or both (10 countries) during the period covered by the surveys in each country, as reported in Table 3.

Table 3. Study countries ratifying C.138 and/or C.182 during the period 2000-2015

Country	Ratified C.182 during reference period (ratification year)	Ratified C.138 during reference period (ratification year)
1. Bolivia	Yes (2003)	No (1997)
2. Burundi	Yes (2002)	Yes (2000)
3. Cambodia	Yes (2006)	No (1999)
4. Cameroon	Yes (2002)	Yes (2001)
5. Central African Republic	Yes (2000)	Yes (2000)
6. Chad	Yes (2000)	Yes (2005)
7. Costa Rica	Yes (2001)	No (1976)
8. Côte d'Ivoire	Yes (2003)	Yes (2003)
9. Egypt	Yes (2002)	No (1999)
10. Ghana	No (2000)	Yes (2011)
11. Haiti	Yes (2007)	Yes (2009)
12. Iraq	Yes (2001)	No (1985)
13. Mali	No (2000)	Yes (2002)
14. Mongolia	No (2001)	Yes (2002)
15. Montenegro	Yes (2006)	Yes (2006)
16. Nicaragua	Yes (2000)	No (1981)
17. Niger	Yes (2000)	No (1978)

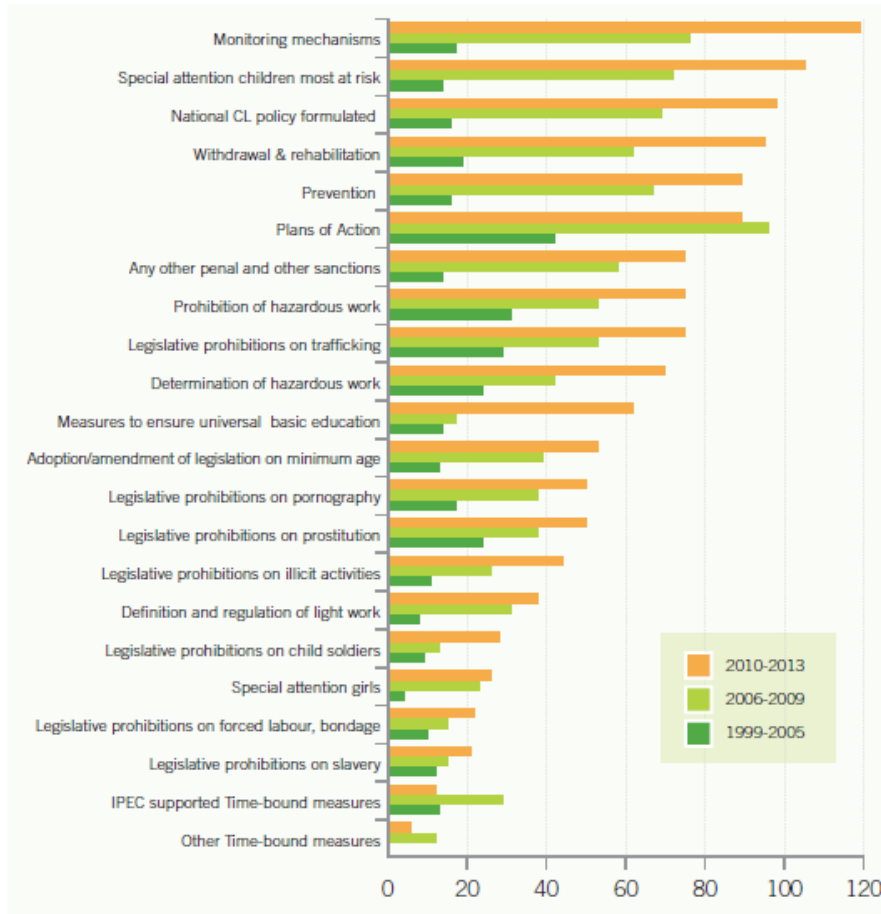
Table 3.Cont'd

Country	Ratified C.182 during reference period (ratification year)	Ratified C.138 during reference period (ratification year)
18. Pakistan	No (2001)	Yes (2006)
19. Panama	Yes (2000)	Yes (2000)
20. Paraguay	No (2001)	Yes (2004)
21. Sierra Leone	Yes (2011)	Yes (2011)
22. Suriname	Yes (2006)	No (not ratified)
23. Swaziland	Yes (2002)	Yes (2002)
24. Tanzania	Yes (2001)	No (1998)
25. Togo	Yes (2000)	No (1984)
26. Venezuela	Yes (2005)	No (1987)

17. The link is most clear for Convention No. 182, which was ratified by the most countries during the reference period. As reported in Table 2, there is a strong and statistically significant negative correlation between ratification and child labour for the overall 5-14 age group. Ratification of this Convention, in other words, is associated with a reduction of almost six percentage points in child labour.

18. How can this result be explained? First, it is important to note that ratification is not a unique or isolated event, but rather is accompanied by a range of legislation and policy activities that undoubtedly play a role. Underlying ratification is also a political commitment to prioritize child labour in national development agendas. In ratifying these Conventions, countries are formally acknowledging that child labour is no longer acceptable and are taking responsibility for ending it. On the part of ILO, ratification is also followed by a reporting and supervisory system, technical advisory assistance, support of direct action pilots, capacity building projects, as well as national action plans. Figure 2 lists follow-up actions reported by ratifying States under Conventions Nos 138 and 182 as noted by the ILO's Committee of Experts on the Application of Conventions and Recommendations.

Figure 2. Number of actions reported under Convention Nos 138 and 182, by type and time period



19. Another noteworthy result is the *absence* of a statistically significant correlation between changes in per capita GDP and changes in child labour rates within countries. It appears, at least from these results, that changes in income within countries did not play a central role in driving child labour trends. As we will discuss in more detail in the next chapter, absolute and relative poverty are what appear to affect the dynamics of child labour. Even though there might be exceptions,¹⁰ child labour seems to be fairly "insulated" from the fluctuation of the economy, at least in the short to medium run. This helps to explain why the economic crisis of 2008-2009 appears to have had only a relatively small impact on child labour.

20. We then look at the time invariant cross-country differences as measured by the estimated fixed effect. The results of the regression on the predicted fixed effects indicate that income levels *are* negatively correlated with child labour levels *across* countries. Poorer countries, in other words, tend to have higher levels of child labour than wealthier ones, evidence of the well-known link between poverty and child labour

21. **Changes within countries relating to the skills intensity of production** also appear relevant in explaining child labour trends. As noted above, we use two variables - clothing exports and textile exports as percentages of total export – to provide an indication of the relative importance of low-skill production in

¹⁰ For example, refer to UCW: *Child labour and the global financial crises: An issue paper*, UCW Working Paper Series, Rome, 2009.

the economies of the 48 countries. There is a statistically-significant positive correlation between increases in these variables and child labour levels *within* countries, suggesting, as expected, that the demand for child labour rises when forms of production that require only low skill levels gain in importance¹¹.

22. It is important before concluding this discussion to add **a caveat concerning the results** reported above. While the results are suggestive, the relatively limited number of observations, the fact that data is not available for many potentially relevant variables, and the well-known problems associated with cross-country estimates, all means that they should be interpreted with caution.

¹¹ It is worth noting that the structure of production is also correlated with differences in child labour levels across countries, as indicated by the results of the regression on the predicted fixed effects. In simple terms, countries whose economies show higher share of export tend to have lower level of child labour. This is most likely due to the fact that when comparing middle and low-income countries, the share of export is an indicator of more advanced economic structure.

CHAPTER 3. UNDERSTANDING TRENDS: WITHIN-COUNTRY ANALYSIS IN BRAZIL AND MEXICO

23. This chapter assesses the causal effect of various policy-related and other variables on child labour. It presents robust estimates of the proportion of the total decline in child labour that is attributable to each of the variables of interest, thereby providing an indication of the relative importance of policy-related factors vis-à-vis factors *not* directly influenced by policy. Because the data requirements for this type of estimation are extensive, the exercise is carried out for only two countries – Brazil and Mexico.

3.1. Child labour trends in Brazil and Mexico

24. This section reports the changes in children’s involvement in child labour and schooling in the two countries.

25. For Brazil, the definition of child labour used in this report is consistent to Brazilian legislation, and includes all working children below the minimum age of admission to employment of 16 years and children aged 16-17 working without a formal contract.

26. For Mexico we use the ENE-ENOE¹² survey because it covers a far longer time span than the Mexico Encuesta Nacional de Ocupación y Empleo - Modulo Trabajo Infantil (ENOE-MTI) available biannually from 2007 to 2015. As the ENE-ENOE survey does not collect all the necessary information to identify hazardous work for adolescents as defined by the Mexico Ley Federal del Trabajo (e.g., exposure to hazardous conditions such as dust, chemicals, pesticides, carrying out heavy loads, working during the night, etc.), we use employment as proxy of child labour for children above the minimum working age.

27. To give a more complete view of child labour including children aged less than 12 years, a brief description of child labour trends in Mexico is provided in Panel 3 using the five rounds (2007, 2009, 2011, 2013, 2015) of the Mexico Encuesta Nacional de Ocupación y Empleo – Modulo Trabajo Infantil (ENOE-MTI), carried out during the last quarter of each year as a special module of the ENOE.

28. Also note that we use two different age groups, 7-17 years for Brazil and 12-17 years for Mexico. This is due to the characteristics of the surveys used and in particular to the fact that the ENE and ENOE for Mexico collect information on economic activities only from the age of 12. For Brazil we begin from the age of 7 as the number of child labourers aged 5 and 6 is extremely small and would affect the econometric results.

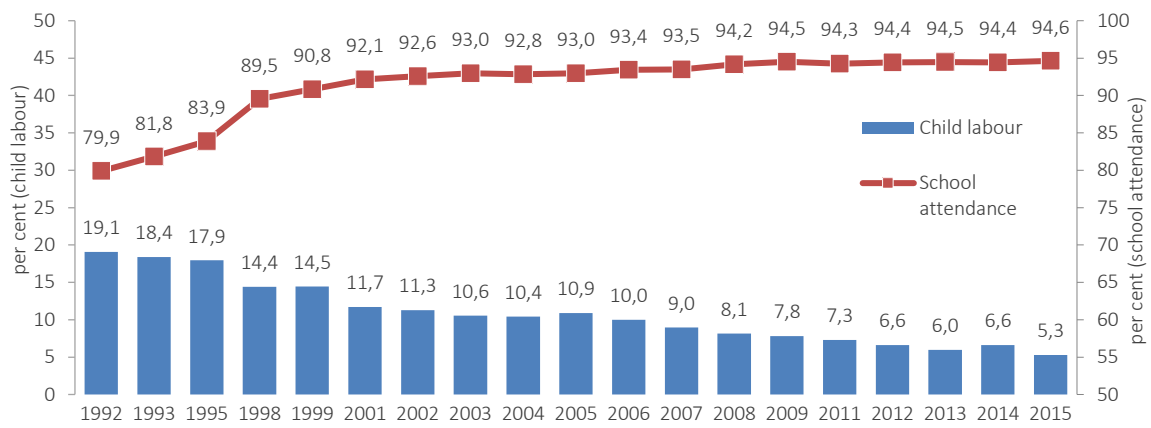
29. The fact that the estimates for the two countries refer to different age ranges means that they are not directly comparable. Specifically, as employment rises with age, the fact that in Mexico we consider only older children, 12-17 years-old, means that estimates are higher than they would be if children below the age of 12 years were also included.

¹² The Encuesta Nacional de Empleo (ENE) up to 2004 and the Encuesta Nacional de Ocupación y Empleo (ENOE) from 2005 onwards. The ENOE is the consolidation and fusion of the Encuesta Nacional de Empleo Urbano (ENEU) and of the Encuesta Nacional de Empleo (ENE).

Brazil

30. In Brazil, a comparison of the results of the PNAD from 1992 to 2015 indicates an overall decline in child labour among 7-17 year-olds of about 14 percentage points, from 19 per cent to 5 per cent (Figure 3). During the same period and for the same age group, school attendance rose from 80 per cent to 95 per cent. The progress in terms of both reducing child labour and increasing school attendance was relatively consistent; there were no major reversals for either indicator across the time period, although the data for 2014 shows a slight uptick in child labour.

Figure 3. Changes in child labour and school attendance, 7-17 year-olds, 1992-2015, BRAZIL



Source: UCW calculations based on Brazilian PNAD Surveys 1992 to 2015

31. Table 4 provides a more detailed look at changes over the 23-year period. It shows that the reduction in employment was very large for children working only. The share of children working without also attending school decreased over the 1992-2015 period from about 10 per cent to only 1.6 per cent. As a result, child labour affects almost exclusively children who are also attending school. There was also a large movement of children from “inactivity” to school over the 23-year period, most of whom entered school exclusive of work. Many of these ostensibly inactive children might have been involved in non-economic forms of work, and in particular household chores for their own families.

Table 4. Changes in child activity status. 7-17 years age group, 1992, 1999, 2008, and 2015 reference periods, Brazil

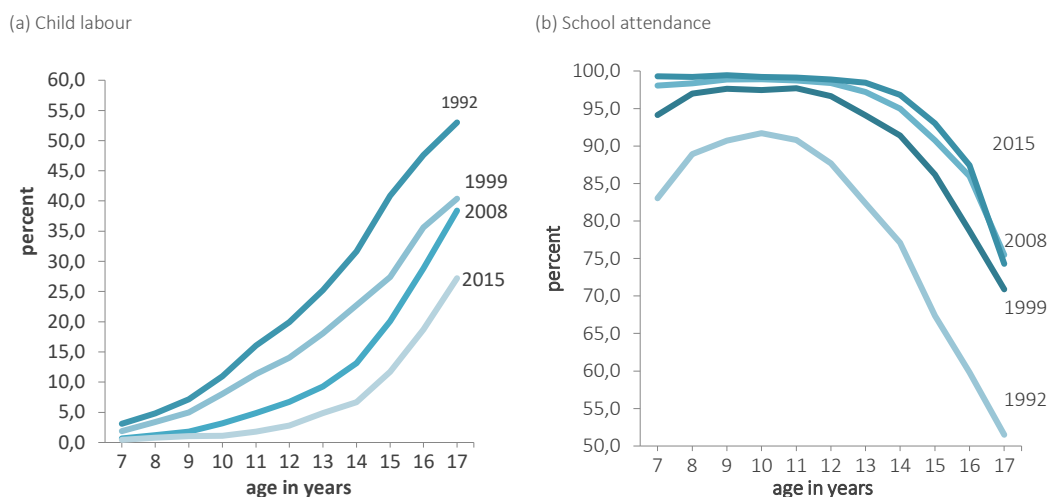
Activity status	Total			
	1992	1999	2008	2015
Only employment	9.7	3.8	2.1	1.6
Only schooling	66.7	77.1	84.6	88.7
Employment and schooling	13.2	13.8	9.6	6.0
Neither activity	10.4	5.3	3.7	3.8
Total in employment^(a)	22.9	17.6	11.7	7.5
Total in school^(b)	79.9	90.8	94.2	94.6

Notes: (a) Refers to all children in employment regardless of school status; (b) Refers to all children attending school regardless of employment status.

