

# Socioeconomic consequences of adolescent pregnancy in six Latin American countries

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Implementation of the Milena  
Methodology in Argentina,  
Colombia, Ecuador, Guatemala,  
Mexico and Paraguay

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Fondo de Población  
de las Naciones Unidas





## Credits

This study was conducted within the context of UNFPA's regional initiative “165 Million Reasons to Invest in Adolescents and Youth” and the “Regional Strategic Framework to Prevent and Reduce Unintended Adolescent Pregnancy - A Subregional Partnership to Improve Local Policy Implementation”.

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The chapter on “Additional socio-economic consequences of the Covid-19 pandemic on adolescent pregnancy in Latin America and the Caribbean” was prepared by Evangelina Martich, Federico Tobar and Iván Rodríguez Bernate with contributions from Neus Bernabeu.

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# Foreword

Adolescent pregnancy and its immediate consequence, early childbearing, are one of the biggest social, political and economic challenges for countries in Latin America and the Caribbean. When an adolescent becomes a mother, her sexual and reproductive rights, and her rights to health and education, among others, are affected in the short term. But she will also face mid and long-term consequences.

Her development potential, her possibilities of earning a decent income and her future may be at risk. Adolescent mothers are likely to be trapped in a vicious cycle of poverty and exclusion that will mainly affect them, but will also limit opportunities for their children. And, given the magnitude of adolescent pregnancy in the region, it will also affect the reality of their communities and countries.

More than 200 million adult and adolescent women around the world want to delay or prevent a pregnancy, but lack the means to do so. In addition, women and girls from the poorest, indigenous, rural and marginalized communities, and those with a disability, are the ones with fewer opportunities to do it.

Latin America and the Caribbean is the region with the world's second-highest adolescent pregnancy rate. Moreover, it is estimated that 18% of the total number of births in the region are from mothers under 20 years old. Each year, approximately a million and a half adolescents between the ages of 15 and 19 give birth. These highly alarming figures become even more critical if we consider many of these pregnancies resulting from a lack of information, limited access to contraceptive methods, and sexual and gender-based violence. These pregnancies, which could have been averted, translate into fewer opportunities.

The adolescent population is the present and future of mankind. Adolescent girls' transition into adulthood as empowered citizens fully aware of their rights and with well-developed skills or, on the contrary, immersed in poverty and inequality, without the ability to make decisions regarding their bodies, their lives and their world, is highly dependent on their opportunities and life decisions in this life stage.

Early childbearing results in greater health risks and higher healthcare costs for the mother and the child. Also, early pregnancy is associated with school dropout and lower educational achievement. A lower level of education will limit women's work opportunities and result in lower female labor participation, lower salaries, and, oftentimes, a life with a high burden of unpaid domestic work. At the same time, lower-income means fewer direct and indirect taxes paid by these women.

If we look at the glass half empty, we will only see its costs and impacts. If we look at the glass half full, we can find development opportunities –human and economic development. One of the United Nations Population Fund (UNFPA) is to protect the rights of young people and adolescents, especially adolescent girls, without any form of discrimination. They should be able to make free and well-informed decisions regarding their sexuality and reproduction, avoid early or forced childbearing, and have access to opportunities that help them realize that motherhood is not their only choice.

For UNFPA, investing in adolescents and youth is central to the sustainable development of our countries. Within this context, the Latin America and Caribbean Regional Office develops methodologies and tools to generate policy dialogue evidence. That is the case of Milena: A methodology for measuring the socioeconomic consequences of adolescent pregnancy.

This document aims to be the first of a series of annual reports to gain a better understanding of adolescent pregnancy in the region. This first report focuses on the comparative results of the first six studies on the economic consequences of adolescent pregnancy conducted in Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay.

The report highlights the social costs of adolescent pregnancy for States and mothers, including the education dimension, their availability to work outside the household, differential levels of employment, earned income, and the health care costs associated with pregnancy, childbirth and puerperium. It also addresses the fiscal dimension (collection of direct and indirect taxes related to early mothers). Considered together, the impact of these costs on national economies becomes more significant, and the opportunity cost of preventing adolescent pregnancy becomes even more relevant.

On the other hand, this report includes an evaluation of the potential impact of the COVID-19 pandemic on adolescent pregnancy in the region, considering not only the increasing number of cases, but also the additional costs for countries.

But this situation can change if countries implement appropriate policies. To this end, UNFPA advocates for a comprehensive approach that combines different interventions, such as eliminating legal barriers to access adolescent-friendly sexual and reproductive health services, expanding their coverage, increasing the availability of modern contraceptives and promoting the use and dissemination of long-acting contraceptive methods. It also advocates for in-school and out-of-school comprehensive sexual education, sexual violence prevention and care strategies, programmes focusing on girls' empowerment and knowledge about their rights, and actions to prevent early marriage and unions, among others.

It is important to implement sustainable large-scale interventions targeted to the most vulnerable groups. With high-quality data and evidence, integrated strategies and monitoring systems, we will be able to ensure that girls and adolescent girls can exercise their rights and take advantage of their opportunities for development. The cost of not acting will be much larger: there is no time to lose. Our future depends on it.

**Harold Robinson**

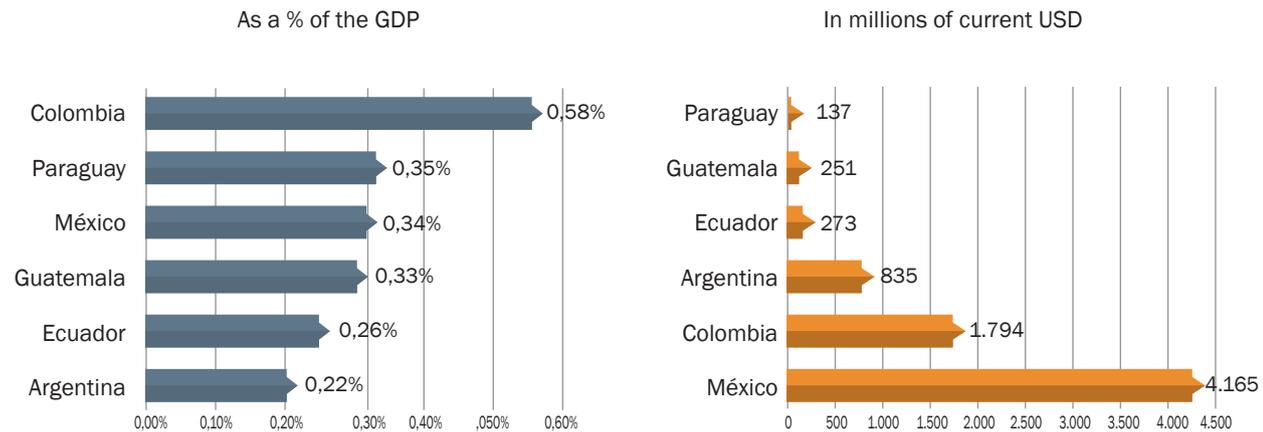
United Nations Population Fund  
Regional Director for Latin America and the Caribbean

## EXECUTIVE SUMMARY

### What is the cost of adolescent pregnancy for countries in the region?

**For the economies of Latin American countries, adolescent pregnancy represents an opportunity cost estimated at 0.35% of their GDP.** The GDP percentage in the countries of the study ranges from 0.22% (Argentina) to 0.58% (Colombia). The average is 0.35%, with a confidence interval of +/- 0.1%. **In absolute values, that opportunity cost represents a total of 1.242 billion dollars a year by country.** However, the amount also varies between countries, from 137 million dollars a year (Paraguay) to 4.165 billion dollars a year (Mexico).

### Adolescent pregnancy opportunity cost in six latin american countries



**Source:** UNFPA-LACRO based on MILENA country reports

### What does that opportunity cost involve?

The opportunity cost represents the resources a country allocates to welfare expenditure for adolescent pregnancy, as well as revenue lost by both early mothers and the State. The MILENA methodology for the analysis of the socioeconomic consequences of adolescent pregnancy allows us to quantify the consequences of Adolescent Pregnancy in each country, distinguishing those that affect the State from those that have a social impact. The main consequences for the State are: i) a lower tax revenue due to the decline in productivity, and ii) a higher expenditure for the provision of care for unintended adolescent pregnancies. These are costs that must be borne by States due to the lack of timely prevention measures. In other words, these are costs that States could avoid if they managed to prevent unintended adolescent pregnancies. At the level of society, the methodology quantifies the income early mothers (those who became mothers during adolescence) fail to receive due to their lower levels of education, lower labour market participation and lower salaries.

## How did we measure the adolescent pregnancy opportunity cost?

To measure the impact of adolescent pregnancy, the MILENA methodology compares the trajectories of women who became pregnant during adolescence –between the ages of 10 and 19– with those who became mothers between the ages of 20 and 29. In the six countries of the study (Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay), we found early mothers have lower levels of educational attainment, income and market labor participation throughout their adult life, that is, between the age of 20 and their retirement age.

The study population defined by the MILENA methodology includes all those women who, in the year the study was conducted (2018 in most cases), were in the 20-64 age range. These women were divided into two groups:



**Group 1 – Early mothers** (women who had a child between the ages of 10 and 19).



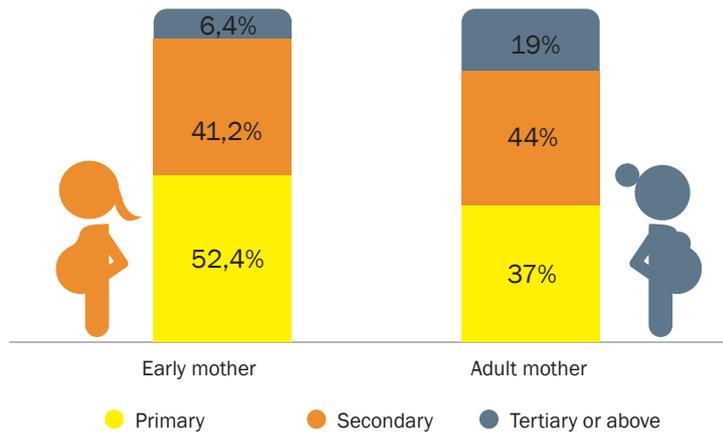
**Group 2 – Adult mothers** (women who had a child between the ages of 20 and 29).