Source: UCW calculations based on Brazilian PNAD Surveys. 1992, 1999, 2008, and 2015

32. Age-specific changes in child labour and school attendance, reported in Figure 4, suggests progress extended across the 7-17 age spectrum. Of particular note, the figure indicates that not only has the level of child labour declined substantially, but the minimum age of entry in the labour market has increased by almost three years. In 1992, participation rates were positive for children aged 7 years or more, while in 2015, child labour remains essentially negligible until the age of 10 years and starts to increase thereafter. A similar pattern can be observed for school attendance rates. Not only has the level of school attendance increased over the years, but children enter earlier and leave school substantially later than in 1992.

Figure 4. Age-specific changes in child labour and school attendance, 7-17 year-olds, 1992-2015, BRAZIL



Source: UCW calculations based on Brazilian PNAD Surveys 1992, 1999, 2008 and 2015.

Mexico

33. In Mexico, a comparison of the results of the *Encuesta Nacional de Empleo (ENE)* and the *Encuesta Nacional de Ocupación y Empleo (ENOE)* for 2000 to 2014 indicates an overall decline in child labour among 12-17 year-olds of almost ten percentage points, from 23 per cent to 13 per cent (Figure 5).

During the same period and for the same age group, school attendance rose from 60 per cent to 73 per cent. Like Brazil, the progress in terms of both reducing child labour and increasing school attendance was relatively consistent; there were no major reversals for either indicator across the time period.

Figure 5. Changes in child labour and school attendance, 12-17 year-olds, MEXICO



Source: UCW calculations based on Encuesta Nacional de Empleo (ENE) and Nacional de Ocupación y Empleo (ENOE) surveys, 2000-2010

34. Table 5 provides a more detailed look at changes over the study period. It indicates that the largest change occurred in the share of children working only, i.e., without also attending school. This group fell by more than half, from around 17 per cent in 2000 to 7 per cent in 2014. The share of children working and attending school at the same time, by contrast, remained almost unchanged over the study period.

Table 5. Changes in child activity status, 12-17 years age group, and 2000, 2008 and 2014 reference periods, MEXICO

Activity status	Total		
	2000	2008	2014
Only employment	16.5	11.1	7.1
Only schooling	53.6	59.9	67.4
Employment and schooling	6.0	6.7	5.8
Neither activity	23.8	22.3	19.7
Total in employment^(a)	22.6	17.8	12.9
Total in school^(b)	59.7	66.6	73.2

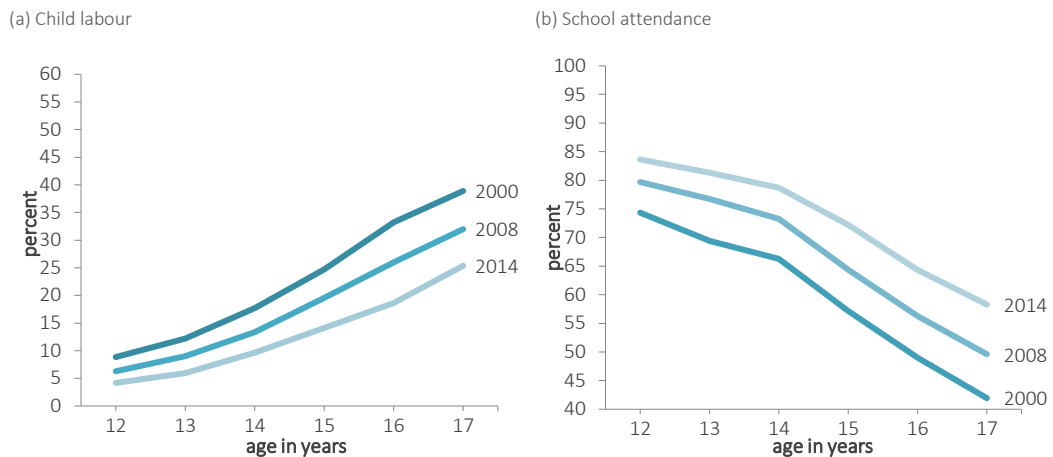
Notes: (a) Refers to all children in employment, regardless of school status; (b) Refers to all children attending school, regardless of employment status.

Source: UCW calculations based on Encuesta Nacional de Empleo (ENE) and Nacional de Ocupación y Empleo (ENOE) surveys, 2000-2014.

35. Against the backdrop of an overall decline in child labour, therefore, a much smaller proportion of the remaining population of child labourers must sacrifice school attendance in order to work. There was also a reduction in the share of children who were neither attending school nor working of about four percentage points over the study period.

36. Age-specific changes in child labour and school attendance, reported in Figure 6, suggests progress extended across the 12-17 years age spectrum, but was especially pronounced at the end of this spectrum. A similar pattern can be observed for school attendance rates. The level of school attendance has increased at every age, but largest rises have occurred at the end of the 12-17 years age spectrum. Children, in other words, leave school substantially later than they did 14 years earlier.

Figure 6. Age-specific changes in child labour and school attendance, 12-17 year-olds, 1992-2014, MEXICO



Source: UCW calculations based on Encuesta Nacional de Empleo (ENE) and Nacional de Ocupación y Empleo (ENOE) surveys, 2000-2014

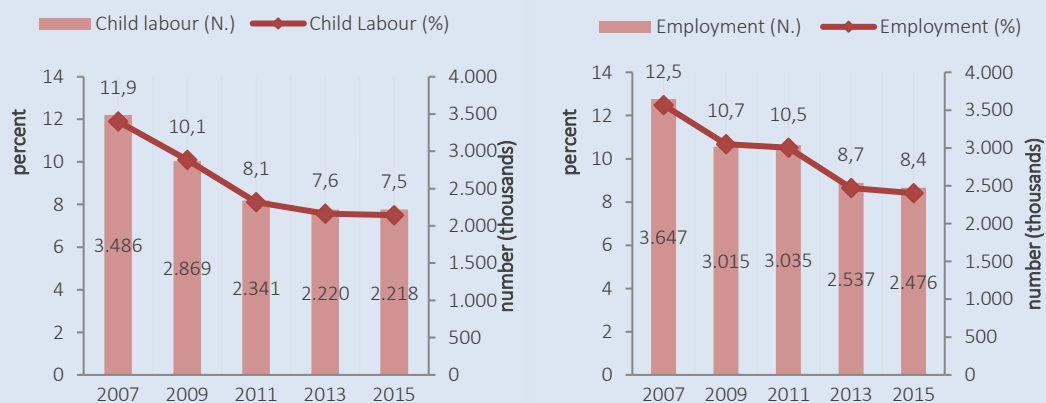
Panel 3. Trends in child labour. Evidence from the Módulo sobre Trabajo Infantil de la Encuesta Nacional de Ocupación y Empleo (ENOE-MTI) 2007-2015

How is child labour changing over time in Mexico? To assess the changes in child labour, we make use of the four rounds (2007, 2009, 2011, 2013, 2015) of the Mexico Encuesta Nacional de Ocupación y Empleo, Modulo Trabajo Infantil (ENOE-MTI), carried out during the last quarter of each year. The comparison of the results from the four rounds points to a sharp decrease in child labour during the 2007-2015 period, from 12.0 per cent in 2007 to 7.5 per cent in 2015 (Figure A.1). The rate of decrease of children's employment across years was also constant, decreasing from 12.5 in 2007 to 8.4 in 2015.

Figure A. Changes in children's involvement in child labour and employment, 2007-2015

(1) Children aged 5-17 years in child labour (*)

(2) Children aged 5-17 years in employment

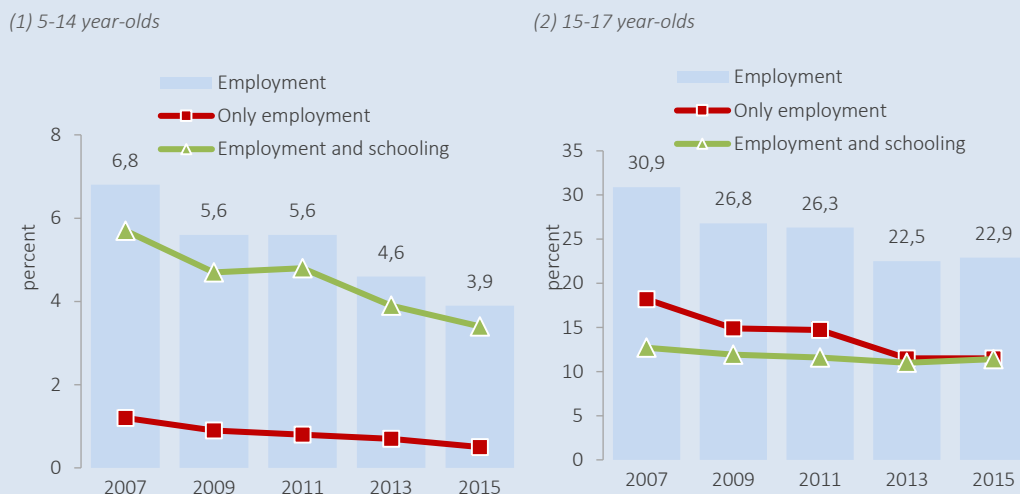


Note: (*) Child Labour includes all children in employment below the minimum working age and children aged 15-17 years working in dangerous activities according to the Mexico Ley Federal del Trabajo.

Source: UCW, calculations based on Mexico, Encuesta Nacional de Ocupación y Empleo, Modulo Trabajo Infantil (ENOE-MTI) 2007, 2009, 2011, 2013 and 2015.

For the 5-14 year-olds, the decline in employment was the product of the decline of the share of both children in employment exclusively and of children combining school and employment (Figure B.1). The decline in children's employment for 15-17 year-olds occurred mainly in the sub-group of children in employment exclusively (Figure B.2).

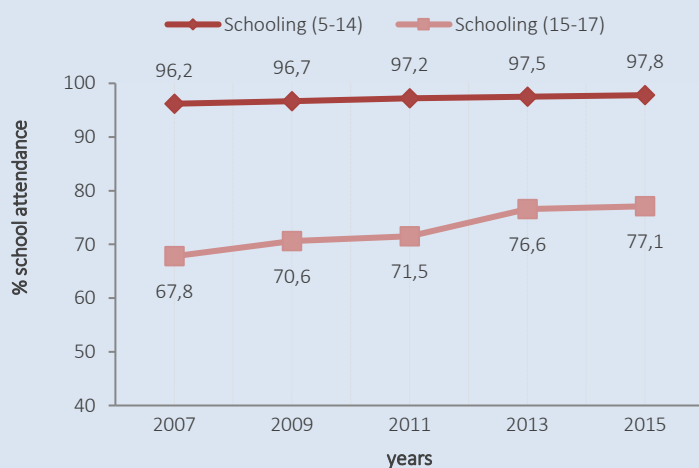
Figure B. Changes in children's involvement in employment and schooling, 2007-2015, by age range



Source: UCW, calculations based on Mexico, Encuesta Nacional de Ocupación y Empleo, Modulo Trabajo Infantil (ENOE-MTI) 2007, 2009, 2011, 2013 and 2015

Trends in school attendance show a very slight increase among 5-14 year-olds, from the already high school participation rate of 96 per cent in 2007 to 98 per cent in 2015. Children aged 15-17 years witnessed a nine percentage point increase over the 2007-2015 period, from 68 per cent to 77 per cent (Figure C).

Figure C. Changes in children's school attendance, by age range, 2007-2015

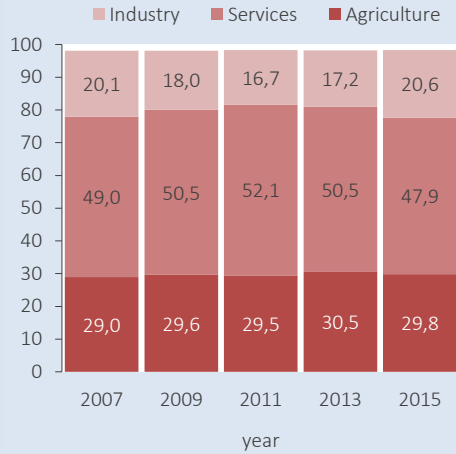


Source: UCW, calculations based on Mexico, Encuesta Nacional de Ocupación y Empleo, Modulo Trabajo Infantil (ENOE-MTI) 2007, 2009, 2011, 2013 and 2015

The decline in children's employment was accompanied by an important change in terms of its make-up. As depicted in Figure D.1, for 15-17 year-olds in employment, the period from 2007 to 2011 saw an increase in the relative importance of work in the service sector and a decrease in the relative importance of work in the industry sector. The last year, on the other hand, shows an increase of children working in the industry sector accompanied by a decrease of the share of working children in the service sector. The share of children working in the agriculture sector remained stable during the 2007-2015 period. These patterns hold also when looking at the changes in sector of employment for the 5-14 year-olds and the 15-17 year-olds separately (Figure E.1-2).

Figure D. Changes in sector and status of employment (% distribution), 5-17 year-olds, 2007-2015

(1) Sector of employment, 5-17 years old



(2) Status in employment, 5-17 years old

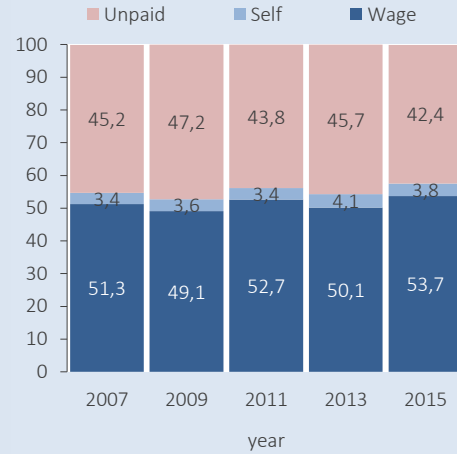
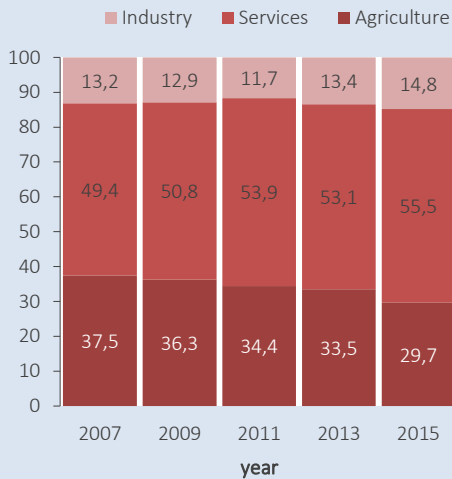
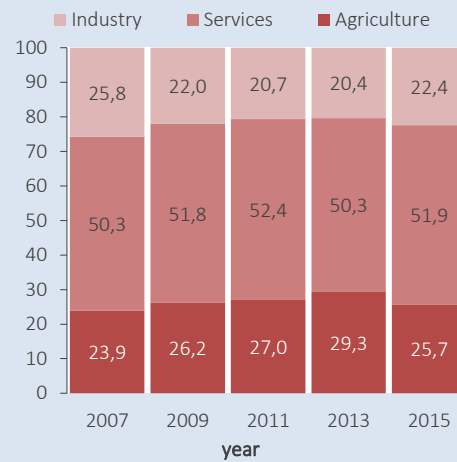


Figure E. Changes in sector of employment (% distribution), 5-17 year-olds, by age group and year

(1) Sector of employment, 5-14 years old



(2) Sector of employment, 15-17 years old



In terms of status in employment, 5-17 year-old working children saw an increase in the relative importance of paid employment and a decrease in the relative importance of the unpaid family work. Paid employment as a share of total children's employment increased from 51 per cent in 2007 to 54 per cent in 2015, while the unpaid family work as a share of employment decreased from 45 per cent to 42 per cent over the same period (Figure D.2).

3.2. Estimation approach

37. We now look at the role of various policy-related and other factors in explaining the trends in the two countries. Specifically, we consider the effects of changes in living standards, income distribution, school quality, labour market conditions, social protection programmes, and other variables on the trends in child labour. The analysis is not exhaustive of all the factors that affect

children's work and schooling since the set of factors we are able to consider here is limited by the available data.

38. To obtain causal estimates, we build on a methodology developed and successfully piloted by UCW for studies in Brazil¹³ and Mexico.¹⁴ The methodology, a variant of the so-called difference-in-differences technique, exploits within-country changes across time and space. To obtain as rich a picture as possible, the analysis focuses on a range of outcome variables not restricted only to child labour as such. It also includes indicators of school and mutually exclusive combinations of work and school (in school only, in work only, in school and in work, in neither work nor school).

Model specification

39. Let Y_{imt} indicate the activity performed by child i in geographic area m (for Mexico m indicates municipality while for Brazil it indicates state) at time t expressed as a (linear) function of some observed individual child and household level characteristics (C_{imt}) and (H_{hmt}) - and variables reflecting policy actions or changes in the socio-economic background structure (P_{hmt}) - plus additive municipality/state and time fixed effects d_m and d_t :

$$Y_{imt} = \alpha + C_{imt}'\delta + H_{hmt}'\varphi + P_{hmt}'\theta + d_m + d_t + \sum_{t=1}^T t \times d_s + \varepsilon_{imt} \quad (1)$$

where ε_{imt} indicates the idiosyncratic error term.

40. The identification of the effect of the explanatory variables on Y_{imt} is based on the estimation of the parameters in model (1). These parameters can in principle be estimated consistently through OLS, provided that the error term is uncorrelated with the regressors. The model attempts to control for any potential correlation between the error term and the regressors through a highly-saturated specification. In addition to time¹⁵ and municipality/states fixed effects, which account for unobserved time invariant municipalities/states differences in children's activity as well as for common macro effects, the model includes a large set of individual and household characteristics, as already specified.

41. To further account for potential unobserved determinants of children's activities that might be correlated with the explanatory variables, we finally include state-specific linear trends, $\sum_{t=1}^T t \times d_s$, that account for differential trends in children's activity across states due for example to state specific policies or state specific changes in economic circumstances. We do not include linear trends for Brazil because the lower source of variability of the beneficiary of the cash transfer across states leads to an excessive saturation of the specification.

¹³ UCW, *Understanding the Brazilian success in reducing child labour: drawing policy lessons from the Brazilian experience*, UCW Working Paper Series, Rome, June 2011.

¹⁴ UCW, *The Mexican experience in reducing child labour: empirical evidence and policy lessons*, UCW Working Paper Series, Rome, November 2012.

¹⁵ Quarter X Year fixed effects in case of Mexico; Year fixed effects in case of Brazil.

Variables used in the estimates

42. **Individual characteristics.** Individual characteristics, C_{imt} , include child age and age squared, gender, a dummy for being the eldest (cohabiting) child in the household (this latter variable is included only for the Mexico specification) and racial dummies (included only for Brazil's specification).

43. **Household characteristics.** Household characteristics, H_{hmt} , include household size, the number of children between 0 and 4 years of age and between 5 and 14 years of age living in the household, a dummy for female headed households, educational attainment and sector of employment of the household head and a dummy for location of residence (urban vs. rural areas). We use this specification both for Mexico and Brazil but, in case of Brazil, we do not consider the dummy for the sector of employment of the household head.

44. **Changes in socio-economic structure.** To control for policy actions or changes in the socio-economic background, equation (1) includes a vector P_{hmt} of variables related to:

45. **Labour market conditions.** To capture the effects of labour market conditions on child labour and education, we include the municipal/state level adult (ages 25 to 55) unemployment rate to identify possible cyclical effects and, the share of adult workers employed in elementary occupations,¹⁶ as a proxy for the demand for unskilled labour.

46. **Poverty and inequality.** To control for poverty, we add dummies indicating whether the household is in extreme poverty or moderate poverty. Poverty measures are based on per capita household labour income net of children's income. A household is defined to be in extreme poverty if its per capita income is below US\$1.90 per day at 2005 prices and in moderate poverty if its income is above \$1.90 but below \$3.10. For Mexico, we also add a measure of poverty at the municipal level, defined as the share of households living on less than \$1.90 a day at 2005 international prices. To control for inequality, we include the Gini index.

47. **Access to basic services.** For Brazil, we include a dummy indicating whether the household has access to piped water. No similar information was available for Mexico with the required geographical disaggregation.

48. **Access and quality of education.** We have used a wide set of indicators obtained from Censo Escolar for Brazil and from the Secretaría de Educación Pública (SEP), Sistema Nacional de Información Estadística Educativa for Mexico. As it is well known, it is very difficult to capture relevant proxies for the quality of the education offered. After experimenting with several indicators and their combination, we have retained the pupil-teacher ratio for Brazil and, for Mexico, the ratio of *telesecundaria* schools as an indicator of access to quality secondary education.

¹⁶Those classified with group 9 in the ISCO-08 ILO classification.

Panel 4. Brazil Bolsa Familia and Mexico Prospera programmes: a brief description

Brazil Bolsa Familia programme

The *Bolsa Familia* programme aims at reducing poverty today through a direct monetary transfer to poor families and tomorrow by providing incentives and conditions for investment in education on the part of the beneficiary family.

The *Bolsa Familia* programme targets “moderately poor” and “extremely poor” families with pregnant, lactating women and/or children from up to the age of 15 years and adolescents 16-17 years. The families enrolled in the *Bolsa Familia* programme are required to fulfil three conditions: attendance for prenatal and postnatal monitoring, ensuring access to nutrition and vaccination monitoring for their children from 0-7 years old, and ensuring school attendance levels of at least of 85 per cent for children aged 6-15 years and of at least 75 per cent for teenagers from 16-17 years old. A relevant feature of the program is its focus on the family unit, rather than on the individual or on the community.

By July 2017, *Bolsa Familia* had reached 12.7 million families.*

* Ministry of Social Development, Bolsa Familia Informa:
http://www.mds.gov.br/webarquivos/sala_de_imprensa/boletins/boletim_bolsa_familia/2017/julho/20072017_boletim_BFInforma.html

Mexico Prospera programme

The Mexican *Prospera* programme aims at breaking the intergenerational poverty cycle by strengthening the capacity of extremely vulnerable households. It is a multi-sectoral programme based on the assumption that addressing all dimensions of human capital simultaneously has greater social returns than addressing them in isolation.

The programme includes education, health, and nutrition components. The education component consists of a means-tested conditional cash transfer to eligible poor households conditional on children’s regular school attendance. Households receive a cash transfer for each child who regularly attends school and benefits are typically paid to the female beneficiary. The education grant increases with the grade attended by the child, and in secondary education the amount transferred is approximately 13 per cent higher for girls than for boys.

The *Prospera programme* represents the mainstay of the country’s safety-net policy. As of May-June 2017, the programme covered more than 5.9 million households in all of the country’s 2,457 municipalities.**

** Inventario institucional de datos de Prospera, www.datos.gob.mx

49. Social protection. In both Mexico and Brazil, large conditional cash programmes characterize the social protection system, at least at the federal level: namely *Prospera* in the former and *Bolsa Familia* in the latter (see Panel 4). Both programmes were introduced at a time close to the beginning period of our analysis and have substantially expanded since, reaching most of the areas and potential beneficiaries in the country. To identify their effects on child labour and education, we have exploited the fact that they have expanded over time and at different rates in different locations.

We have used both the extensive measure (i.e., the presence of the programme in the community) and the intensive measure (i.e., the number of potential beneficiaries covered by the programme) to capture the effects of the programmes on child labour and school attendance. As an indicator of programme coverage and programme expansion, for Brazil we have employed the ratio of beneficiary households over the number of households with children aged 0-17 by state and year, and for Mexico the ratio of beneficiary households to the households residing in the municipality. In the case of Brazil, given that *Bolsa Familia* was introduced simultaneously in all the States, we omit the dummy for presence of the programme (its effect is absorbed by the time fixed effects).

50. Annex 4 Table A4 and Annex Table A5 present the descriptive statistics, based on yearly averages, of the full sample of children for the first and last year of observation in the two countries. The tables illustrate the substantial changes witnessed during the observation periods in the variables of interest. Child labour dropped (see previous discussion), parental education improved significantly, and living standards rose. There was a movement of workers out of agriculture towards other sectors such as construction and trade. The

population living in urban areas increased. Access to quality schooling improved, as reflected by declines in pupil-teacher ratio in Brazil and in the share of satellite (*telesecundaria*) schools in Mexico. The coverage of both the *Prospera* and *Bolsa Familia* rose, helping to extend the social protection floor for the poor. These changes are described in more detail in Section 4.4 of this chapter.

3.3. Factors associated with children's time use

51. The model allows us to estimate the importance of the policy and control variables discussed above in determining the allocation of children's time between work and schooling in the two countries.

52. For each country, we report separately estimates for the probability that a child is involved in child labour and for the probability that a child attends school (Table 6, Table 7). We also report estimates for the probability of falling into the four mutually-exclusive activity categories (i.e., work only, work and school, school only, and neither work nor school) (Annex 4 Table A6 and Table A7). In the next section, we discuss the contribution of the different variables to the *changes* in child labour and schooling over the observation periods in the three countries.

53. Results for Brazil and Mexico suggest that there are similar forces influencing involvement in child labour and schooling in the two countries.

54. **Gender considerations** appear to be significant. In both countries, girls are much less likely than boys to work (by eight percentage points in Brazil, 12 percentage points in Mexico) and are slightly more likely to be in school (by about one percentage point in each country). It should be noted, however, that these results do not consider household chores, and therefore may understate girls' propensity to work relative to that of boys.

55. **Rural residence** appears to substantially increase the risk of children working (by 10 percentage points in Brazil, three percentage points in Mexico). Living in rural areas reduces the likelihood of school attendance (by two percentage points in Brazil, four percentage points in Mexico).

56. In Brazil, **ethnicity** is important, even when controlling for household poverty and other household covariates. Indigenous children face a higher of risk of work and of being out of school than other children (four percentage points higher, for example, than for white children). Information on ethnicity is not available in the ENE-ENOE surveys for Mexico.

57. **Household characteristics** also seem to matter. In Mexico, children living in **larger households** (with more adult breadwinners) have a lower probability of working and greater probability of attending school, while the number of siblings, keeping constant the number of adults, increases the probability of children working and being out of school. In Brazil, additional younger siblings in particular significantly increase the likelihood of being out of school. This might be due to older siblings having to take care of their younger siblings and hence being unable to attend school, a mechanism that is more likely to affect girls. In Mexico, the **eldest child** faces a lower probability of working with respect to his or her siblings.¹⁷

¹⁷ Data for this variable are not available for Brazil.

58. Living in a **household headed by a female** significantly increases the likelihood of a child working in Mexico, presumably because of the need for additional sources of income given the absence of a working husband.

Table 6. **Determinants of children's activity, 7-17 year-olds (linear regression with standard errors clustered at the state level; state fixed effects included), BRAZIL**

Explanatory variables ^(a)		Work		School	
		Coefficient	t-stat	Coefficient	t-stat
Individual characteristics	Age	-0.072***	-5.2	0.109***	32.6
	Age squared	0.005***	8.2	-0.005***	-31.3
	Female	-0.084***	-8.2	0.009***	5.7
	White	-0.043**	-2.5	0.023	1.4
	Black	-0.049***	-2.9	0.002	0.1
	Yellow	-0.058***	-2.8	0.036*	1.9
	Mixed	-0.045***	-2.6	0.014	0.8
Household characteristics	Household size	0.0005	0.6	0.004***	3.6
	Siblings 0-4	0.0005	0.4	-0.039***	-21.6
	Siblings 5-14	0.008***	5.3	-0.0008*	-1.7
	Female Head	-0.005**	-2.3	-0.012***	-11.4
	Education of household head:				
	Primary	-0.019***	-7.2	0.037***	19.3
	Secondary	-0.037***	-10.7	0.056***	24.8
	Higher	-0.058***	-16.7	0.074***	28.1
Rural Residence	0.096***	4.3	-0.025***	-6.2	
Variables reflecting structural changes in the socio-economic background	Gini index	0.178***	2.8	-0.116**	-2.0
	Adult unemployment rate	-0.792***	-2.6	-0.319***	-5.2
	Extreme poor ^(a)	0.028***	10.5	-0.037***	-11.3
	Moderate poor ^(b)	0.003*	1.9	-0.020***	-7.4
	Access to piped water	-0.051***	-9.0	0.053***	15.6
	Pupil-teacher ratio ^(c)	0.002*	1.7	0.0007	0.6
	Share of adult workers in elementary occupations ^(d)	0.443***	7.0	-0.041	-0.5
Bolsa Familia ^(e)	-0.019	-1.6	0.047***	4.6	
Const	0.231***	2.5	0.335***	4.4	
Observations	1,376,650		1,377,266		
R squared	0.210		0.148		

Notes: Reference categories are the following: Ethnicity: indigenous; head's education: no education; year: 1992; Years 1996, 1997 are not included in the regression, since economic activity status is reported only for individuals aged 10 years and older. (a) Extreme poor refers to households under \$1.90 per day. (b) Moderate poor refers to households with income of at least \$1.90 per day but less than \$3.10 per day. (c) Refers to pupil-teacher ratio in fundamental and media school. (d) Elementary occupations comprise: domestic services; housekeepers; cooks; stewards; waiters; barmen; butlers; external couriers; scrap recyclers; vendors in kiosks and stalls; street vendors; fishery and hunting labourers; agricultural labourers; mining and quarrying labourers; drivers of animal-drawn vehicles; and other work in elementary industries and services. (e) Ratio of number of households-recipients to the total number of the eligible households, by state.

*Statistical significance at 10%; ** Statistical significance at 5%; ***Statistical significance at 1%.

Source: UCW calculations based on Brazil PNAD survey, 1992-2014.