For each group we analyzed education, income and labor market participation profiles and, for each of these dimensions, we calculated the gaps between both groups and estimated their monetary value to then estimate the opportunity cost. The following is a detailed description of our main conclusions based on the results obtained for each dimension.

## How does adolescent pregnancy affect the level of education achieved?

**Women who became early mothers were 3 times less likely to get a university degree as adults.** On average, 18.6% of the women who became mothers in the first decade of their adult life (Group 2) achieved some level of tertiary education, while only 6.4% of those who became mothers during adolescence (Group 1) achieved the same level. That difference in the proportions of women who achieved a higher level of education is known as the education gap between early and adult mothers, and it is, on average, 12.2 percentage points. Similarly, a higher proportion of those who became mothers during adolescence only completed primary education (51% in Group 1 vs. 38% in Group 2). Finally, the proportion of women who only completed secondary education is similar (only 3% higher in Group 2).

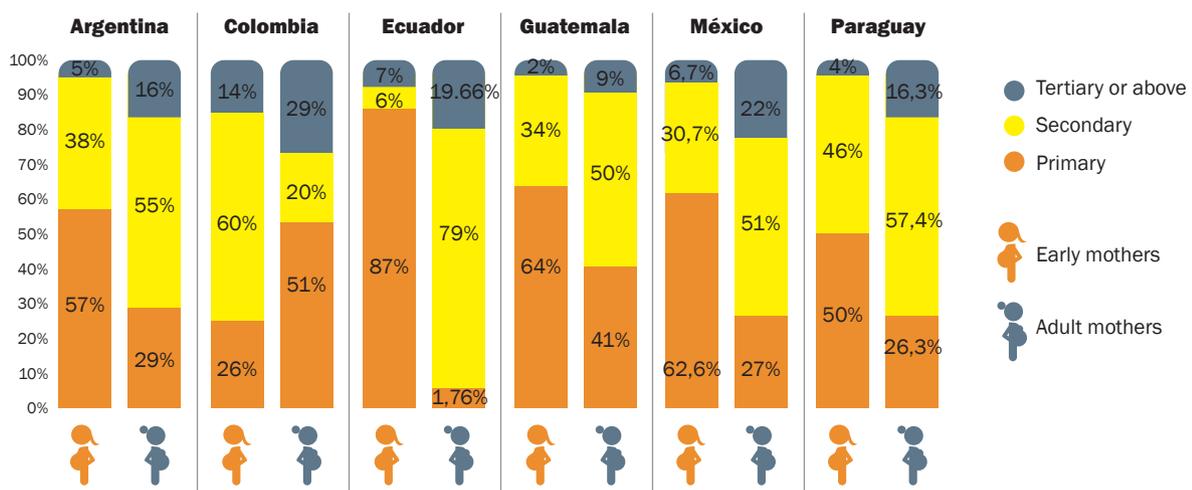
## Distribution by level of education achieved - Average percentages for countries analyzed.



Source: UNFPA-LACRO based on MILENA country reports

**This gap is stable and consistent throughout the countries of the study:** While the proportions of women who achieve higher education levels (tertiary or above) vary in all countries, the gap found between both groups is maintained. The gaps are 11.3% in Argentina, 14.7% in Colombia, 12.2% in Ecuador, 6.9% in Guatemala, 15.5% in Mexico and 12.6% in Paraguay. It is worth noting that Ecuador is not only the country with the lowest education gap, considering the proportion of early and adult mothers achieving a higher level of education, but it also reports relatively high proportions of women reaching the highest level of education in both population groups. This can be attributed to the education policy the country has been implementing for several years.

## Distribution by level of education achieved in each country



Source: UNFPA-LACRO based on MILENA country reports

# What is the education gap opportunity cost?

The lower level of education achieved by early mothers results in lower labour incomes. *If we consider the education gaps between both groups, the average income by level of education and the employment rate among women, the per capita annual cost faced by a woman who became a mother during adolescence as a result of her education gap has been estimated at USD \$573.00 of 2018.* If we consider the population of women who became mothers during adolescence in the six countries, the total accumulated cost of the education gap amounts to USD 2,860,960,562. This amount is known as the opportunity cost of Adolescent Pregnancy and Early Childbearing in educational attainment.

## Total estimated cost of education gap

Country	Total education opportunity cost
Guatemala	\$55,079,664
Ecuador	\$59,626,358
Paraguay	\$96,403,412
Argentina	\$288,097,299
Colombia	\$755,036,404
México	\$1,606,717,425
<b>TOTAL</b>	<b>\$2,860,960,562</b>

Source: UNFPA-LACRO based on MILENA country reports

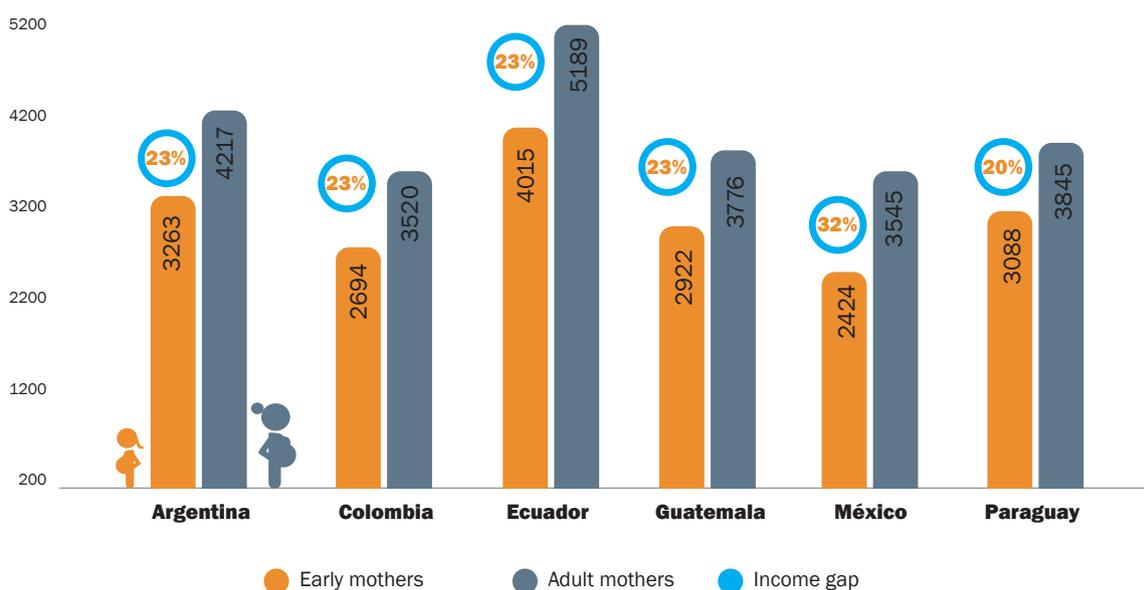
# How much lower are early mothers' salaries?

**On average, early mothers earn 24% less than those who became mothers as adults.** The annual labour income for women in Group 1 is USD 3,068, compared to USD 4,015 for those in Group 2, for the average of countries analyzed. That income gap is homogenous between countries, with the highest value found in Mexico (32%) and the lowest in Paraguay (20%). Women who became mothers during adolescence tend to have suboptimal work trajectories that make them more likely to fall into poverty and/or make it more difficult for them to have the conditions to come out of poverty. In other words, income gaps related to adolescent pregnancy reinforce what is known as the cycle of poverty.

**For society as a whole, this income gap represents an opportunity cost of USD 5,091,144,338 for the group of countries analyzed.** This amount considers the specific population of women who became mothers during adolescence and are of working age<sup>1</sup>, in addition to women's employment rate for each country. Two thirds of this opportunity cost correspond to Mexico and one fourth to Colombia.

1 The study's target population includes those women who, in the year of the survey (or census), were between the age of 20 and retirement age.

## Annual labour income by age at which women became mothers



Source: UNFPA-LACRO based on MILENA country reports

## Total estimated cost of income gap

Country	Total labour income opportunity cost
Paraguay	\$97,147,328
Ecuador	\$131,951,572
Guatemala	\$152,189,819
Argentina	\$359,769,400
Colombia	\$1,241,020,684
México	\$3,109,065,535
<b>TOTAL</b>	<b>\$5,091,144,338</b>

Source: UNFPA-LACRO based on MILENA country reports

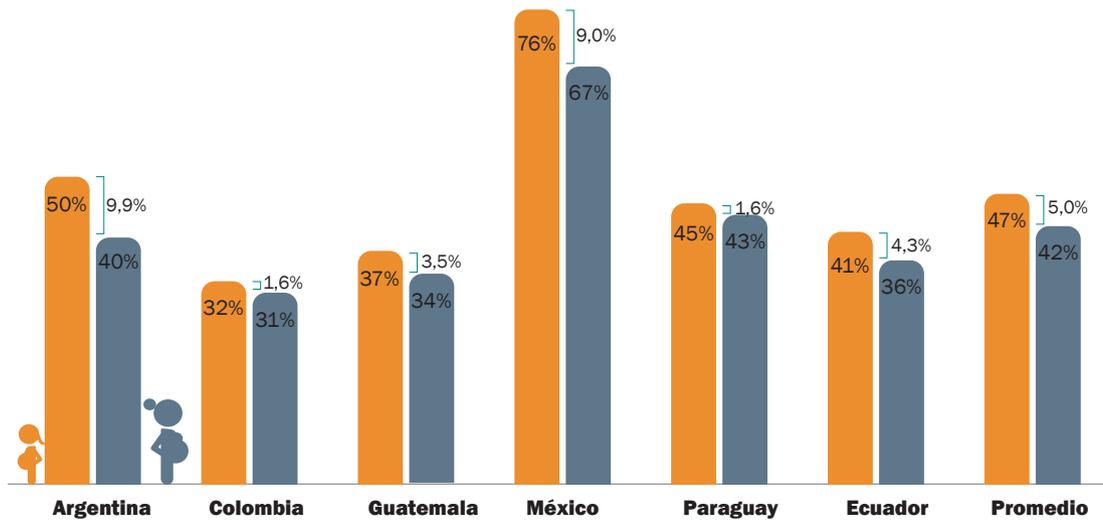
**A higher proportion of women who became early mothers are exclusively dedicated to unpaid domestic work.** This was confirmed through the use of the labour inactivity rate as a proxy variable. While women who became mothers during adolescence had an inactivity rate of 46.8%, the rate for those who became mothers as adults was 41.9%, which translates into absolute and relative gaps of 4.9% and 11.5%, respectively.<sup>2</sup> These high levels of inactivity in the paid labour market are closely related to the high Unpaid Domestic Work (UDW) burdens for women in general, especially when they experience early pregnancy.<sup>3</sup>

<sup>2</sup> The relative gap is equal to  $(\text{Group 1 inactivity rate} - \text{Group 2 inactivity rate}) / \text{Group 2 inactivity rate}$ .