Table 7. Determinants of children's activity, 12-17 year-olds (linear regression with standard errors clustered at the municipal level; municipal fixed effects included), MEXICO

Explanatory variables		Work		School	
		Coefficient	t-stat.	Coefficient	t-stat.
Individual characteristics	Age	-0.088***	-10.8	0.141***	20.5
	Age squared	0.005***	18.4	-0.007***	-29.4
	Female	-0.126***	-33.3	0.009***	7.0
	Eldest child	-0.016***	-9.1	0.046***	25.0
Household characteristics	Household Size	-0.011***	-15.1	0.016***	17.8
	Siblings 0-4	0.027***	18.9	-0.068***	-38.3
	Siblings 5-14	0.022***	26.7	-0.016***	-15.8
	Female head	0.027***	15.4	-0.001	-0.6
	Education of household head:				
	Primary	-0.040***	-21.5	0.060***	26.1
	Secondary	-0.079***	-37.5	0.112***	43.5
	Upper secondary	-0.120***	-42.8	0.161***	49.4
	Sector of employment of the Household Head:				
	Manufacturing	-0.049***	-15.4	0.020***	6.1
	Construction	-0.058***	-18.5	-0.001	-0.3
	Trade	-0.020***	-6.1	0.031***	9.4
	Services	-0.064***	-21.6	0.032***	10.4
	Other Sector	-0.093***	-29.0	0.039***	10.2
	Not employed	-0.338***	-45.7	0.151***	5.6
Rural residence	0.028***	7.7	-0.038***	-6.6	
Variables reflecting structural changes in the socio-economic background	Gini index	0.029**	2.0	0.007	0.3
	Adult unemployment rate	-0.002***	-4.0	-0.003***	-4.5
	Extreme poor ^(a)	0.021***	11.3	-0.018***	-8.1
	Moderate poor ^(b)	0.003**	2.0	-0.016***	-9.3
	Share of poor households in the municipality	0.015	1.0	-0.037*	-1.9
	Ratio of telesecundaria ^(c)	0.041**	2.3	-0.068**	-2.3
	Presence of Prospera ^(d)	0.005	1.2	-0.007	-1.1
	Beneficiaries Prospera ^(e)	-0.091***	-3.4	0.107***	2.9
Share of adult workers in elementary occupations in the municipality ^(f)	0.107***	13.8	-0.079***	-6.5	
Const	0.531***	8.982	0.062	1.107	
Observations	3,211,622		3,211,622		
R-squared	0.161		0.198		

Notes: Reference categories are the following: head's education: no education, head's employment sector: agriculture. (a) Extreme poor refers to households under \$1.90 per day. (b) Moderate poor refers to households with income of at least \$1.90 per day but less than \$3.10 per day. (c) Ratio of Telesecundaria is the ratio of telesecundaria schools to total secondary schools in the municipality. (d) Presence of Prospera in the municipality. (e) Ratio of beneficiary households to the households residing in the municipality. (f) Elementary occupations comprise: domestic services; housekeepers; cooks; stewards; waiters; barmen; butlers; external couriers; scrap recyclers; vendors in kiosks and stalls; street vendors; fishery and hunting labourers; agricultural labourers; mining and quarrying labourers; drivers of animal-drawn vehicles; and other work in elementary industries and services.

Estimates include also municipalities, time fixed effects and linear trend interacted by state.

Standard errors clustered by municipalities in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Source: UCW calculations based on Encuesta Nacional de Empleo (ENE) and Nacional de Ocupación y Empleo (ENOE) surveys, 2000-2014.

59. **Parental education** is a remarkably strong predictor of children's time use, again even when household income and other characteristics are controlled for. Each successive level of parental education is associated with a lower probability of work and a greater likelihood of school attendance.

60. **Poverty and inequality** seems to significantly affect children's time use. A child belonging to household in extreme poverty faces a higher risk of child labour (by more than two percentage points in each country) and of being out of school (by three percentage points in Brazil and two percentage points in Mexico) compared to children from non-poor households. Belonging to a "moderately" poor household also has a significant impact, especially in terms of increasing the risk of being out of school (by two percentage points in Brazil and 1.6 percentage points in Mexico) relative to non-poor children. In Mexico, the **share of poor households** has the expected impact on children's time, i.e., greater poverty raises the risk of child labour and of being out of school.¹⁸ This is likely to proxy for the overall level of economic development in a municipality. Greater **inequality**, as measured by the Gini index, is associated with a greater risk of child labour, particularly in Brazil.

61. **Access to basic services, proxied by household access to piped water**, is a strong predictor of children's time use in Brazil.¹⁹ Children from households enjoying piped water have a much higher likelihood of school attendance (five percentage points) and much lower probability of child labour (five percentage points) than children from households without piped water. This large effect might be due to the genuine effect of water access, as water fetching is often a time-consuming activity delegated to children. But it is likely in larger part a product of the fact that piped water access captures the effect of the economic status of the household and the community.

62. In Mexico, children from households whose **head works in the agriculture sector** are more likely to be in child labour and to be out of school.²⁰ The difference in risk is largest relative to children whose household head works in the service sector: having a parent employed in the service rather than the agriculture sector decreases the probability of child labour by six percentage points and of being out of school by three percentage points. Children from households whose head is not employed are also significantly *less* likely to work or to be out of school in Mexico.²¹

63. **Local labour demand and economic conditions** both affect children's risk of child labour and of being out of school. A larger **share of local workers in low-skill occupations** is associated with a greater risk of child labour in both countries, but this effect is less pronounced in Mexico where, as seen below, changes in the skills intensity of production were more limited.

64. In Mexico, reliance on less-equipped satellite secondary schools where lessons are delivered by television (i.e., "*telesecundaria*" schools), a proxy for **school quality**, increased the likelihood of child labour and reduced the likelihood of school attendance. In Brazil, the pupil-teacher ratio, another proxy for school quality, has only a small effect on children's time. As mentioned, several other proxies for school quality were utilized, but most

¹⁸Data on this variable is not available in Brazil.

¹⁹ Data on this variable is not available in Mexico.

²⁰Data on this variable is not available in Brazil.

²¹Data on this variable is not available in Brazil

were not significant. This result, however, should be interpreted in light of the difficulties in measuring school quality.

65. Participation in the *Bolsa Familia* programme in Brazil and the *Prospera* programme in Mexico both appear to have an important impact on children's time use. We estimate the effect of the programmes through a dummy for the existence of the programme in each state/municipality and the ratio of beneficiary households to total number of households in the state/municipality where the programme is in operation. The dummy for the existence of the programmes in each state/municipality in the sample is a measure of spillover effects, whereas the share of participating households provides an estimate of the average treatment effect on the treated.

66. The estimated effect of *Prospera* programme in Mexico in particular is highly significant for both child labour and schooling. Children in the municipalities with *Prospera* households have a 9.1 percentage points lower likelihood of child labour and a 10.7 percentage point higher likelihood of school attendance. The impact of the *Bolsa Familia* is significant for school attendance and marginally for child labour. Participation in the programme increases the probability of school attendance by 4.7 percentage points and reduces the probability of working by two percentage points. Note that the estimates of the effect of the programmes are conditioned on the poverty status of the household as well as on the poverty incidence in each state/municipality. Of course, poverty is also likely to be affected by participation in the programmes. Therefore, the estimated coefficients might underestimate the effect of the programmes on child labour.²²

67. These estimates, together with the trends in the explicative variables, help us to understand the forces that were at play in determining the observed changes in child labour.

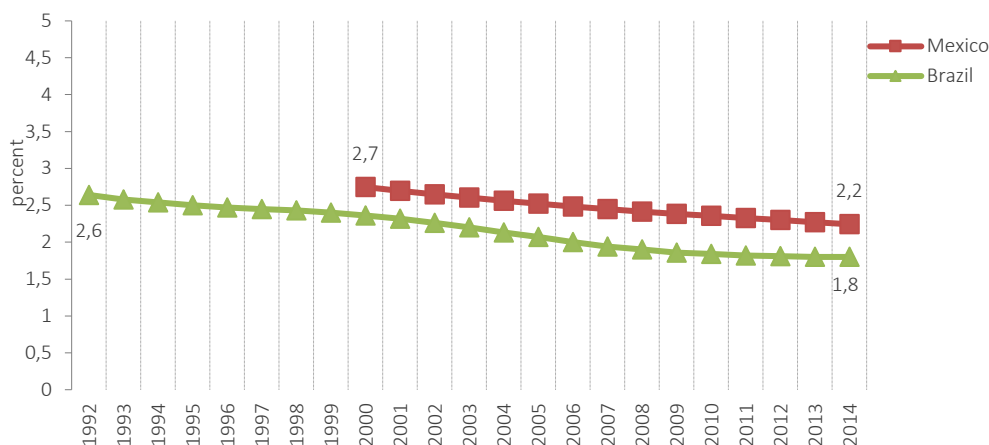
3.4. Evolution of child labour determinants

68. In this section, we look at changes over time to the most important determinants of child labour and schooling and discuss the possible relevance of these changes to the observed evolution of child labour and schooling. For consistency with the other analytical sections of this report, we focus on changes over the period from 1992 to 2014 in Brazil and from 2000 to 2014 in Mexico.

²² We also estimate a model with a set of interactions between child, household, and municipality level variables to capture heterogeneity in the impact of the programme, but they are not statistically significant.

Figure 7. Fertility rates continued to decline

Total fertility rate (births per women), ^(a) Mexico and Brazil, by year^(b)



Notes:(a) Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year. (b) Date ranges correspond to the study periods in each country.

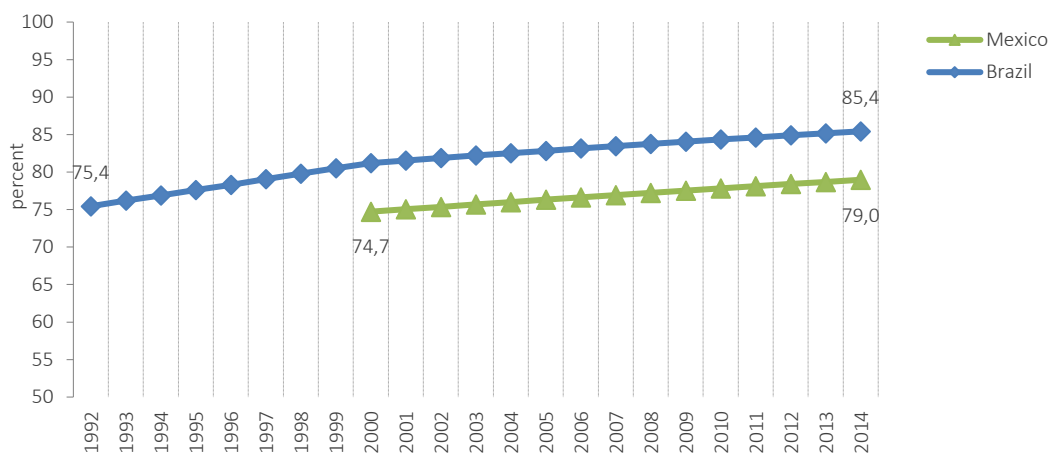
Source: World Bank, World Development Indicators database (accessed April 2017).

69. Brazil and Mexico both experienced important structural changes in their economies and populations over the study period that are relevant to the evolution of child labour and school attendance. Both saw a continuation of their transitions to lower fertility and smaller family sizes. As we have seen, having fewer household dependents, in turn, lowers the probability of a child working. During the relevant study period for each country, Mexico experienced a decline in the total fertility rate from 2.7 to 2.2 and Brazil a decline from 2.6 to 1.8 (Figure 7).

70. Both Brazil and Mexico were already highly urbanized at the beginning of the respective periods considered, but the process of urbanization continued over the course of the study periods in the two countries (Figure 8). As we have seen, children living in urban areas are less likely to be involved in child labour.

Figure 8. Urbanization continued apace

Urban population as % of total population, Mexico and Brazil, by year^(a)



Notes:(a) Date ranges correspond to the study periods in each country.

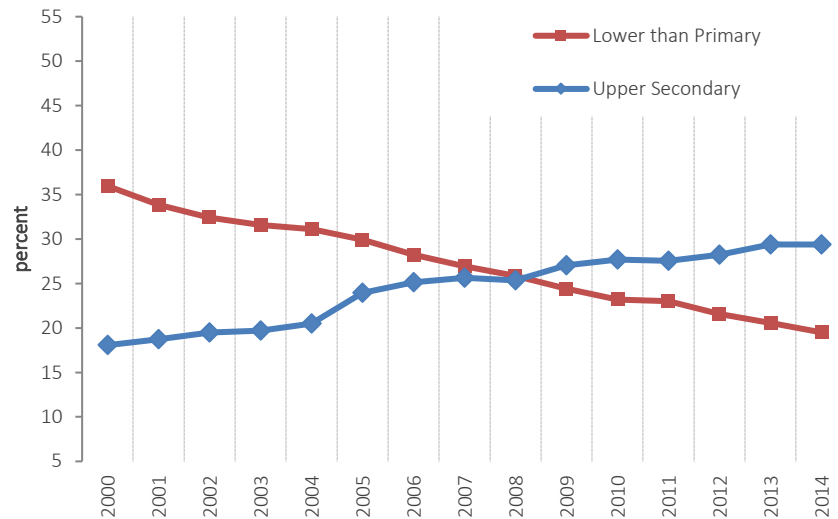
Source: World Bank, World Development Indicators database (accessed April 2017).

71. Parental education improved dramatically over the respective study periods in the two countries. In each, a much higher share of household heads had upper secondary education and a much lower share had only less than primary education at the end of the study period compared to its beginning (Figure 9). Again, we saw earlier that parental education has a highly significant impact in terms of the reducing the likelihood that a child must work.

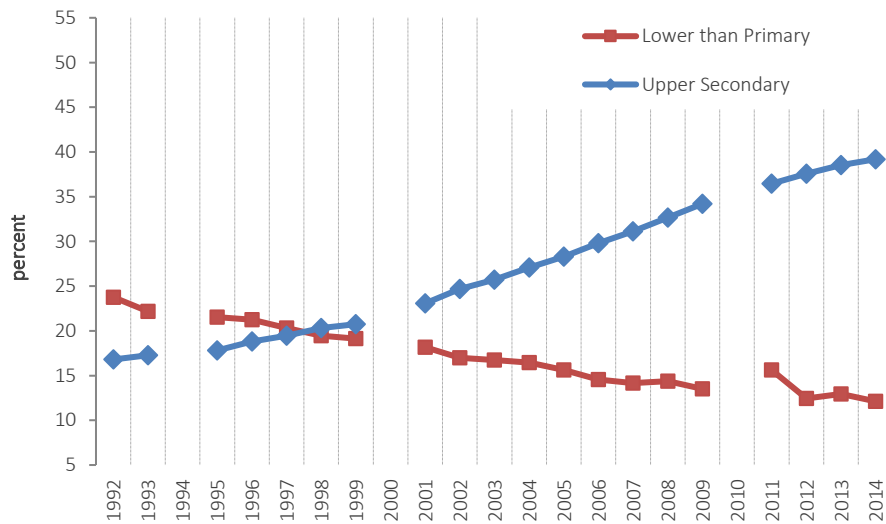
Figure 9. Parental education levels improved dramatically

Education level of the household head (% distribution), Mexico and Brazil, by year^(a)

(a) Mexico



(b) Brazil



Notes:(a) Date ranges correspond to the study periods in each country.

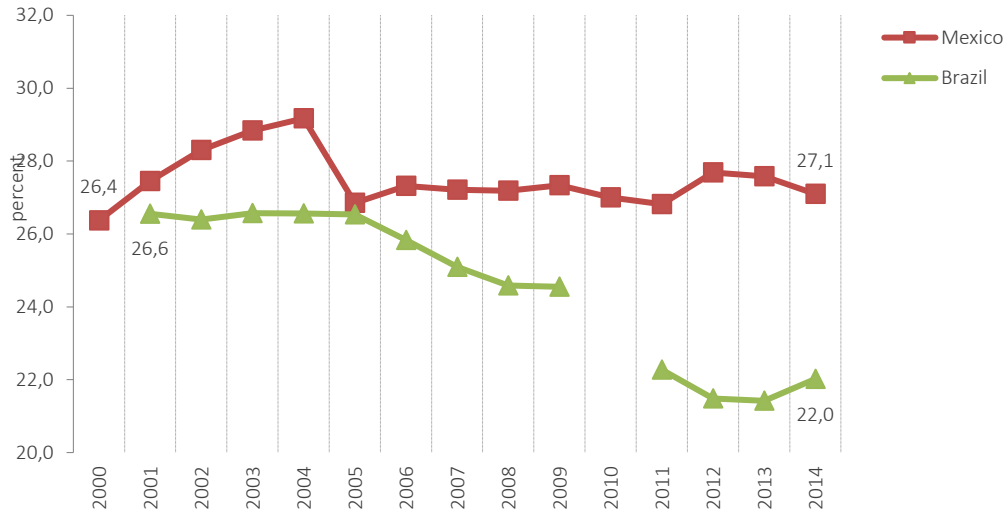
Source: ENE-ENOE (Mexico) and PNAD (Brazil).

72. Employment in low-skill occupations over the study periods declined significantly in Brazil, but remained largely stable in Mexico (Figure 10). In Brazil, the relative reduction in demand for low-skilled jobs contributed substantially to the reduction of child labour. Given the small changes in the

demand for low-skilled jobs in Mexico, on the other hand, it had a minor impact on child labour in that country.

Figure 10. Employment in low-skill occupations declined

Share of adult workers in low-skill occupation as % of total employment, Mexico and Brazil, by year^(a)

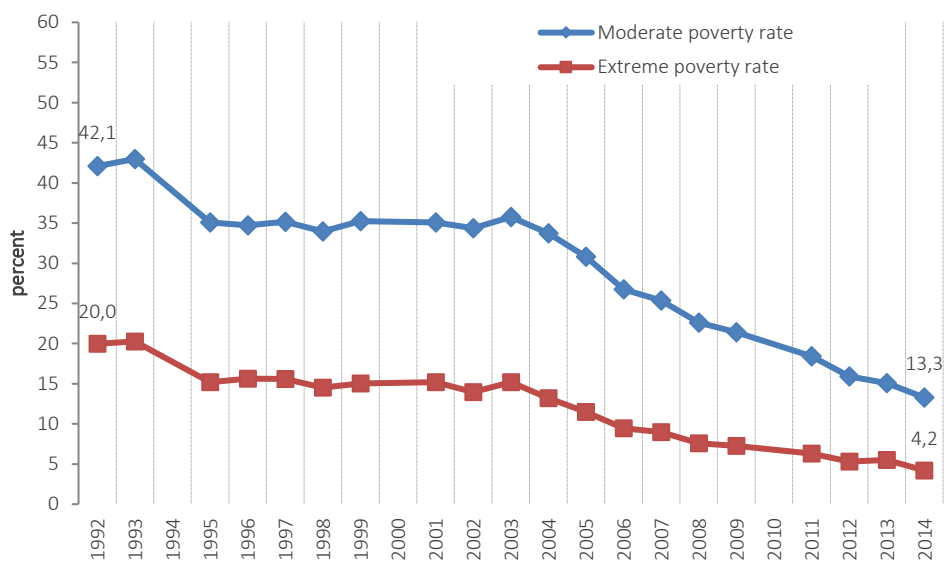


Source: UCW calculations based on Brazil PNAD 2001-2014 and MEXICO ENE-ENOE 2000-2014.

73. Poverty rates fell dramatically in Brazil over the course of the study period. Moderate poverty fell more than three-fold, from 42 per cent to 13 per cent, and severe poverty by almost five-fold, from 20 per cent to four percent, over the period from 1992 to 2014 in Brazil (Figure 11). Progress in reducing poverty was particularly pronounced during the latter part of the study period, i.e., from 2003 to 2014. Progress in reducing poverty was mixed in Mexico over the relevant study period. Poverty rates, as approximated by adequacy of consumption, declined during the period up to the outbreak of the global economic crisis in 2008 but increased thereafter. As a result, roughly the same share of the population had inadequate levels of consumption to cover basic needs²³ at the end of the study period as at the beginning. Poverty, we saw earlier, increases the likelihood of families having to resort to child labour.

²³ In terms of food, health, education, clothes, transportation and expenses.

Figure 11. Percentage of population in poverty, Brazil, by year^(a)



Notes: (a) Date ranges correspond to the study period.

Source: Instituto de Pesquisa Econômica Aplicada (IPEA) (Brazil).

Figure 12. Percentage of population in poverty by inadequacy of consumption level,^(a) Mexico, by year^(b)



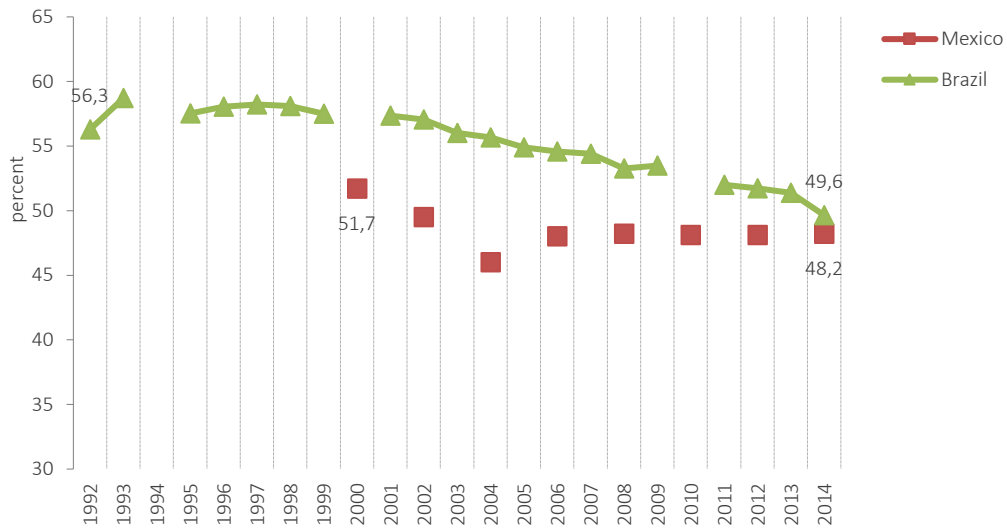
Notes: (a) "Food+" refers to food, health and education; "Food++" refers to food, health, education, clothes, transportation and bills. (b) Date ranges correspond to the study periods in each country.

Source: CONEVAL (Mexico).

74. Inequality declined in both Brazil and Mexico over the periods considered, even if the decline in Brazil appears larger. In Mexico, statistics from the World Bank Development indicator show a decrease in the Gini index from 51.7 in 2000 to 48.2 in 2014. In Brazil, statistics from *Pesquisa Econômica Aplicada* show a decline in the index from 56.3 in 1992 to 49.6 in 2014. The preceding analysis showed that lower levels income inequality reduce the likelihood of child labour, and these inequality trends are also therefore relevant to explaining the evolution of child labour.

Figure 13. Inequality declined in the two countries

Gini index, Mexico and Brazil, by year^(a)



Notes: (a) Date ranges correspond to the study periods in each country.

Source: World Bank development indicators (Mexico) and Instituto de Pesquisa Econômica Aplicada (IPEA) (Brazil).

75. Education quality appears to have improved in the two countries. We saw earlier that better quality education, in turn, reduces the likelihood of children working by increasing the value of time spent in the classroom. The pupil-teacher ratio, one important indicator of education quality, fell by about one-fourth in Brazil from the period from 1998 to 2014, and in 2014 stood at only 16.4 students per pupil (Figure 14a). Mexico saw a decline in the pupil-classroom ratio from almost 20 in 2000 to 17 in 2014. Mexico also decreased its reliance on satellite secondary schools (i.e., “telesecundaria” schools) to reach students in remote rural areas, another indication of improved education quality in the country (Figure 14b).

Figure 14. Education quality improved

(a) Pupil-teacher ratio, Brazil, by year^(a)

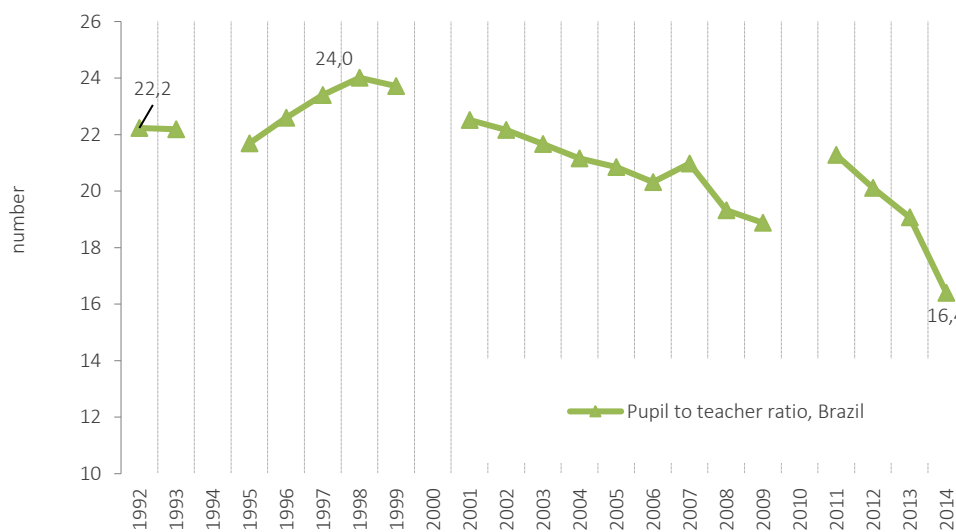
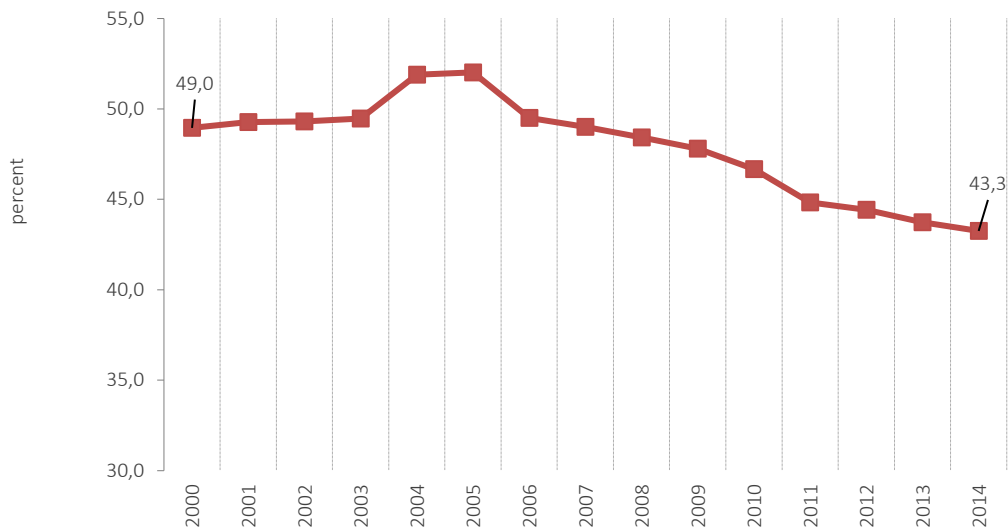


Figure 14.Cont'd

(b) Telesecundaria schools as a share of total secondary schools, Mexico, by year^(a)



Notes:(a) Date ranges correspond to the study periods in each country.

Source: CONAFE (Mexico) and Instituto de Pesquisa Econômica Aplicada (IPEA) (Brazil).

76. Coverage of the *Prospera* and *Bolsa Familia* programmes (see Panel 4) grew steadily, helping to extend the social protection floors for the poor and to reduce their reliance on child labour. Coverage of the *Prospera* programme in Mexico grew from fewer than 2.5 million beneficiary households in 2000 to 6.1 million in 2014 (Figure 15.a). The growth of the *Bolsa Familia* programme in Brazil was even more dramatic. *Bolsa Familia* programme coverage more than doubled from 6.6 million in 2004 to 16.0 million 10 years later (Figure 15.b).

Figure 15. Coverage of the *Prospera* and *Bolsa Familia* programmes^(a) grew steadily

(a) No. of beneficiary households for *Prospera* (Mexico), by year^(b)

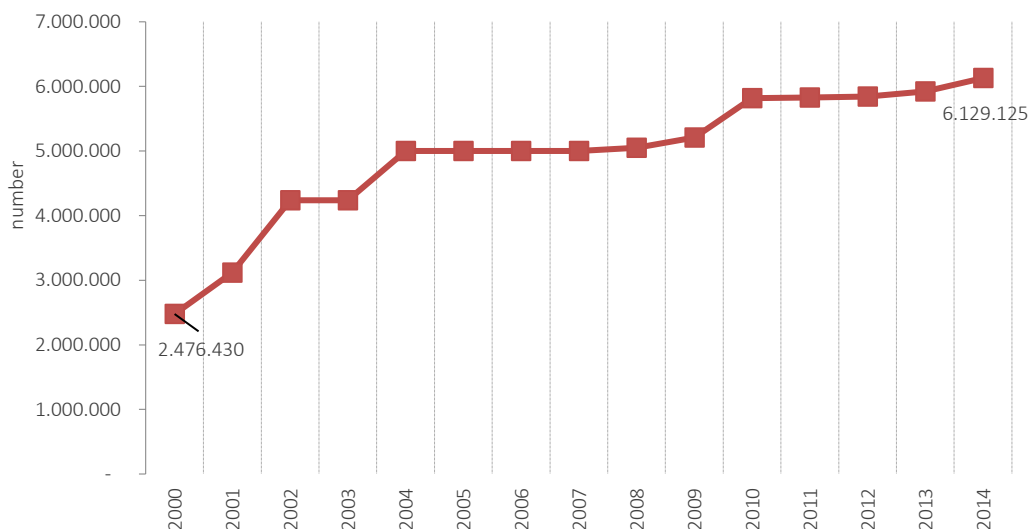
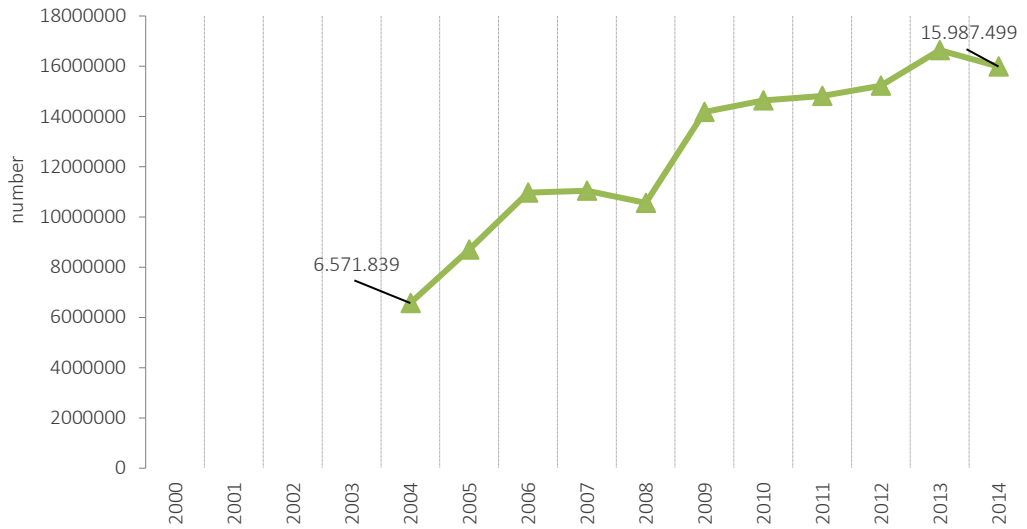


Figure 15.Cont'd

(b) No. of beneficiary households for *Bolsa Familia* (Brazil), by year(b)



Notes: (a) The two programmes are described in Panel 4. (b) Date ranges correspond to the study periods in each country.