<sup>3</sup> As shown by CEPAL (2019), the gender gap in the time dedicated to unpaid domestic work still persists in all Latin American and Caribbean countries. For an exploratory analysis of the relationship between inactivity, UDW and reproductive choices, see Gammage, S. et al., (2020).



## Labour inactivity levels in paid tasks by age at which women became mothers



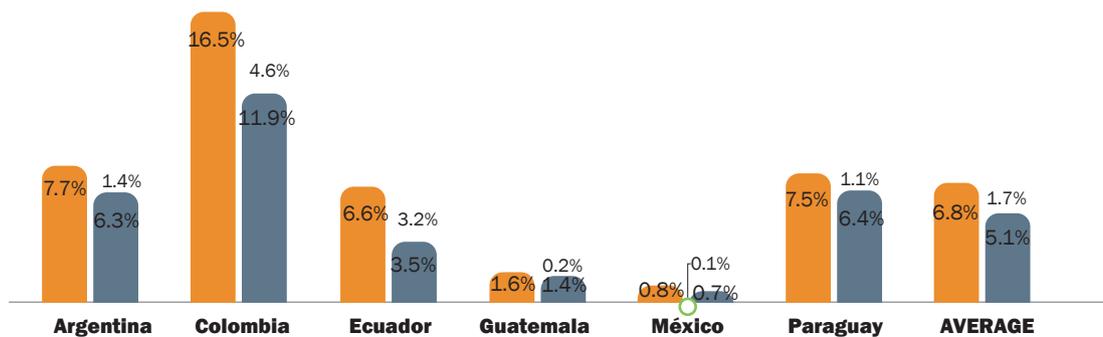
Source: UNFPA-LACRO based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA reports

**Early mothers report higher unemployment rates than those who became mothers as adults.** Despite the differences in unemployment measurement methodologies used by countries,<sup>4</sup> we found a gap of 1.7 percentage points in unemployment rates between women who became mothers as adults and those who became mothers during adolescence, with the latter being the most affected by unemployment.

**The annual cost of reduced labor market participation for a woman who became a mother during adolescence is USD 295, and amounts to a total of 1,002,242,880** for the group of six countries analyzed. These figures represent the combined effect of lower labor market participation (which means women are more likely to stay at home doing unpaid domestic work) and a higher unemployment rate faced by those who became mothers during adolescence when they try to get a paid job.



## Unemployment rate by age at which women became mothers



Fuente: UNFPA-LACRO based on MILENA country reports

4 The heterogeneity of data sources and unemployment measurement methods used results in significant differences in rates between countries, which makes comparisons between them difficult.

## Total estimated cost of labour market participation gap

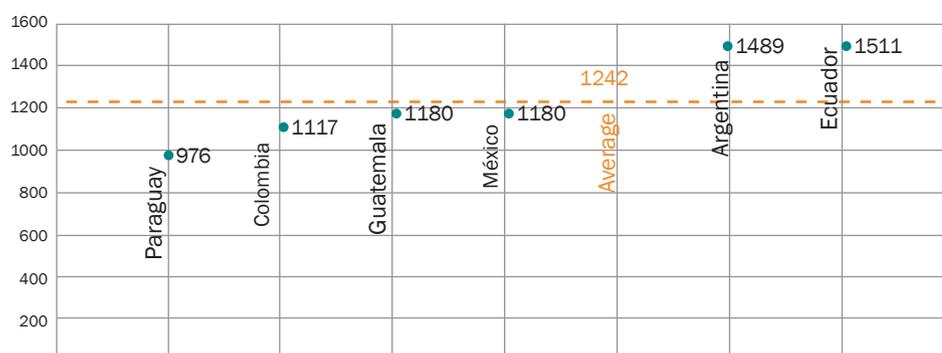
Country	Total
Paraguay	\$28,012,965
Ecuador	\$54,813,427
Guatemala	\$58,159,790
México	\$164,550,286
Argentina	\$207,982,690
Colombia	\$488,723,722
<b>TOTAL</b>	<b>\$1,002,242,880</b>

Source: UNFPA-LACRO based on MILENA country reports

**A woman who became a mother during adolescence loses the opportunity to earn, on average, USD 1,243 a year compared to a woman who became a mother as an adult.** This is the *productive activity total opportunity cost* that results from the sum of (i) the cost of reduced income (due to the education gap), plus (ii) the reduced labour market participation cost (due to the increased time dedicated to UDW and the lower labour market participation, as well as higher unemployment). If we consider the entire population of women in the countries of the study, the productive activity total opportunity cost represents, on average, 0.29% of their GDP.



### Per capita productive activity opportunity cost



Source: UNFPA-LACRO based on MILENA country reports

## How much revenue does the State lose due to adolescent pregnancy?

**The total annual tax revenue lost by the States of the six countries of the study is USD 746,118,322 of 2018, which equals USD 110 for every woman who became pregnant during adolescence.** The tax revenue States lose due to their inability to collect the indirect tax applied to the circulation of goods, also known as consumption tax (*Impoconsumo*) or value added tax (VAT), is the largest component of the tax revenue loss (56%). On the other hand, income tax (known as “ISR”, tax on individual income or “*Imporenta*” in some countries) accounts for 44% of that total.

## VAT and income tax revenue lost

Country	Total
Paraguay	\$4,853,925
Ecuador	\$9,585,687
Guatemala	\$19,134,823
Colombia	\$60,520,522
Argentina	\$66,438,967
México	\$585,584,398
<b>TOTAL</b>	<b>\$746,118,322</b>

Source: UNFPA-LACRO based on MILENA country reports

## What is the cost of adolescent pregnancy medical care for the State?

**The medical care expenditure of public health services for the provision of pregnancy, delivery and puerperium care for pregnant adolescents ranges from 6.7 to 305 million dollars.** In the countries of the study, the average cost of carrying out a natural or spontaneous delivery and a Caesarean section is USD 679 and USD 997, respectively –which does not include antenatal, postpartum, newborn or obstetric complications care–. The numbers of deliveries to adolescent mothers not only differ between countries; the same happens with the proportion of those deliveries that corresponds to normal deliveries and Caesarean sections. Costing procedures applied were also different (some countries used micro-costing procedures, while others used macro-costing procedures). For this reason, the decision was made not to consider an aggregated total amount for the six countries.

**Welfare expenditures that could be avoided through prevention strategies range from 4.8 to 211 million dollars.** The varying amounts are not only due to differences in the numbers of adolescent pregnancies and welfare expenditures, but also due to the differences in unintended adolescent pregnancy (UAP) rates. This translates into potential savings ranging from 60% to 72% if these pregnancies had been effectively prevented.

### Actual expenditure for public adolescent pregnancy care of the public sector vs. expenditures avoidable through effective UAP prevention.

COUNTRY:	Public sector expenditure for the provision of AP care <sup>1</sup>	Expenditure avoidable through effective UAP prevention	UAP rate
Argentina	\$ 200,520,723	\$ 140,364,506	70.0%
Colombia*	\$ 4,076,560	\$ 2,922,894	71.7%
Ecuador	\$ 76,898,454	\$ 55,136,191.34	71.7%
Guatemala	\$ 21,545,379	\$ 12,991,863.53	60.3%
México	\$ 305,891,932	\$ 211,371,325.06	69.1%
Paraguay	\$ 6,707,859	\$ 4,809,535.08	71.7%

1. Levels of expenditures are not strictly comparable, because each country used its own methodology to estimate them, and not all of them used the same care categories.

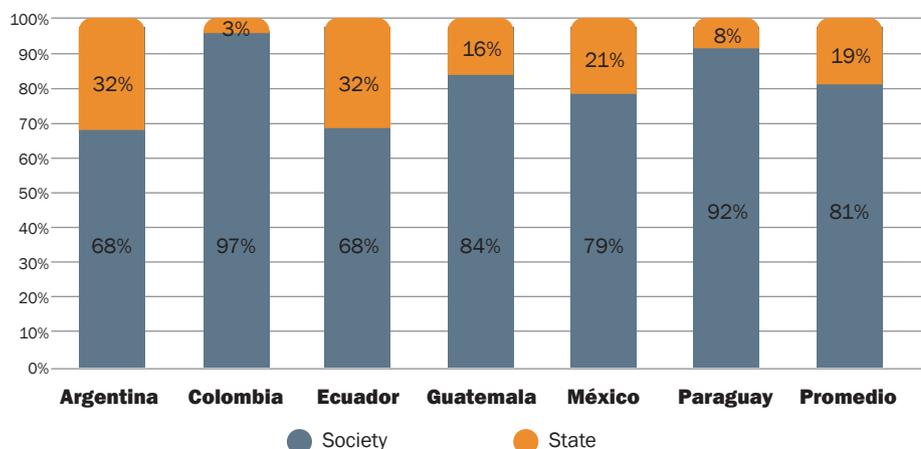
Source: UNFPA-LACRO based on MILENA country reports

\*The information gathered in Colombia corresponds to a group of *Empresas Promotoras de Salud* (“Health Promotion Enterprises”), also known as “Selected EPSs”, that operate under their contributory scheme. Therefore, this information corresponds to a specific segment of a health insurance system whose coverage is estimated at one fourth of the total population affiliated with the Colombian health system.

## Who pays the highest cost resulting from adolescent pregnancy in Latin America?

**81% of the opportunity cost represented by adolescent pregnancy falls on early mothers.** This percentage is even higher in Colombia (97%) and Paraguay (92%), and proportionally higher in countries with a higher tax burden, especially those where the public health system response has a broader coverage, like Argentina and Ecuador. In both cases, the public component of the adolescent pregnancy opportunity cost accounts for 32% of the total cost.