Source: CONAFE (Mexico) and Instituto de Pesquisa Econômica Aplicada (IPEA) (Brazil).

3.5. Explaining the reduction in child labour

77. We have thus far in this chapter identified a set of determinants of child labour in Brazil and Mexico and looked at how these determinants have evolved over the time periods of interest in each country. In this section, we bring this information together to assess how the evolution of the determinants has contributed to the observed reductions in child labour in the two countries.

78. We use the estimated coefficients and the observed changes in the explanatory variables included in the regression to compute the contribution of each variable (or group of variables) to the change observed in the dependent variable, namely child labour and school attendance.

79. The percentage contribution of the variables in group Z (for example, household structure) is given by the ratio between the two terms in equation (2). The numerator is the observed change in the mean value of the variables describing household structure multiplied by the estimated coefficient. The denominator is the change in the final and the initial year of the dependent variable.

$$C_Z = \frac{\beta_Z(\bar{Z}_T - \bar{Z}_{T_0})}{\bar{Y}_T - \bar{Y}_{T_0}} \quad (2)$$

80. The estimates for Brazil and Mexico are reported in Table 8 and Table 9, respectively. In both countries, the results suggest that a mutually-reinforcing combination of structural transformations and active policies explains much of the reduction in child labour and increase in school attendance. The results for each country are discussed in more detail below.

Table 8. Contributions to increase in school attendance and decrease in child labour, 1992-2014, children aged 7-17 years, BRAZIL

	Variables	Contributions to the decrease in child labour	Contributions to increase in school attendance
Child and household characteristics	Demographics (child age)	-12.0	-7.1
	Fertility ^(a)	5.7	1.4
	Education of household head	10.2	10.6
	Area of residence (rural)	4.2	1.0
Variables reflecting structural changes in the socio-economic background	Poverty and inequality ^(b)	14.4	12.3
	Adult unemployment rate	2.4	-0.9
	Access to piped water	8.5	7.8
	Share of adult workers in elementary occupations	27.7	2.3
	Pupil-teacher ratio	9.5	-2.8
	<i>Bolsa Familia</i> participation ^(c)	8.0	17.4
	Other ^(d)	0.6	-2.9

Notes:(a) Fertility captures the effect of number of children aged 0-14 and of the household size. (b) Poverty and inequality capture the effect of extreme poverty, moderate poverty and inequality as measured by the Gini index. (c) Ratio of number of households-recipients to the total number of the eligible households, by state. (d) "Other" captures the effect of the sex of child, ethnicity, and female headed household.

Source: UCW calculations based on Brazil PNAD survey, 1992-2014.

81. In Brazil, long-term structural changes in the characteristics of the population and the economy made a substantial contribution to the observed changes in child labour and education.

82. The reduction in fertility in particular had two important offsetting effects. Lower fertility firstly meant important changes in household composition, and in particular fewer dependent household members and smaller family sizes, which in turn helped relax the financial pressures that can force families to send their children to work. But, in the short term, lowered fertility also increased the average age of children (as fewer children were being born) and, as propensity to work and to leave school increases with age, this placed upward pressure on child labour rates.

83. Structural changes in the economy also appear to have been very important. The move away from low-skill elementary occupations, and in particular away from low-skill work in the agriculture sector, where children's labour was most relevant, accounted for about one-third of the observed change. However, the large magnitude of this effect means that it should be interpreted with some caution. The exclusion of the variable for elementary occupations from the estimates does not alter the other results. The process of urbanization, another important structural factor, contributed 5 per cent of the observed decline in child labour. This result was driven primarily by the fall in children's involvement in agriculture as families moved to urban settings.

84. But the decline in child labour in Brazil was not explained by these structural factors alone. Active policies were at least as important. Especially relevant in this context was *Bolsa Familia*, the country's large scale social security programme, which was instrumental in reducing household vulnerability and creating incentives for children to attend school rather than work. *Bolsa Familia* accounted for 17 per cent of the increase in school attendance and one-tenth of the decrease in child labour, independent of its impact on poverty. The programme, as a key poverty reduction instrument,

also helped to reduce poverty and inequality (see below), and therefore its total effect was even larger.

85. Long term changes in the education of the adults (as approximated by the education level of the household head), driven by earlier education promotion and expansion policies, explained about 10 per cent of the changes in both child labour and school attendance. Successful efforts to improve the quality of education, as reflected in the reduction of the pupil-teacher ratio, were responsible for almost one-tenth of the decline in child labour. Improved school quality does not seem, however, to have had an impact on school attendance, although this is likely a reflection of the difficulties in measuring school quality and the shortcomings of the pupil-teacher ratio as a proxy in this regard.

86. Improvements in living standards and overall declines in poverty and inequality – spurred by social reforms and programmes such as *Bolsa Familia* – were other critical contributors to progress in reducing child labour and increasing school attendance. Reduced poverty and inequality together accounted for over 14 per cent of the decline in child labour and for over 12 per cent of the rise in school attendance. Finally, investments in extending access to public services (as approximated by the access to piped water), which helped reduce the value of children’s time outside the classroom, were responsible for 9 per cent of progress against child labour and 8 per cent of progress in raising school attendance.

Table 9. Contributions to increase in school attendance and decrease in child labour, 2000-2014, children aged 12-17 years, MEXICO

	Variables	Contributions to the decrease in child labour	Contributions to increase in school attendance
Child and household characteristics	Demographics (child age)	1.0	0.8
	Fertility ^(a)	3.9	3.0
	Education of household head	21.9	21.8
Variables reflecting structural changes in the socio-economic background	Poverty and inequality ^(b)	5.4	4.7
	Adult unemployment rate	4.4	-5.2
	Sector of employment of household head (not in agriculture)	-0.6	-0.2
	Share of adult workers in elementary occupations	-0.8	-0.4
	Quality of Education (<i>Telesecundaria</i>)	0.9	1.0
	<i>Prospera</i> participation ^(c)	9.1	7.4
	Other ^(d)	2.2	3.2

Notes: (a) Fertility captures the effect of number of children aged 0-14 and the household size. (b) Poverty and inequality capture the effect of extreme poverty, moderate poverty and inequality as measured by the Gini index. (c) Ratio of beneficiary households to the households residing in the municipality. (d) "Other" captures the effect of the sex of child, ethnicity, female-headed household, and area of residence.

Source: UCW calculations based on *Encuesta Nacional de Empleo (ENE)* and *Nacional de Ocupación y Empleo (ENOE)* surveys, 2000-2014.

87. In **Mexico**, we observe, with a few exceptions, qualitatively similar results, and a similarly important role played by active policies in explaining the decline of child labour.

88. Especially significant in Mexico were active policies in education, starting in the 1970s and 1980s, that helped create a new generation of more educated

parents less inclined to send their children to work. Improvements in parents' education accounted for over one-fifth of the fall in child labour and for over one-fifth of the rise in school attendance. Mexico experienced a drastic increase in primary completion rates in the 1970s and 1980s when most the parents of the children in the sample were compulsory school-age children. As the younger and more educated generation of parents began to have school-aged children, this apparently induced a substantial reduction in the number of children sent to work. Higher educated parents tend to value education more and this was reflected in their decisions concerning the allocation of their children's time.

89. Participation in the federal *Prospera* programme also appears to have been very important. Like the *Bolsa Familia* programme in Brazil, *Prospera* helped to reduce household vulnerability and incentivize schooling over work. *Prospera* accounted for about 9 per cent of the fall in child labour and for 7 per cent of the rise in school attendance, independent of the programme's undoubtedly important impact on poverty.

90. Reductions in poverty and inequality, helped by *Prospera* and other important investments in expanding the social protection floor for vulnerable households, accounted for 5 per cent of the changes in both child labour and school attendance. Finally, access to quality education, as proxied by the ratio of *telesecundaria* to secondary level institutions, contributed to about 1 per cent of the changes in child labour and school attendance, although, as discussed above, the difficulties in measuring school quality should be kept in mind in interpreting this result.

91. Before concluding this discussion on the determinants of the decline in child labour in Brazil and Mexico, it is important to note that a part of the change for both countries remains unexplained by the variables considered. While this knowledge gap is in part a reflection of the intrinsic limitations of the data and the approach used, it also points to the need for further analysis of the drivers of change and of appropriate policy responses.

CHAPTER 4. THE ROAD FORWARD: LESSONS LEARNED AND THEIR IMPLICATIONS FOR FUTURE EFFORTS AGAINST CHILD LABOUR

92. A variety of research reports and country level statistics²⁴ presenting trends on child labour point to a high degree of variation across countries. While some countries achieved a significant decline in child labour in recent years, others saw progress against child labour stagnate or even reverse. Understanding why some countries have been more successful than others in reducing child labour will be critical to accelerating progress in the lead-up to the 2025 target date for ending child labour in all its forms.

93. The cross-country analysis in Chapter 3 also provided some initial insight in this regard. The results suggested that child labour changes were not only correlated with structural transformations of the economy favouring higher-skill forms of production, but were also associated with legal measures accompanied by active policies. Indeed, one of the more striking and encouraging findings was the strong apparent link between ratification of international legal standards and progress against child labour.

94. In particular, there was a strong and statistically significant negative correlation between ratification of ILO Convention No. 182 and child labour. Ratification is not a unique or isolated event, but rather is accompanied by a range of legislation and policy activities that undoubtedly play a determining role in this regard. Underlying ratification is also a political commitment to ending child labour and to prioritizing the fight against child labour in national development agendas.

95. The more detailed and more robust analysis of child labour changes in the two countries with appropriate longitudinal data – Brazil and Mexico – provides even more compelling evidence for the primacy of active policies in explaining the decline in child labour. While broader economic transformations and improved living standards were important, the evidence from these countries makes clear that the progress against child labour would not have happened in the absence of active government policies.

96. Progress against child labour, in other words, did not happen on its own, but rather was the product of deliberate policy efforts. In fact, much of the decline can be traced to active policy efforts to extend and improve schooling, which led to more educated generations of parents, efforts to implement broad-scale cash transfer schemes that helped to improve living standards and shift incentives structures in favour of schooling, and efforts to expand basic services, which freed children from tasks such as water collection. The ILO has argued in the past that while economic growth is important, policy choices can matter even more, and the results of this study provide further support for this assertion.

²⁴ UCW Country Statistics database on child labour, available at: www.ucw-project.org/Pages/ChildLabIndicator.aspx.

The road forward

97. The lessons emerging from this analysis of past progress offer important guidance to ILO constituents and the worldwide movement against child labour.

98. **A multifaceted policy response.** The evidence presented in this report indicates that structural changes to the population and economy explain a relatively small part of past progress against child labour. This suggests that relying on these structural factors alone is unlikely to be sufficient to eliminate child labour in the short period up to 2025. The complexity of child labour means that there is no single or simple answer to it, and the success of Brazil and Mexico underscores the value of an active and multifaceted policy response that addresses the wide range of factors contributing to child labour in a comprehensive fashion.

99. The evidence in this report also reinforces the relevance of many of the specific strategic policy directions set out in ILO action plans, including The Hague Roadmap. In particular, the evidence suggests that integrated actions relating to **social protection, education, labour markets, basic services, and legislation** appear to be important ingredients in the recipe for success. These priority areas of focus are discussed in more detail below.

100. **Building effective national social protection floors.** The evidence from Brazil and Mexico indicates that expanding social protection floors can make a direct contribution to addressing the multidimensional economic and social vulnerabilities that promote and sustain child labour. Both the *Bolsa Familia* and *Progresa* programmes, which provide monthly cash transfers conditional on school attendance and other behaviours, were shown to significantly reduce child labour and raise school attendance. More broadly, ILO Social Protection Floors Recommendation, 2012 (No. 202) sets out key principles and guarantees in establishing national social protection floors, all of which are relevant from the perspective of preventing child labour.²⁵

101. **Strengthening education as an alternative to child labour.** There is a broad consensus that one of the most effective means of preventing children from entering child labour is to extend and strengthen schooling so that families can have the opportunity to invest in their children's education, and the returns to schooling make it worthwhile for them to do so. The evidence from Brazil and Mexico provided additional support for this consensus, indicating the investments in improving school access and school quality were crucial to getting children out of the workforce and into the classroom. Specifically, past investments in expanding school access in the two countries helped make the current generation of parents more aware of the benefits of schooling, while current investments in school quality added further to the perceived value of time in the classroom.

102. **Promoting skills-intensive job growth.** Evidence was presented in both Chapter 3 and 4 of this report suggesting that a higher demand for skills can translate into increased education and lower levels of child labour. This

²⁵ Specifically, the Recommendation states that national social protection floors should comprise at least the following four social security guarantees, as defined at the national level: (i) access to essential health care, including maternity care; (ii) basic income security for children, providing access to nutrition, education, care, and any other necessary goods and services; (iii) basic income security for persons in active age who are unable to earn sufficient income, in particular in cases of sickness, unemployment, maternity, and disability; and (iv) basic income security for older persons.

evidence lends support to a growing body of research indicating that greater returns to education in the labour market can create incentives to stay in school (and out of work) longer. In terms of economic strategy, this evidence suggests that investment in technology and higher-skill modes of production is relevant to the broader fight against child labour.

103. **Expanding basic services.** The experience of Brazil offers compelling evidence of the importance of access to basic services (in this case piped water) to decisions concerning children's work and schooling. Increased water access was responsible for a sizable share of both the decline in child labour and rise in school attendance among Brazilian children. In simple terms, by making water available at or in the proximity of the household residence, the value of time spent by children outside school was reduced, as they were no longer needed for fetching water. This evidence suggests that expanding basic services is another important priority in the fight against child labour when and where access such services is limited.

104. **Labour legislation consistent with international child labour standards.** The multi-country analysis in Chapter 3 indicates a positive and statistically significant correlation between progress against child labour and ratification of international legal standards, underscoring the importance of child labour laws as a starting point and framework for action. There are many contributions that labour legislation consistent with international child labour standards can make in efforts against child labour: it translates the aims and principles of international standards into national law; it sets the principles, objectives, and priorities for national action to combat child labour, and especially its worst forms; and it establishes the machinery for carrying out that action. But perhaps most importantly, it articulates and formalizes the State's duty to protect its children.

ANNEX 1. THE MAIN CAUSES OF CHILD LABOUR

Child labour is a symptom of poverty. This is apparent at the national level, where cross-country data (presented in Chapter 3) shows that child labour is most pervasive in countries where income levels are lowest. Within countries, we also know that child labour is much more common in poorer households. This simple correlation between household poverty and child labour is supported by a growing number of studies exploiting longitudinal or episodic data indicating that poverty induces households to rely more on child labour.²⁶

But poverty is by no means the only cause of child labour and a policy response focused entirely on poverty reduction is therefore unlikely to be successful. Across countries, for instance, at a given level of national income it is possible to see a wide variation in terms of levels of child labour. Similarly, within countries, we know that while child labour is more prevalent in poor households it is in no way limited to poor households. Clearly, factors other than poverty are also at work. A broader framework for explaining child labour is therefore needed.