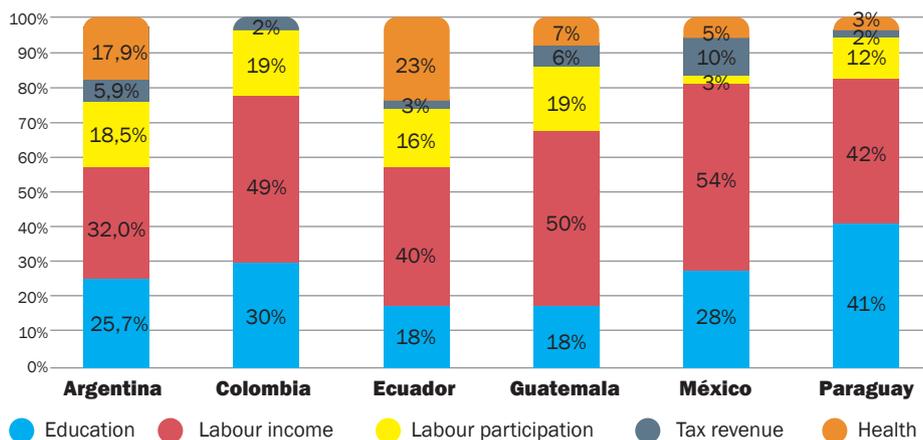
### Breakdown of adolescent pregnancy opportunity cost by country depending on who bears such cost



**Source:** UNFPA-LACRO based on MILENA country reports. In the case of Colombia, the cost for the State does not include health expenditures.

**Two thirds of the adolescent pregnancy opportunity cost in Latin America correspond to the lower labour income earned by early mothers.** The relative weight of the labour income component is lower only in the two cases where the public sector component is significant (Argentina and Ecuador).

### Breakdown of adolescent pregnancy opportunity cost by country



**Source:** UNFPA-LACRO based on MILENA country reports. In the case of Colombia, the cost for the State does not include health expenditures.

## Table of Contents

15	Table of Contents
17	Presentation
19	Introduction The situation of adolescent pregnancy in Latin America and the Caribbean
22	The MILENA methodology for the analysis of the socioeconomic impacts of adolescent pregnancy in Latin America and the Caribbean
<b>25</b>	<b>Section 1. Consequences at the level of society</b>
27	1.1. On education
30	1.2. On income levels
32	1.3. On labour market participation
<b>37</b>	<b>Section 2. Consequences for State tax revenues and expenditures</b>
39	2.1. On total productive activity and State tax revenues
41	2.2. Health impacts and costs related to adolescent pregnancy.
41	Socially relevant public health outcomes
42	Adolescent pregnancy health care
44	2.2.1. Argentina
44	2.2.2. Colombia
45	2.2.3. Ecuador
45	2.2.4. Guatemala
46	2.2.5. Mexico
46	2.2.6. Paraguay
48	3. Conclusions and recommendations
<b>55</b>	<b>Section 3. Additional socioeconomic consequences of the COVID-19 pandemic on adolescent pregnancy in Latin America and the Caribbean</b>
64	References
69	Annex 1. Individual income taxes in countries of the study.



*Reducing the stigma, minimizing the social and economic consequences of unintended pregnancies, improving access to highly effective modern contraception, and ensuring legal and safe abortions would generate tangible improvements to health. Those with real motivation to protect and support women and children should look to research, not misconceptions, to inform decision making.*

(The Lancet, 2018, p. 1)

## Presentation

The evolution of adolescent fertility in Latin America and the Caribbean in the last decade has shown a slow decline, not only compared to the decline in global fertility in the same region, but also compared to the decline in adolescent fertility in the rest of the world. The report “The State of World Population 2018” establishes that “fertility rates among adolescents aged 15–19 and young people aged 20–24 are higher than rates for these age groups in other parts of the world with similar total fertility rates. Additionally, adolescent fertility compared with total fertility is higher in Latin American countries than in other countries” (UNFPA, 2018, p. 81). This scenario confirms and highlights the main traits of the issues of adolescent pregnancy and early childbearing, which have been characterized in previous works (Rodríguez-Vignoli & Cavenaghi, 2014; Starrs et al., 2018; and Tobar, 2015; among others). In 2016, 74% of adolescent pregnancies in the region were unintended, a situation that highlights the lack of social investments in girls and adolescent women to help them make free, informed and timely decisions regarding their reproduction (Starrs et al., 2018).

The issue of early adolescent pregnancy in the region deserves particular attention. Of the 777,000 pregnancies among adolescents under the age of 15 reported in developing regions in 2016, 14% correspond to mothers from Latin America and the Caribbean. This number is significant if we consider women under the age of 15 in the region only account for 8% of the global total. These figures should raise red flags about the need to adopt public policies on early adolescence and childhood.

The purpose of this work is to analyze the consequences of adolescent pregnancy and early childbearing, which have an impact on the health, human development and possibilities of economic and social progress of adolescent women. These consequences can also have an impact on the child, the father or even the father’s or the mother’s family. The magnitude of these impacts on mothers, children and families can be such that they can extend to society and the State (UNFPA, 2019b).

Adolescent pregnancy is a multidimensional social issue that has health impacts, but also other economic and social consequences. These consequences go beyond the individual sphere and extend to the adolescent mother’s immediate circle (her family) and society as a whole. A recent systematization of evidence of the socioeconomic consequences of adolescent pregnancy (UNFPA, 2019b) found that, at the individual level, women who become mothers during adolescence complete fewer years of formal education and have worse employment conditions

and lower salaries. They are more likely to experience intimate partner violence and more vulnerable to being more dependent in general. At the family or primary nucleus level, adolescent pregnancy reproduces intergenerational poverty because, in general, children from adolescent mothers complete fewer years of formal education, which means they will be more likely to face worse employment conditions in the future. In addition, adolescent mothers and their children are more likely to face barriers in access to housing, a situation that perpetuates different forms of vulnerability. At the macro level, one of the impacts of adolescent pregnancy is that of reducing women's participation in the formal labour market, a situation that, on one hand, leads to a potential productivity loss and, on the other, to a higher level of dependence on social programs.

This study was conducted within the context of the regional strategy *165 Million Reasons. A Call to Invest in Adolescents and Youth in Latin America and the Caribbean*, and is part of UNFPA's commitment to support adolescent and youth populations in their quest to be heard, in addition to helping them make vital decisions for their future.

In it, we have documented the first phase of implementation of the *Methodology for the Analysis of the Socioeconomic Impacts of Adolescent Pregnancy in Latin America and the Caribbean (MILENA)*, in six countries in the region: Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay.

The following introduction is a brief characterization of adolescent pregnancy (AP) in Latin America and the Caribbean and the importance of its prevention to leverage the demographic dividend. It also includes a description of the MILENA methodology. Section 1 provides evidence of the consequences of AP for society, including its impact on educational attainment, labour income and labour market participation (employment and activity). Section 2 presents what we refer to as omission costs, that is, the consequences of the State's inability to effectively prevent unintended adolescent pregnancies, which include reductions in tax revenue and public expenditure for adolescent pregnancy, delivery and puerperium care. Finally, we present a series of conclusions and recommendations.

# Introduction

## The situation of adolescent pregnancy in Latin America and the Caribbean

Over the course of the last decade, the Specific Adolescent Fertility Rate (SAFR)<sup>5</sup> in LAC has declined, reaching 64 children per one thousand women ages 15 to 19. However, several issues that challenge public, social and population policies still persist:

- The SAFR is still higher than the global average (46), and it is only second to that in Sub-Saharan Africa (103).
- The SAFR is declining more slowly than the Total Fertility Rate. (Tobar, 2015).
- While some Latin American women are delaying fertility until an older age (30 to 35), there are others whose fertility continues to occur during adolescence (15 to 19), in many cases due to their high levels of exposure to inequality, vulnerabilities and exclusion. See (Lima, Zeman, Sobotka, Nathan, & Castro, 2018) and (Pardo & Cabella, 2018).
- More than one half of adolescent pregnancies are either unwanted or unintended. According to DHS surveys, among women ages 15 to 19, the percentage of firstborn children who were wanted/planned is less than 30% in Peru and Haiti, less than 35% in Bolivia and Colombia, and 41% in the Dominican Republic. (Rodríguez Vignoli, 2017)

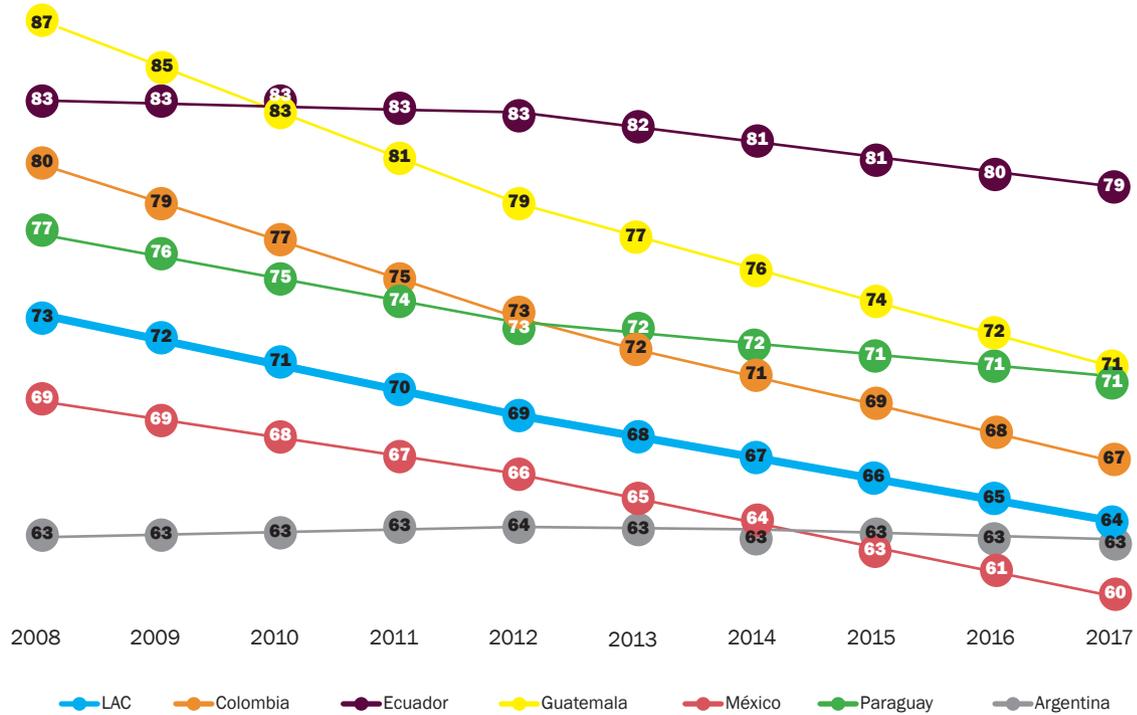
According to the United Nations Population Division, in 2017 the SAFR in LAC countries ranged from 41 per one thousand (Chile) or 57 per one thousand (Peru), to 85 per one thousand (Nicaragua) or 94 per one thousand (Dominican Republic). Figures 3 and 4.

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5 Number of children per 1,000 women ages 15 to 19.

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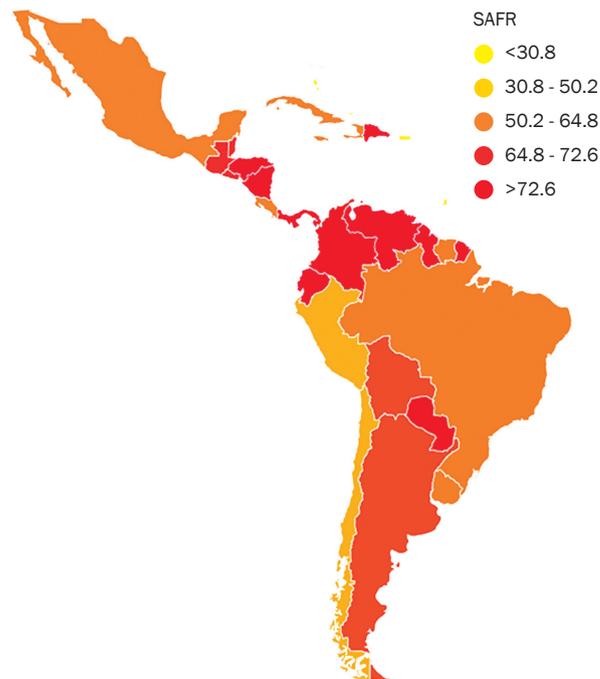
Figure 3: 2008-2017 Specific Adolescent Fertility Rate (SAFR) in LAC countries.



Source: World Bank. Lineal interpolations based on United Nations Population Division, World Population Prospects.

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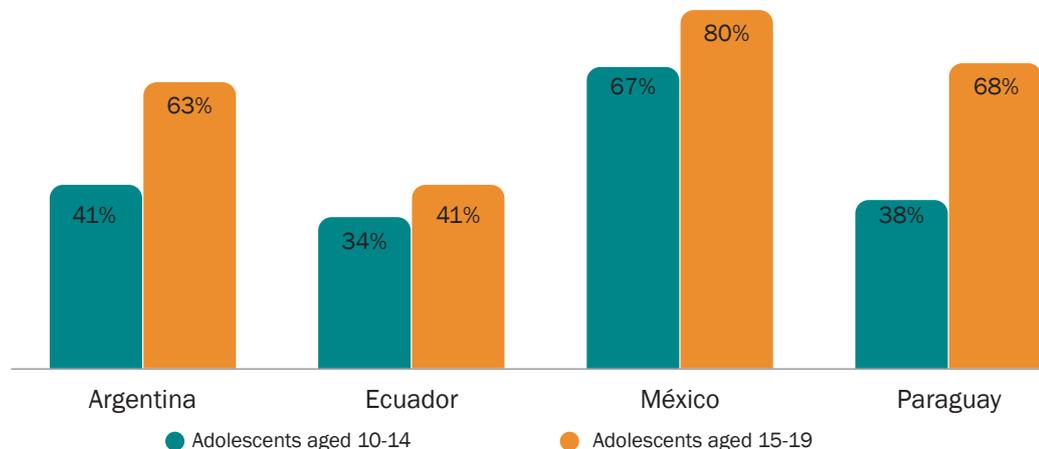
Figure 4: Specific Adolescent Fertility Rate (SAFR) in Latin America and the Caribbean, 2017.



Source: Prepared by the authors based on World Bank. (Lineal interpolation based on United Nations Population Division, World Population Prospects).

Adolescent pregnancy (AP) has social, family and individual determinants,<sup>6</sup> some of which are usually observable (level of education, poverty, employment, marital status, etc.), while others are not (personality, innate ability, information availability or comprehension, etc.). In LAC, we have found that Early Unions (EUs) are a determinant of AP. According to the MILENA methodology implementations in each country, at least 34% of girls aged 10 to 14 reported living –or having lived– in union, and at least 41% of adolescent girls aged 15 to 19 reported living –or having lived– in union. In the case of Mexico, this proportion reaches 80% of adolescent mothers. (Figure 5).

**5** **Figure 5: Adolescent women who reported living –or having lived– in union upon having the child\***



\*This figure only shows those countries where data on unions for both age groups was available.

**Sources:** Prepared by the authors based on:

1. Ecuador MILENA study, based on Birth Statistics (INEC, 2018).
2. Argentina MILENA study, based on data from the Health Statistics and Information Directorate (DEIS) (Secretaría de Salud de la Nación, 2017).
3. Paraguay MILENA study, based on Vital Statistics Subsystem (SSIEV–DIGIES), Ministry of Public Health and Social Welfare (MSPBS, 2018).
4. Mexico MILENA study, based on Ministry of Health/Birth Information Subsystem (SINAC, 2018).

In the case of Colombia, according to the National Demographic and Health Survey (ENDS, 2015), 59% of the total number of adolescent mothers aged 13 to 19 live in some form of union, mainly consensual unions (56%).<sup>7</sup> The situation on Guatemala is very different from that in the 5 countries mentioned above, because only 11.3% of the total number of adolescent mothers reported being married, and none of them lived in union, according to the Vital Statistics System of the National Statistical Institute in 2017.<sup>8</sup>

This situation must be addressed by social, population and development policymakers, considering EUs are the expression of cultural and contextual factors –such as gender inequality and violence– that limit girls’ and adolescents’ capacities and opportunities to lay the foundations of their physical autonomy. Countries in the region may need to improve the observance of their laws on statutory rape and child sexual abuse, as this may indicate such laws are not being enforced.

6 Biological and behavioral determinants also exist at the individual level.

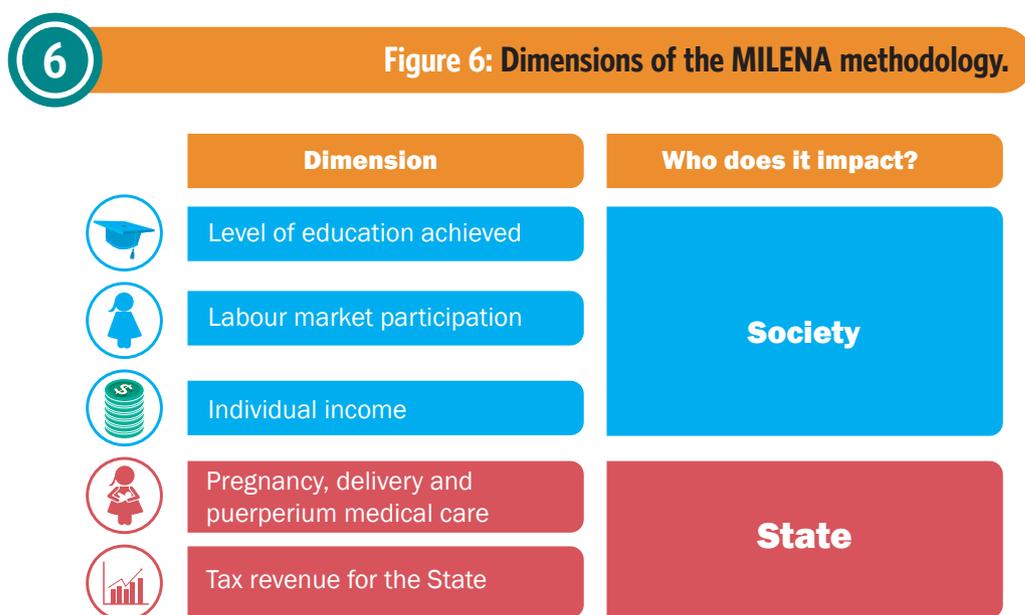
7 UNFPA Colombia (2020), Colombia MILENA study.

8 UNFPA Guatemala (2020), Guatemala MILENA study.

According to (Delprato, Akyeampong, Sabates, & Hernandez-Fernandez, 2015), for every year early unions are delayed, there could be a half a year annual increase in levels of education in countries in Sub-Saharan Africa, and one third of a year in countries in Southwest Asia, in addition to a lower likelihood of dropping out of secondary school for the latter.

## The MILENA methodology for the analysis of the socioeconomic impacts of adolescent pregnancy in Latin America and the Caribbean

The MILENA methodology, a UNFPA-LACRO proposal, allows for the homogenous measurement of the socioeconomic consequences of adolescent pregnancy and early childbearing, thus making its results comparable. The methodology measures the consequences of Adolescent Pregnancy (AP) and Early Childbearing (EC) with respect to: i) three socioeconomic dimensions of women, to wit, their education, income and labour market participation levels, and (ii) the omission cost for the State in terms of tax revenue lost due to its failure to prevent AP –considering this eliminates opportunities for women throughout their life trajectories and, therefore, affects their productivity, in addition to health expenditures associated with Unintended Adolescent Pregnancy care, including prenatal, pregnancy, childbirth and puerperium care, as well as care for newborns with complications. (Figure 6).



The study population of the MILENA methodology includes all those women who, during the year of implementation, are –or report being– between the ages of 20 and 64, who are divided into two groups of interest:

- Group 1 – Early mothers. Women who had a child during adolescence (ages 10 to 19).
- Group 2 – Adult mothers. Women who had a child as adults (ages 20 to 29).