As children are rarely responsible for their own choices, explaining child labour requires understanding of factors influencing household decisions relating to children's schooling and work. The simplest economic model of household behaviour in this regard rests on three basic propositions.²⁷ The first is that the allocation of children's time between schooling and work is decided by the household in order to maximize its present and future welfare. The second proposition is that, with some limitations, child labour is an activity aimed at increasing current income while education is an investment in generating future income. The third is that the presence of resource constraints or risks can limit the ability of families to trade the immediate income from child labour for the longer-term returns to education.

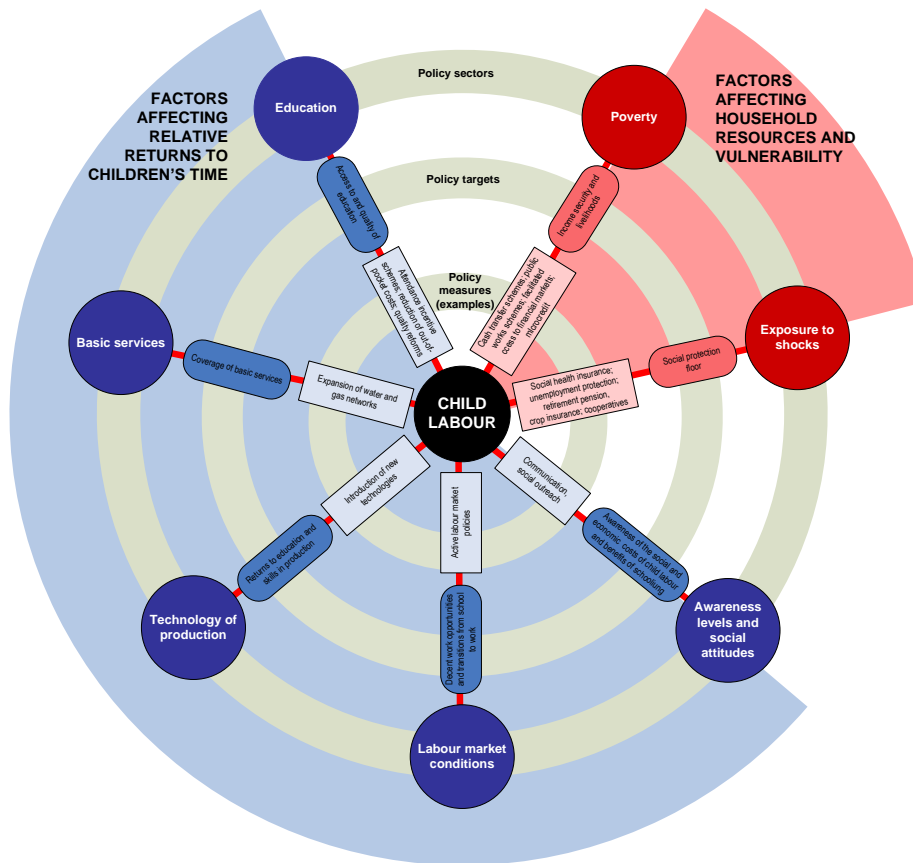
Taken together, these propositions mean that if parents have sufficient current resources (or access to credit) and are not facing risks, the allocation of children's time is guided by the perceived relative returns of work with respect to education. But if parents are resource-constrained or vulnerable to shocks, then these additional considerations also enter into their decisions concerning children's time use.

While these general statements concerning parents' decision-making are clearly an oversimplification, they nonetheless allow us to draw a broad distinction between two categories of child labour determinants: (1) those affecting the relative returns to children's work and schooling, and (2) those concerning household resources and exposure to risk. These categories are depicted in Figure A1 and explained further below.

²⁶ See, for example, E. Edmonds, as cited in *World report on child labour: Economic vulnerability, social protection and the fight against child labour*, International Labour Office, Geneva, 2013.

²⁷ The theory of household behaviour regarding child labour is a complex topic to which it is impossible to do full justice to here. We attempt in this section only to present the theoretical basis for the relevance of social protection to child labour in non-technical terms. For an in-depth discussion of this topic, see A. Cigno and F. C. Rosati: *The Economics of Child Labour* (Oxford University Press, 2005).

Figure A1. Factors influencing household decisions concerning child labour



Factors affecting household resource constraints and vulnerability

Poverty falls into the latter category of determinants within this household decision-making framework. In simplest terms, poverty makes it more likely that households are forced to send their children to work in order to meet their basic current needs, thereby forgoing the higher future benefits to be gained from investing in their children’s education.

Exposure to shocks, a source of income *volatility*, is also relevant to household decisions concerning school and work. Negative shocks are unforeseen events causing disruptions to the economy of a single household (e.g., serious illness or job loss of an adult breadwinner) or the broader community or region (e.g., a macro-economic crisis). Although the numerous studies on the impact of shocks address a variety of types of shocks in an array of settings,²⁸ they point to a common conclusion – that child labour can be used by households as a buffer against negative shocks, particularly in contexts where their capacity to borrow is limited and where the formal social protection floor is inadequate.

Poverty and income volatility are of course closely related. While volatile incomes and shocks are problematic for households at all levels of the income distribution, they are particularly onerous for the poor. Households with

²⁸ See, for example, the literature reviewed in *Joining forces against child labour*, Understanding Children’s Work project (UCW), (ILO, Geneva, 2010).

lower incomes are likely to be asset-poor as well, with fewer savings to draw upon and, owing to insufficient collateral, less scope for borrowing to maintain living standards. Being close to the subsistence floor, they are more likely to find themselves falling below it when faced with a shock.

This discussion points to the important potential role of social protection and complementary social finance in addressing child labour. A well-designed social protection floor can offer basic income security throughout the life cycle, buffering shocks and income fluctuations as and when they occur, and ensuring access to essential health care and other social services. Social finance vehicles such as microcredit and microinsurance can play an important complementary role in ensuring vulnerable families are not excluded from the financial services and facilities they need.

Factors affecting the relative returns to work and schooling

In the absence of resource constraints and risk, the (immediate) returns to work and the (longer-term) perceived returns to education are at the centre of parents' decisions concerning their children's time use. High returns to work raise the price of time foregone to attend school, while high perceived returns to education place a cost on school time lost for work. Addressing factors affecting the relative returns to children's time in work and school is therefore also critical to preventing households from opting to involve children in work at the expense of schooling.

The **accessibility and quality of schooling** are perhaps the most obvious factors in this regard. There is broad consensus that the single most effective way to stem the flow of school-aged children into work is to extend and improve schooling, so that families have the opportunity to invest in their children's education and the returns to schooling make it worthwhile for them to do so. In terms of promoting school access, evidence suggests that incentive schemes that provide cash or in-kind subsidies to poor children conditional on school attendance offer one promising route.²⁹ The emerging evidence relating to school quality suggests that it is not so much the level of school inputs that is most important, but rather the way they are utilized in service of children's educational needs.

The **availability of basic services** can affect the value of children's time, consequently, household decisions concerning how this time is allocated between school and work. Evidence suggests that a lack of access to piped water networks, for example, can raise the value of children's time in non-schooling activities, as children are needed to undertake responsibility for water collection or to help cover the cost of purchasing water.³⁰ In addition to its health and other social benefits, therefore, expanding access to basic services is an important strategy for getting children, and particularly girls, into school and out of work.

The **technology of production**, particularly in agriculture but also in other sectors, is another important determinant of the value of children's time outside the classroom. Although it is difficult to disentangle the income from

²⁹ See, for example, J. de Hoop and F. C. Rosati, *Cash transfers and child labour*, UCW Working Paper, Rome, 2014.

³⁰ See, for example, F. C. Rosati, S. Lyon, and L. Guarcello, *Child labour and access to basic services: evidence from five countries*, UCW Working Paper Series, Rome, 2004.

substitution effects, there is evidence indicating that shifts to higher-skill production methods reduce returns to child labour and increase returns to education. Children's labour, in other words, is less relevant in production contexts employing more advanced technologies or equipment that require higher-level skills and training. Hence, policies, especially in the agricultural sector, that aim at introducing technological innovation requiring an increase in the average skill level are likely to help reduce the demand of child labour and increase the demand for more skilled (adult) labour.

105. Returns to education in the **labour market** are another important determinant of the human capital investment decisions of households. The decision to enter and to remain in school, in other words, depends on the expected benefits. If chances of securing decent work after graduation are low or transition from school to work is difficult and lengthy, it is more likely that children, especially from poor households, will leave school early and begin to work. Evidence from a study in Dominican Republic suggests that expected wages in particular are important in this context. The study showed that students provided with accurate information concerning the wage premium associated with additional education were much more likely to remain in school than those who were unaware of, or who under-estimated, this premium.³¹

Awareness levels and social attitudes are less tangible but nonetheless also influential in how families perceive the trade-off between children's schooling and work. If families are insufficiently aware of the benefits of schooling (or of the hazards and the health and developmental costs of child labour) they are less able to make informed decisions on their children's time allocations. Better information might thus change perceptions on the costs and benefits of child labour and education, and contribute to modifying household behaviour.

Social norms, cultural attitudes, and perceptions regarding girls' schooling or early marriage, for example, might also direct household behaviour and impede schooling in favour of child labour. Research in Mexico and Venezuela, for instance, indicates that greater social acceptance of child labour reduces the "social stigma" associated with it and raises child labour rates.³² In Indian districts, children's time allocation decisions are found to be closely related to local attitudes and social norms towards children's activities.³³ In India and Ghana, a large part of the decision concerning children's time allocation is left unexplained even after taking into consideration a large set of quantifiable child, household, and community factors. These important elements which remain unexplained are likely to be the product of intangible household perceptions, knowledge, and practices regarding children's work and schooling.³⁴

Empirical results consistently point to the importance of mothers' education in influencing decisions concerning school and work. There are numerous

³¹R. Jensen, "The (perceived) returns to education and the demand for schooling", *The Quarterly Journal of Economics*, May 2010.

³²R. Bando, L. F. Lopez-Calva, and H. Patrinos, *Child labor, school attendance, and indigenous households : evidence from Mexico*, Policy Research Working Paper (WPS 3487), The World Bank, 2005.

³³R. Chamarbagwala and R. Tchernis, *The role of social norms in child labour and schooling in India*. CEPR working paper, N° 2006-016, 2006.

³⁴P. Deb and F. C. Rosati, *The determinants of child labour and school attendance: the role of household unobservable*, UCW Working Paper Series, Florence, 2002.

possible interpretations for this result. Mothers' time, for instance, is, in economic terms, an input into the education of their children, and the mother's own level of education raises the productivity of this input. But the result is also likely to be at least in part a reflection of better knowledge concerning the relative costs and benefits of work and school upon which to make informed decisions concerning the division of children's time between the two.

The proceeding discussion makes clear that child labour is not an isolated issue explained by poverty alone. Rather, the child labour phenomenon is the combined product of many factors that bridge traditional policy boundaries. Accordingly, as highlighted in the Roadmap for achieving the elimination of the worst forms of child labour adopted at The Hague Global Child Labour Conference of 2010, a policy response to child labour needs to be cross-sectoral and comprehensive, addressing in an integrated fashion the full range of reasons why children work. Key pillars of a comprehensive policy response to child labour include social protection, education, labour markets, basic services, and awareness-raising.

ANNEX 2. ADDITIONAL STATISTICS

Table A1. Cross-country assessment of child labour correlates: descriptive statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
Child labour (%)	overall	12.49	12.81	0.42	66.70	N = 111
	between		13.13	0.69	54.75	n = 42
	within		5.34	-8.09	31.26	T-bar = 2.64286
Log of GDP per capita	overall	8.53	0.94	6.42	9.90	N = 113
	between		0.94	6.50	9.71	n = 42
	within		0.13	8.16	8.85	T-bar = 2.69048
ILO convention C.182	overall	0.81	0.39	0.00	1.00	N = 113
	between		0.26	0.00	1.00	n = 42
	within		0.30	0.06	1.31	T-bar = 2.69048
ILO convention C.138	overall	0.80	0.40	0.00	1.00	N = 113
	between		0.34	0.00	1.00	n = 42
	within		0.23	0.13	1.30	T-bar = 2.69048
Export-clothing (as % of total export)	overall	5.75	10.30	0.00	42.52	N = 113
	between		9.91	0.00	40.71	n = 42
	within		2.73	-1.98	16.10	T-bar = 2.69048
Export-textile (as % of total export)	overall	1.36	3.43	0.00	23.33	N = 113
	between		3.23	0.00	20.64	n = 42
	within		0.59	-0.81	4.47	T-bar = 2.69048

Table A2. The effect of legislation and sectors expansion on child labour, by sex and area of residence

Dependent variable Child labour children aged 5-14	(1) Male	(2) Female	(3) Male	(4) Female	(5) Urban	(6) Rural
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
lngdp	-14.102** (5.786)	-10.864** (4.906)	-8.190 (5.841)	-4.785 (4.883)	-1.897 (3.916)	-9.019 (6.695)
c.138	-4.691 (2.946)	-4.691 (2.946)				
Services, etc., value added (% of GDP)	-0.243 (0.220)	-0.217 (0.187)	-0.439** (0.215)	-0.382** (0.180)	-0.266* (0.142)	-0.407* (0.242)
Agriculture, value added (% of GDP)	-0.601** (0.272)	-0.515** (0.230)	-0.764*** (0.263)	-0.657*** (0.220)	-0.190 (0.171)	-0.888*** (0.292)
c.182			-8.811*** (2.689)	-7.715*** (2.248)	-6.575*** (1.793)	-9.346*** (3.066)
_cons	162.255*** (51.181)	127.384*** (43.397)	129.631*** (49.361)	91.861** (41.264)	47.285 (32.965)	140.725** (56.358)
Number of observations	123	123	123	123	119	119

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: UCW calculations based on national household survey datasets (see survey listing in Table 1).

Table A3. The effect of legislation and sectors expansion on child labour, by sex and residence

Dependent variable Child labour children aged 5-14	(1) Male	(2) Female	(3) Male	(4) Female	(5) Urban	(6) Rural
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
lngdp	10.581* (5.399)	-7.758* (4.582)	-7.141 (5.647)	-4.170 (4.761)	-3.315 (3.740)	-6.719 (6.590)
c.138	-4.805* (2.910)	-3.019 (2.469)				
c.182			-6.019** (2.477)	-5.007** (2.088)	-4.790*** (1.644)	-6.902** (2.897)
_cons	108.641** (44.417)	80.187** (37.693)	80.845* (46.382)	51.736 (39.102)	40.175 (30.515)	80.724 (53.774)
Number of observations	130	130	130	130	124	124

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: UCW calculations based on national household survey datasets (see survey listing in Table 1).