For each group, education, income and labour market participation profiles are measured. For each of these dimensions, gaps between both groups are then calculated and their monetary values are estimated to calculate the opportunity cost.

The conceptual and methodological foundations of the MILENA model were presented in UNFPA (2019). It was developed based on previous studies led by UNFPA, in particular a pioneering study conducted in El Salvador (UNFPA, 2017), research done in Nicaragua (Altamirano, Pacheco, Huelva, Sáenz, & López, 2016) and the measurement proposed by (Chaaban & Cunningham, 2011).

There is not an internationally agreed definition of adolescence. However, the age group used by the United Nations, the World Health Organization (WHO) and the Pan American Health Organization (PAHO) is that between the ages of 10 and 19, which is the age range used by the methodology. While we are aware that different characteristics and profiles exist within this broad range, depending on their stage of adolescence –early adolescence (ages 10 to 14), middle adolescence (15 to 17) or late adolescence (18 to 19)–, the MILENA methodology considers the whole age range as the population set.

The ultimate goal of the methodology is to help countries in the region to generate relevant evidence of the adverse consequences of AP and EC and, at the same time, increase their understanding of the economic, social and public health benefits of investing in AP prevention and mitigating the undesired effects of early childbearing, which means it is essential to make social investments in girls and adolescents to help them have a life trajectory that allows them to realize their human potential.



# Section 1.

**Consequences at the level of society**



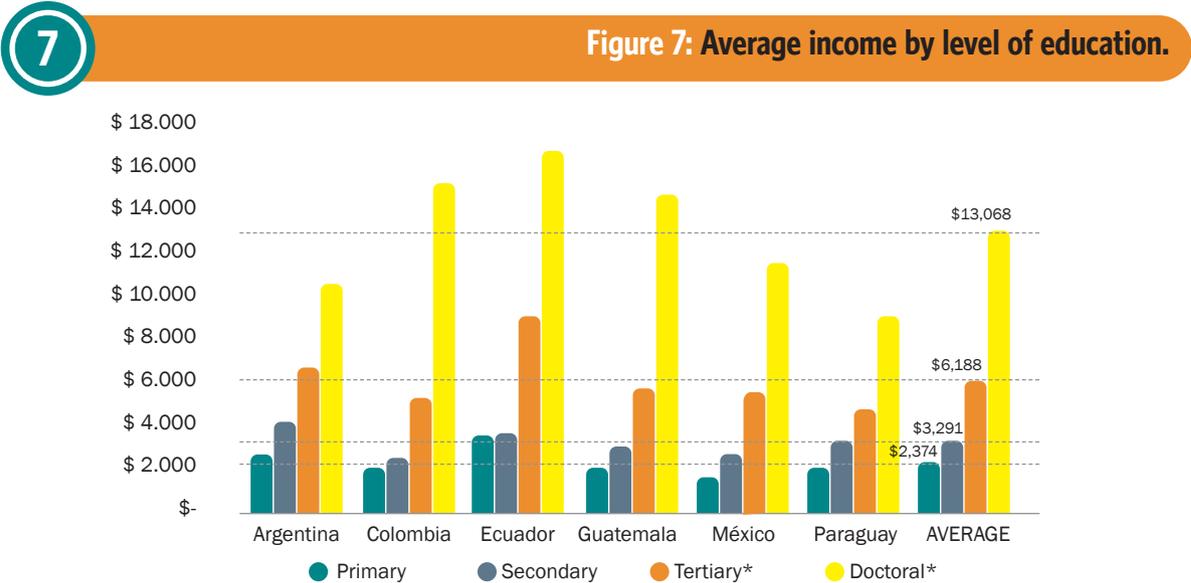


In its first phase, the MILENA methodology was implemented in six countries of the Latin America and the Caribbean region –Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay– where consistent results were obtained. We identified education, income, unemployment and labour market activity gaps between the two groups of interest depending on the age range in which women became mothers.

As regards the consequences of AP on the population of women, in this first phase we can highlight two key results: (i) those women who became mothers during adolescence had lower levels of education, especially at the tertiary level, where we found an average gap of 12.2%; (ii) income levels among women who became mothers during adolescence are 24% lower compared to those among women who became mothers in the first decade of their adult life. The following is a detailed description of the results obtained in each dimension.

### 1.1. On education

National studies show the income levels of women who completed tertiary postgraduate education are, on average, 5.5 times those of women who only completed primary education, 4 times those of women with secondary education, and 2.1 times those of women who completed tertiary undergraduate education (bachelor’s or professional degree). (Figure 7).



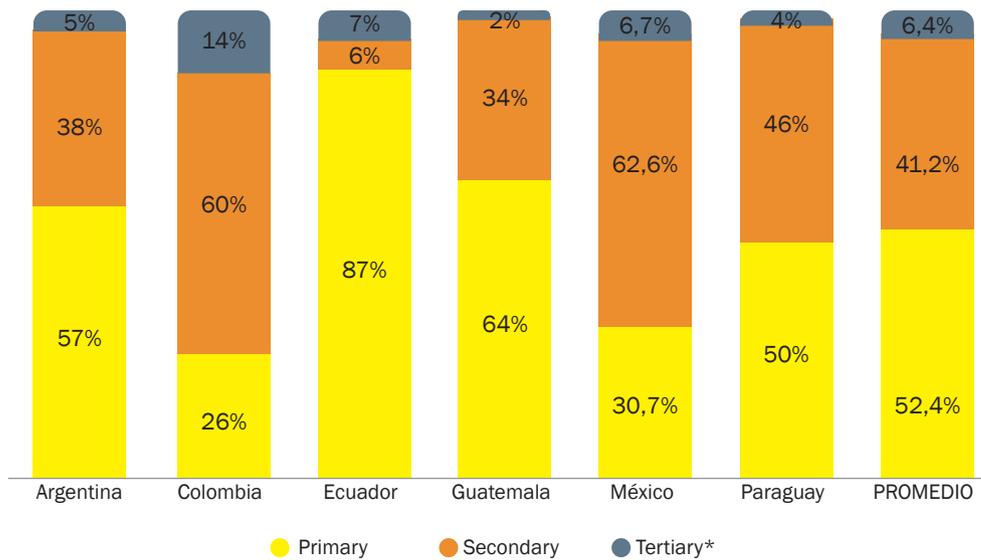
**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

On average, while 18.6% of the women who became mothers in the first decade of their adult life (Group 2) achieved some level of tertiary education<sup>9</sup>, only 6.4% of those who became mothers during adolescence (Group 1) achieved that level, which means there is, on average, a tertiary education gap of 12.2%. This gap is stable and consistent among the countries of the study: Argentina (11.3%), Colombia (14.7%), Ecuador (12.2%), Guatemala (6.9%), Mexico (15.5%) and Paraguay (12.6%). (Figures 8 and 9).

<sup>9</sup> This includes short-cycle tertiary education, bachelor or equivalent (undergraduate) education and doctoral tertiary education (specialization, master’s degree or Ph.D.).

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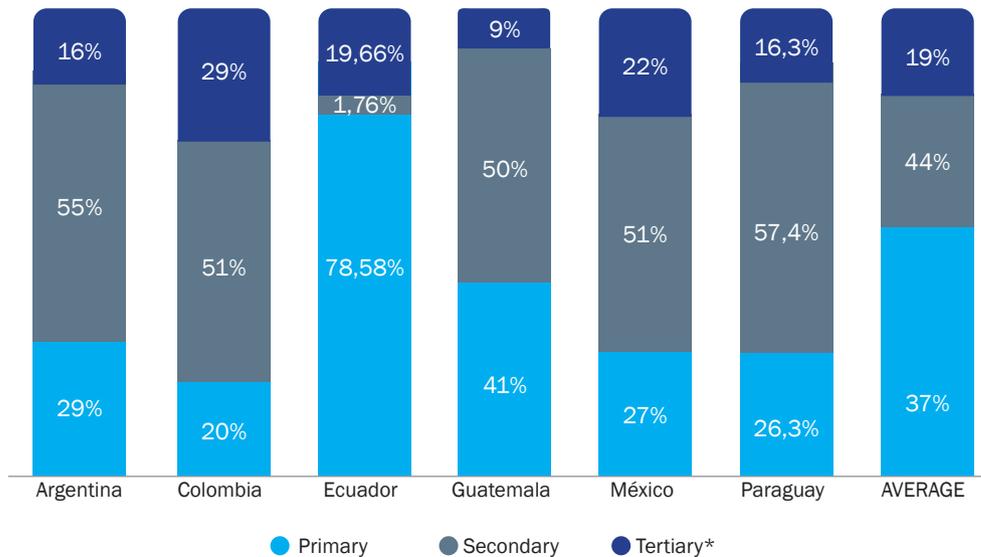
**Figure 8: Distribution of women who became mothers during adolescence by level of education.**



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

9

**Figure 9: Distribution of women who became mothers in the first decade of their adult life by level of education.**



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

If we consider the education gaps between both groups, the average income by level of education and the employment rate among women, we have estimated the per capita annual cost faced by a woman who became a mother during adolescence as a result of her education gap is USD 573.00 of 2018.<sup>10</sup> (Figure 10).

**10** **Figure 10: Estimated per capita cost of education gap.**



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

If we consider the population of women who became mothers during adolescence in the six countries of the study, the total estimated cost of the education gap (the opportunity cost of AP and EC in education) has been estimated at USD 2,860,960,562. (Table 1).

It is important to note that the relationship between adolescent pregnancy (AP) and education is characterized by endogeneity, because there are many factors that have a simultaneous effect on both, as shown by (Aurino, Behrman, Mary, & Schott, 2017) for developing countries. Empirical evidence of AP determinants shows education

**1** **Table 1: Total estimated cost of education gap.**

Country	Education opportunity cost
<b>Guatemala</b>	\$55,079,664
<b>Ecuador</b>	\$59,626,358
<b>Paraguay</b>	\$96,403,412
<b>Argentina</b>	\$288,097,299
<b>Colombia</b>	\$755,036,404
<b>México</b>	\$1,606,717,425
<b>TOTAL</b>	<b>\$2,860,960,562</b>

**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

<sup>10</sup> Formally known as the opportunity cost of Adolescent Pregnancy and Early Childbearing in educational attainment.

is a factor of protection against possible pregnancies in that stage, given that adolescent girls who stay in education longer have lower pregnancy rates and, in addition, those who achieve a higher level of education during their adolescence are less likely to become mothers. (Rodríguez-Vignoli & Cavenaghi, 2014)

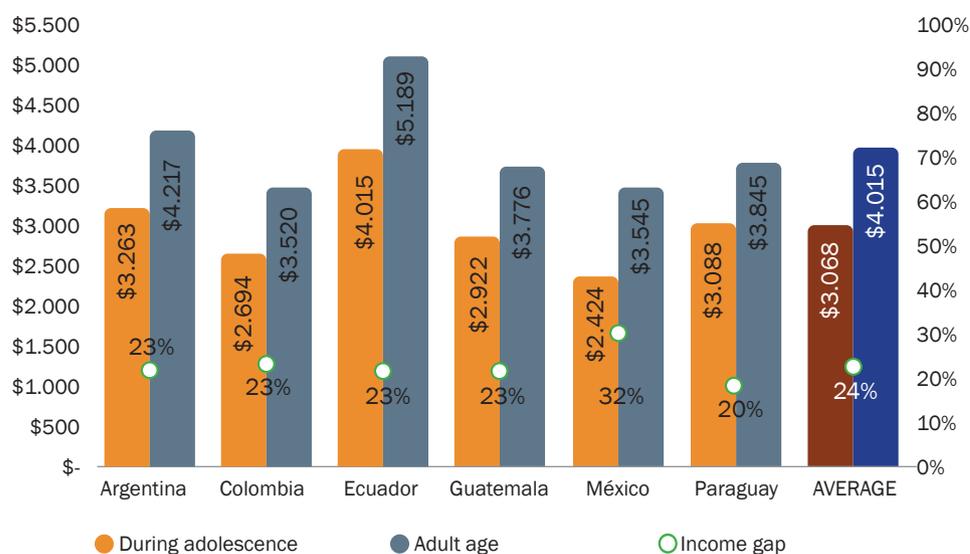
Studies on the consequences of adolescent pregnancy, (Berthelon, Kruger, & Eberhard, 2017) and (Berthelon & Kruger, 2014), provide ample evidence of the causality between adolescent pregnancy and education in Chile, where they found adolescent childbearing has negative effects on educational attainment. More specifically, it reduces the likelihood of completing secondary education by 18% to 37%, and effect that is more pronounced in households with lower income levels and lower levels of education. In Colombia, (Londoño & Sánchez, 2016) showed that adolescent pregnancy and adolescent childbearing reduce the likelihood of staying in education by 14 and 8.8 percentage points, respectively<sup>11</sup>.

Thus, the gaps identified in the education dimension for the six countries of the MILENA first implementation phase are consistent with the results of recent studies.

## 1.2. On income levels

Income gaps between both groups of women, depending on the age at which women became mothers, were consistently found in all the countries. We also found that labour income levels among women who became mothers during adolescence (Group 1) are, on average, 24% lower than those for women in Group 2; while women in the latter group had an annual income of USD 4,015, the income for those in Group 1 was USD 3,068. This gap is one of the most stable and consistent among the countries of the study, with Argentina, Colombia, Ecuador and Guatemala sharing a similar gap of 23%, a 32% gap in Mexico and a 20% gap in Paraguay. (Figure 11).

**11** Figure 11: Income level by age at which women became mothers.

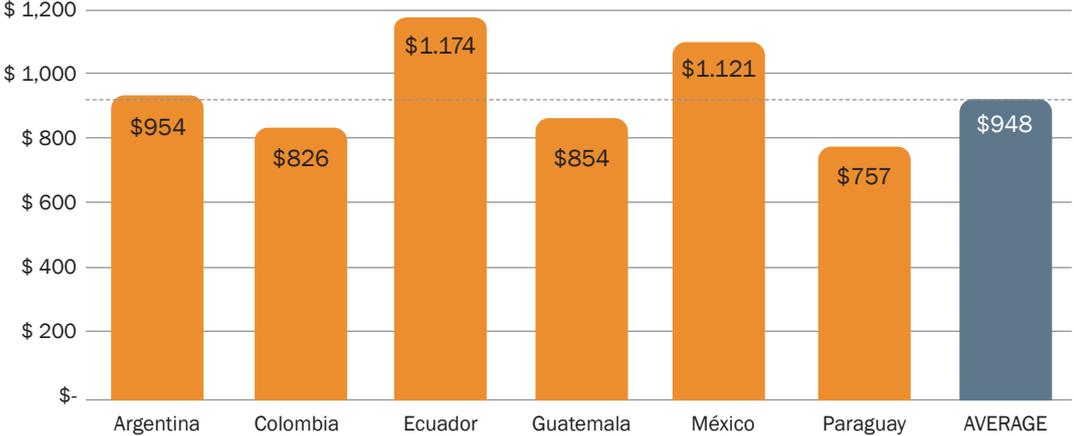


**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

11 A complementary line of research is the novel exploration of macro factors related to AP by (Avellaneda & Dávalos, 2017), who found that those Latin American and Caribbean countries that have passed laws on comprehensive sexual education, emergency contraception and abortion, report lower adolescent pregnancy rates.

If we take into consideration the fact that the specific population of women who became mothers during adolescence is of working age<sup>12</sup>, as well as the employment rate<sup>13</sup> among women in each country, we estimate this income gap has a per capita cost of USD 948 and a total cost of USD 5,091,144,338. (Figure 12 and Table 2).

**12** Figure 12: Estimated per capita cost of labour income gap.



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

**2** Table 2: Total estimated cost of income gap.

Country	Total labour income opportunity cost
<b>Paraguay</b>	\$97,147,328
<b>Ecuador</b>	\$131,951,572
<b>Guatemala</b>	\$152,189,819
<b>Argentina</b>	\$359,769,400
<b>Colombia</b>	\$1,241,020,684
<b>México</b>	\$3,109,065,535
<b>TOTAL</b>	<b>\$5,091,144,338</b>

**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

12 It is worth noting that the study’s target population included those women who, in the year of the survey (or census) were between the age of 20 and retirement age.  
 13 The employment rates for the population of women are: Argentina: 0.43; Colombia: 0.59; Ecuador: 0.32; Guatemala: 0.27; Mexico: 0.58; Paraguay: 0.61. The year of reference for all the countries is 2018, except for Ecuador and Paraguay, where we worked with 2017 data.

There are only a few studies on the consequences of adolescent pregnancy or adolescent childbearing on women's labour income, and they rely on house surveys or labour market surveys, which is what we did for the MILENA implementation. This means indirect estimates must be made. In this regard, (Gammage, Joshi, & Rodgers, 2020) highlight that the limited data available from surveys is an obstacle to gaining a better understanding of the relationships between fertility and its labour-related consequences.

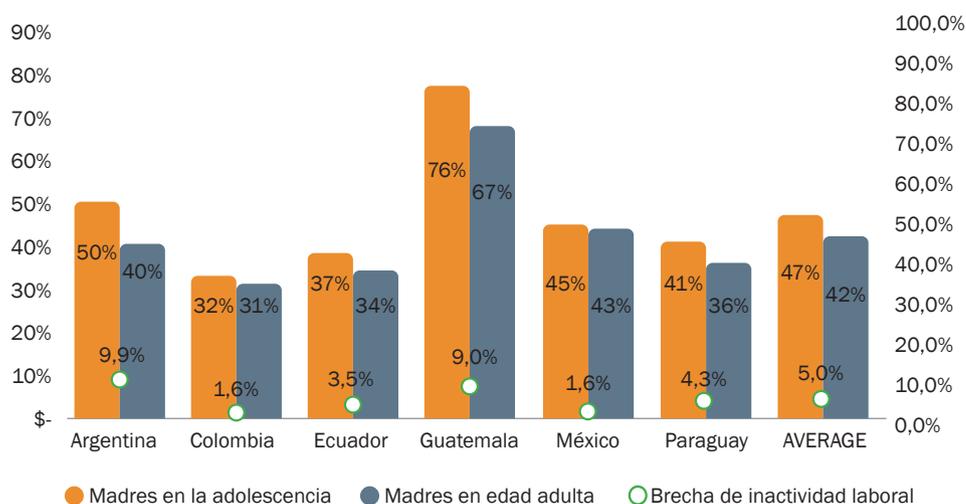
### 1.3. On labour market participation

In this dimension, the consequences of AP and EC on unemployment levels and inactivity in the paid labour market are measured. While gaps depending on the age at which women became mothers were identified between both groups, their magnitudes are smaller than those obtained in the previous dimensions.

In the case of inactivity in the paid labour market, we found both groups are significantly affected, but the group of women who became mothers during adolescence (Group 1) is slightly more affected. Women who became mothers during adolescence had an inactivity rate of 47%, compared to 42% for Group 2, which results in a relative gap of 5%. Here, it is worth noting that these high levels of inactivity in the paid labour market are closely related to the high unpaid domestic work (UDW) burden for women<sup>14</sup>. (Figure 13).

13

Figure 13: Inactivity by age at which women became mothers.