Table A4. Descriptive statistics: Brazil, children aged 7-17 years

	Variables	1992 ^(a)	2001 ^(a)	2005	2008	2014
Children's time use	Attending school	0.80	0.92	0.93	0.94	0.94
	Employed	0.23	0.15	0.14	0.12	0.09
	Work only	0.10	0.03	0.03	0.02	0.02
	School only	0.67	0.80	0.82	0.85	0.87
	Work and school	0.13	0.12	0.11	0.10	0.07
	Idle	0.10	0.05	0.04	0.04	0.04
Children characteristics	Age	11.9	12.1	12.0	12.1	12.2
	Female	0.50	0.50	0.49	0.49	0.49
	Indigenous	0.001	0.001	0.002	0.003	0.004
	White	0.49	0.49	0.45	0.43	0.40
	Black	0.05	0.05	0.05	0.06	0.07
	Yellow	0.00	0.00	0.00	0.00	0.00
	Mixed	0.45	0.46	0.49	0.50	0.52
Household characteristics	Household size	5.86	5.22	5.07	4.84	4.56
	Siblings 0-4	0.43	0.35	0.32	0.28	0.26
	Siblings 5-14	2.22	1.80	1.73	1.65	1.46
	Rural residence	0.24	0.19	0.20	0.19	0.18
	Female headed	0.15	0.21	0.24	0.32	0.39
	Education of household head:					
	None	0.28	0.22	0.19	0.16	0.12
	Primary	0.50	0.48	0.47	0.42	0.38
	Secondary	0.08	0.12	0.13	0.15	0.16
Higher	0.13	0.18	0.21	0.26	0.33	
<i>Variables reflecting structural changes in the socio-economic background</i>	Gini index	0.56	0.57	0.54	0.52	0.50
	Adult unemployment rate	0.05	0.07	0.06	0.05	0.05
	Extreme poor ^(a)	0.30	0.23	0.18	0.13	0.08
	Moderate poor ^(b)	0.17	0.16	0.17	0.14	0.09
	Access to piped water	0.72	0.82	0.85	0.89	0.93
	Pupil-teacher ratio ^(c)	21.62	22.11	20.26	18.88	15.94
	Share of beneficiaries of <i>Bolsa Familia</i> ^(d)	0.0	0.0	0.31	0.38	0.51
	Share of adult workers in elementary occupations ^(e)	0.31	0.27	0.27	0.25	0.23

Notes: (a) Extreme poverty line is defined as the international poverty line which in US dollars equals to \$1.90 per person per day, in 2011 PPPs. (b) Moderate poverty line is set in US dollars between \$1.90 and \$3.10 per person per day, in 2011 PPPs. Poverty is defined as the second international poverty line in US dollars at \$3.10 per person per day, in 2011 PPPs. (c) Refers to pupil-teacher ratio in fundamental and media school. (d) Ratio of number of households-recipients to the total number of the eligible households, by state. (e) Elementary occupations comprise: domestic services; housekeepers; cooks; stewards; waiters; barmen; butlers; external couriers; scrap recyclers; vendors in kiosks and stalls; street vendors; fishery and hunting laborers; agricultural laborers; mining and quarrying laborers; drivers of animal-drawn vehicles; and other work in elementary industries and services; Brazil PNAD surveys from 1992 to 2003 do not cover the rural areas of the six Northern states (Rondônia, Acre, Amazonas, Roraima, Pará, and Amapá).

Source: UCW calculations based on Brazil PNAD survey, 1992-2014.

Table A5. Descriptive statistics: Mexico, children aged 12-17 years

	Variables	2000	2005	2008	2014
Children's time use	Attending school	0.60	0.65	0.67	0.73
	Employed	0.23	0.17	0.18	0.13
	Work only	0.17	0.11	0.11	0.07
	School only	0.54	0.59	0.60	0.67
	Work and school	0.06	0.06	0.07	0.06
	Idle	0.24	0.23	0.22	0.20
Children characteristics	Sex (female)	0.49	0.49	0.49	0.49
	Age	14.50	14.45	14.51	14.49
	Eldest child	0.39	0.41	0.42	0.44
Household characteristics	Household size	5.10	4.91	4.76	4.59
	Siblings 0-4	0.25	0.23	0.22	0.20
	Siblings 5-14	1.57	1.48	1.37	1.28
	Rural residence	0.22	0.23	0.22	0.23
	Female headed	0.21	0.22	0.24	0.27
	Education of household head:				
	None	0.36	0.30	0.26	0.20
	Primary	0.25	0.24	0.24	0.23
	Secondary	0.18	0.18	0.22	0.28
	Upper secondary	0.18	0.24	0.25	0.29
	Sector of employment (household head):				
	Agriculture	0.16	0.15	0.14	0.13
	Manufacturing	0.14	0.13	0.13	0.13
	Construction	0.08	0.09	0.09	0.09
	Trade	0.12	0.12	0.13	0.13
	Services	0.28	0.27	0.28	0.28
Other Sector	0.06	0.06	0.06	0.06	
Not employed	0.16	0.18	0.18	0.17	
Variables reflecting structural changes in the socio-economic background	Gini index	0.43	0.41	0.40	0.39
	Adult unemployment rate	2.69	3.47	3.88	4.72
	Extreme poor ^(a)	0.26	0.17	0.15	0.13
	Moderate poor ^(b)	0.20	0.18	0.15	0.14
	Share of poor household in the municipality	0.13	0.06	0.05	0.05
	Ratio of Telesecundaria ^(c)	0.35	0.36	0.34	0.33
	Presence of Prospera ^(d)	0.70	0.94	0.94	1.00
	Beneficiaries Prospera ^(e)	0.14	0.20	0.19	0.20
	Share of adult workers in elementary occupations in municipality ^(f)	0.22	0.23	0.24	0.23

Notes: (a) Extreme poor refers to households under \$1.90 per day. (b) Moderate poor refers to households with income of at least \$1.90 per day but less than \$3.10 per day. (c) Ratio of Telesecundaria is the ratio of telesecundaria schools to total secondary schools in municipality. (d) Presence of Prospera in the municipality. (e) Ratio of beneficiary households to the households residing in the municipality. (f) Elementary occupations comprise: domestic services; housekeepers; cooks; stewards; waiters; barmen; butlers; external couriers; scrap recyclers; vendors in kiosks and stalls; street vendors; fishery and hunting laborers; agricultural laborers; mining and quarrying laborers; drivers of animal-drawn vehicles; and other work in elementary industries and services; Source: UCW calculations based on Encuesta Nacional de Empleo (ENE) and Nacional de Ocupación y Empleo (ENOE) surveys, 2000-2010.

Table A6. Determinants of children's activity, 7-17 year-olds (linear regression with standard errors clustered at the state level; state fixed effects included), BRAZIL

Explanatory variables ^(a)		Only Work		Only School		Work and school		Neither	
		Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
<i>Individual characteristics</i>	Age	-0.053***	-19.8	0.128***	10.6	-0.019	-1.3	-0.056***	-23.1
	Age squared	0.003***	18.6	-0.007***	-15.2	0.002***	3.0	0.003***	27.9
	Female	-0.025***	-9.4	0.068***	7.6	-0.059***	-7.6	0.016***	10.7
	White	-0.005	-0.7	0.060***	3.1	-0.037**	-2.4	-0.017	-1.5
	Black	-0.0008	-0.1	0.050***	2.7	-0.048***	-3.2	-0.001	-0.1
	Yellow	-0.013*	-1.7	0.081***	3.7	-0.045**	-2.5	-0.022	-1.6
	Mixed	-0.004	-0.5	0.055***	3.0	-0.042***	-2.7	-0.010	-0.9
<i>Household characteristics</i>	Household size	-0.001**	-2.0	0.002**	2.1	0.002***	3.3	-0.003***	-5.2
	Siblings 0-4	0.009***	12.3	-0.031***	-14.7	-0.008***	-7.6	0.030***	21.9
	Siblings 5-14	0.002***	4.2	-0.007***	-5.4	0.006***	5.1	-0.002***	-2.9
	Female Head	0.003***	5.4	-0.005**	-2.3	-0.007***	-4.0	0.009***	11.0
	Education of household head:								
	Primary	-0.018***	-17.9	0.037***	12.7	-0.0004	-0.1	-0.019***	-13.5
	Secondary	-0.025***	-17.5	0.067***	17.5	-0.012***	-3.4	-0.031***	-19.0
Higher	-0.031***	-18.4	0.102***	22.9	-0.028***	-8.2	-0.043***	-23.3	
Rural residence	0.029***	5.6	-0.092***	-5.1	0.068***	3.7	-0.004	-0.7	
<i>Variables reflecting structural changes in the socio-economic background</i>	Gini index	0.103**	2.3	-0.193***	-3.0	0.075	1.4	0.015	0.5
	Adult unemployment rate	0.085	1.1	0.556**	2.4	-0.876***	-3.7	0.235***	3.0
	Extreme poor ^(a)	0.017***	10.2	-0.048***	-14.0	0.011***	5.5	0.020***	9.1
	Moderate poor ^(b)	0.007***	5.3	-0.017***	-5.8	-0.004***	-2.7	0.013***	8.0
	Piped water	-0.025***	-14.6	0.079***	14.2	-0.026***	-4.4	-0.028***	-13.6
	Pupil-teacher ratio ^(c)	0.0005	1.0	-0.0009	-0.8	0.002*	1.7	-0.001	-1.3
	Bolsa Familia ^(d)	-0.013*	-1.9	0.053***	4.3	-0.006	-0.6	-0.034***	-5.6
Share of adult workers in elementary occupations ^(e)	0.141***	3.9	-0.343***	-4.3	0.302***	4.9	-0.100*	-1.8	
Const	0.227***	6.2	0.332***	4.7	0.004	0.04	0.437***	9.9	
Observations	1,376,576		1,376,576		1,376,576		1,376,576		
R squared	0.104		0.255		0.118		0.060		

Notes: Reference categories are the following: Ethnicity: indigenous; head's education: no education; year: 1992; (a) Extreme poor refers to households under \$1.90 per day. (b) Moderate poor refers to households with income of at least \$1.90 per day but less than \$3.10 per day. (c) Refers to pupil-teacher ratio in fundamental and media school. (d) Ratio of number of households-recipients to the total number of the eligible households, by state. (e) Elementary occupations comprise: domestic services; housekeepers; cooks; stewards; waiters; barmen; butlers; external couriers; scrap recyclers; vendors in kiosks and stalls; street vendors; fishery and hunting laborers; agricultural laborers; mining and quarrying laborers; drivers of animal-drawn vehicles; and other work in elementary industries and services; years 1996, 1997 are not included in the regression, since economic activity status is reported only for individuals aged 10 years and older.

*Statistical significance at 10%; ** Statistical significance at 5%; ***Statistical significance at 1%

Source: UCW calculations based on Brazil PNAD survey, 1992-2014.

Table A7. Determinants of children's activity, 12-17 year-olds (linear regression with standard errors clustered at the municipal level; municipal fixed effects included), MEXICO

Explanatory variables		Only Work		Only School		Work and school		Neither	
		Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
<i>Individual characteristics</i>	Age	-0.133***	-21.8	0.096***	11.9	0.046***	10.5	-0.008	-1.5
	Age squared	0.006***	29.4	-0.006***	-21.5	-0.001***	-8.2	0.001***	4.4
	Female	-0.088***	-34.2	0.047***	26.9	-0.038***	-25.2	0.078***	27.9
	Eldest child	-0.017***	-10.9	0.044***	24.5	0.001*	1.7	-0.029***	-18.6
<i>Household characteristics</i>	Household Size	-0.009***	-13.2	0.018***	20.9	-0.002***	-5.8	-0.007***	-9.8
	Siblings 0-4	0.028***	20.8	-0.067***	-39.1	-0.001	-1.4	0.040***	29.8
	Siblings 5-14	0.016***	22.7	-0.021***	-21.7	0.005***	11.5	-0.001	-1.1
	Female head	0.014***	10.1	-0.013***	-6.8	0.012***	13.2	-0.013***	-8.3
	Education of household head:								
	Primary	-0.044***	-26.0	0.056***	25.7	0.004***	3.5	-0.016***	-9.0
	Secondary	-0.080***	-40.7	0.111***	44.1	0.001	0.9	-0.032***	-16.5
	Upper secondary	-0.111***	-45.4	0.171***	53.1	-0.009***	-7.0	-0.050***	-20.2
	Sector of employment (household head):								
	Manufacturing	-0.032***	-12.0	0.038***	11.3	-0.018***	-9.8	0.011***	4.5
	Construction	-0.027***	-10.2	0.030***	8.7	-0.031***	-17.9	0.028***	10.2
	Trade	-0.029***	-11.2	0.022***	6.4	0.010***	5.0	-0.002	-0.8
	Services	-0.043***	-17.4	0.052***	17.2	-0.020***	-12.1	0.011***	4.6
	Other Sector	-0.058***	-22.2	0.074***	19.0	-0.035***	-18.2	0.019***	6.1
	Not employed	-0.235***	-37.0	0.254***	9.0	-0.103***	-22.6	0.084***	3.0
Rural residence	0.024***	6.9	-0.042***	-7.8	0.004**	2.0	0.015***	3.4	
<i>Variables reflecting structural changes in the socio-economic background</i>	Gini index	0.007	0.6	-0.015	-0.7	0.021**	2.4	-0.014	-0.8
	Adult unemployment rate	-0.001***	-3.3	-0.003***	-3.7	-0.001**	-2.5	0.005***	7.0
	Extreme poor ^(a)	0.012***	7.9	-0.026***	-11.9	0.008***	7.4	0.006***	3.1
	Moderate poor ^(b)	0.004***	4.0	-0.015***	-8.3	-0.001	-1.6	0.012***	7.7
	Share of poor households in the municipality	0.017	1.4	-0.035*	-1.8	-0.002	-0.3	0.020	1.5
	Ratio of telesecundaria ^(c)	0.029**	2.0	-0.080***	-2.7	0.012	1.1	0.039	1.6
	Presence of Prospera ^(d)	0.007**	2.2	-0.005	-0.8	-0.002	-0.8	0.001	0.1
	Beneficiaries Prospera ^(e)	-0.073***	-3.3	0.125***	3.3	-0.018	-1.5	-0.034	-1.2
	Share of adult workers in elementary occupations in the municipality ^(f)	0.080***	11.7	-0.105***	-9.5	0.027***	5.1	-0.001	-0.1
	Const	0.837***	18.5	0.368***	5.9	-0.306***	-9.9	0.102**	2.4
Observations	3,211,622		3,211,622		3,211,622		3,211,622		
R-squared	0.150		0.195		0.041		0.121		

Notes: Reference categories are the following: head's education: no education, head's sector of employment: agriculture. (a) Extreme poor refers to households under \$1.90 per day. (b) Moderate poor refers to households with income of at least \$1.90 per day but less than \$3.10 per day. (c) Ratio of Telesecundaria is the ratio of telesecundaria schools to total secondary schools in municipality. (d) Presence of Prospera in the municipality. (e) Ratio of beneficiary households to the households residing in the municipality. (f) Elementary occupations comprise: domestic services; housekeepers; cooks; stewards; waiters; barmen; butlers; external couriers; scrap recyclers; vendors in kiosks and stalls; street vendors; fishery and hunting laborers; agricultural laborers; mining and quarrying laborers; drivers of animal-drawn vehicles; and other work in elementary industries and services.

Standard errors clustered by municipalities in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Source: UCW calculations based on Encuesta Nacional de Empleo (ENE) and Nacional de Ocupación y Empleo (ENOE) surveys, 2000-2010.