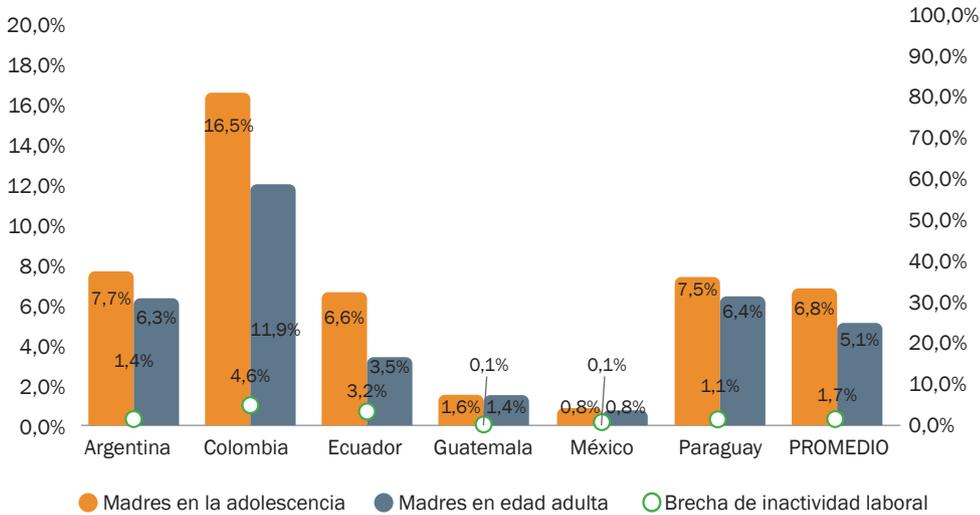
**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

14 As shown by CEPAL (2019), the gender gap in the time spent on unpaid domestic work still persists in all countries in Latin America and the Caribbean. For a recent analysis of the relationship between inactivity and reproductive choices in developing countries, see (Gammage, Sultana, & Gliński, 2020), who analyze the cases of Brazil, Paraguay, Uruguay, South Africa, the Philippines and Vietnam. Their analysis shows that where fertility transitions have been sharpest, this has not automatically translated into more employment and better labor market outcomes for women, illuminating a critical role for policy to support women's transition into formal employment.

Despite the differences in unemployment measurement methodologies in each country<sup>15</sup>, we consistently identified gaps between both groups, with an average gap of 1.7% between unemployment for those women who became mothers as adults and those who became mothers during adolescence, with the latter being the most affected by unemployment. (Figure 14).

Here, it is important to point out that, based on different methodological approaches, (Berthelon et al., 2017) and (Londoño & Sánchez, 2016) agree that AP does not have a significant impact on women’s labour market participation in Chile and Colombia.

**14** Figure 14: Unemployment by age at which women became mothers.



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

If we take into account the working age population, the economically active population and the employment rate, the annual cost of reduced labour market participation for a woman who became a mother during adolescence is USD 295, and the total cost for the entire population of women in the six countries of the study is USD 1,002,242,880. (Figure 15 and Table 3).

15 The heterogeneity of data sources and unemployment measurement methods used results in significant differences in rates between countries, which makes comparisons between them difficult.

15

Figure 15: Estimated per capita cost of labor market participation gap.



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

3

Table 3: Total estimated cost of labour market participation gap.

Country	Total
<b>Paraguay</b>	\$28,012,965
<b>Ecuador</b>	\$54,813,427
<b>Guatemala</b>	\$58,159,790
<b>México</b>	\$164,550,286
<b>Argentina</b>	\$207,982,690
<b>Colombia</b>	\$488,723,722
<b>TOTAL</b>	<b>\$1,002,242,880</b>

**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.





# Section 2.

**Consequences for  
State tax revenues  
and expenditures**

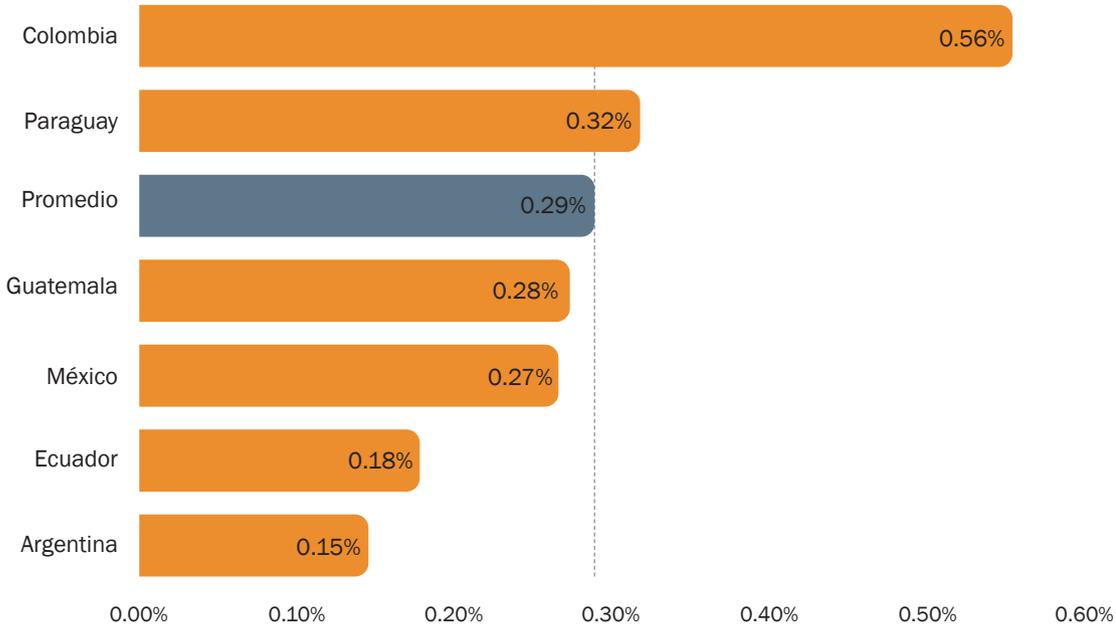




## 2.1. On total productive activity and State tax revenues

Based on the definition of the *productive activity cost* as the sum of: (i) the cost of reduced income levels plus (ii) the cost of reduced labour market participation, we have estimated that a woman who became a mother during adolescence faces an annual cost of USD 1,243 (2018), and also that the total cost as a proportion of the Gross Domestic Product (GDP) ranges from 0.15% in Argentina, 0.18% in Ecuador and 0.27% in Mexico, to 0.32% in Paraguay and 0.56% in Colombia. (Figure 16 and Table 4).

**16** Figure 16: Total productive activity cost (employment and activity) as a % of GDP.



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

**4** Table 4: Per capita opportunity cost of productive activity.

Country	Value
Paraguay	\$976
Colombia	\$1,117
México	\$1,180
Guatemala	\$1,180
<b>Promedio</b>	<b>\$1,242</b>
Argentina	\$1,489
Ecuador	\$1,511

**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

The productive activity cost has an impact on expected tax revenues. Therefore, this dimension considers revenue lost from income tax (ISR, also known as Imporenta or tax on individual income) and value added tax (VAT, also known as *Impoconsumo*)<sup>16</sup>.

Based on the progressive income tax systems in the countries of the study and the income levels of the population of interest, we estimated the impact of income tax revenue lost due to reduced income levels and unemployment, as well as inactivity, among those women who became mothers during adolescence. In addition, based on current VAT rates and the proportion of income spent in VAT taxable consumption, we estimated the effects of the tax revenue loss from such tax. (See Table 5 and Annex 1).

Thus, we have estimated that the tax revenue lost by the State for each woman who became a mother during adolescence is USD 110. The total tax revenue loss for the six countries of the study amounts to USD 746,118,322 of 2018, 56% for VAT and 44% for income tax.

**5** Table 5: . Consumption tax or Value Added Tax (VAT) in countries of the study.

País	Valor
Argentina	21%
Colombia	19%
Ecuador	12%
Guatemala	12%
México	16%
Paraguay	10%

**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

**17** Figure 17: Per capita VAT and income tax revenue lost.



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

16 This MILENA version only takes into account the impacts of VAT and income tax, and not other taxes or contributions, such as those related to social security health systems and pension funds that exist in some LAC countries, or taxes on personal assets, financial transactions, gross income, and real and personal property, among others.

6

Table 6: VAT and income tax revenue lost.

Country	Tax revenue
Paraguay	\$4,853,925
Ecuador	\$9,585,687
Guatemala	\$19,134,823
Colombia	\$60,520,522
Argentina	\$66,438,967
México	\$585,584,398
<b>Total</b>	<b>\$746,118,322</b>

**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

## 2.2. Health impacts and costs related to adolescent pregnancy

### Socially relevant public health outcomes

In LAC, adolescent girls, especially those under the age of 15, face the highest maternal mortality risks associated with pregnancy and childbirth complications, which are leading causes of death, according to (Conde-Agudelo, Belizán, & Lammers, 2005). For this reason, the *Global Strategy for Women's, Children's and Adolescent Health (2016-2030)*, proposed by the WHO, recommends a series of actions to reduce preventable deaths, considering a significant proportion of pregnancy complications can be managed through quality care. The main preventable causes of maternal mortality (WHO, 2015) include eclampsia, postpartum hemorrhage, puerperal sepsis and safe abortion.

In line with this evidence and the action strategies of the Sustainable Development Goals, the indicators for which the MILENA methodology gathers data include the adolescent maternal mortality ratio (AMMR), which is used to estimate the years of potential life lost (YPLL) and the years of potential productive life lost (YPPLL); the results of which are shown below. (Table 7, Figure 18).

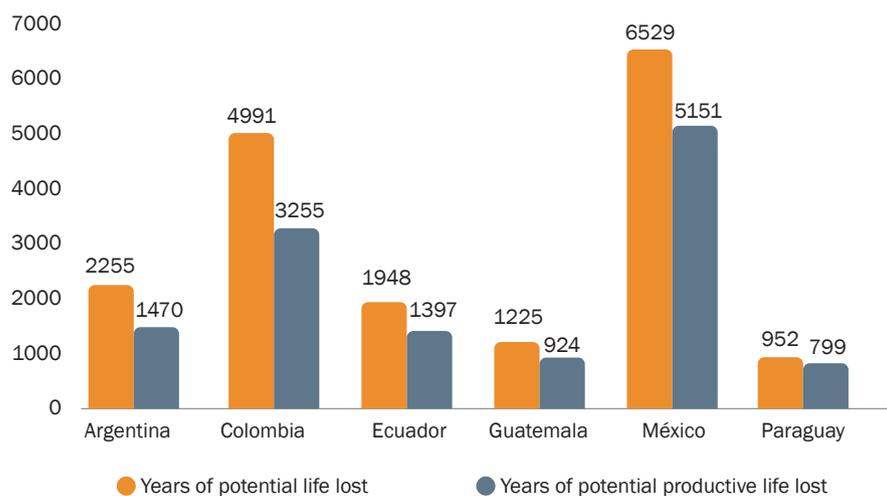
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Table 7: Adolescent maternal mortality ratio. (number of maternal deaths per 100,000 live births)

Country	Value
Argentina	32
Colombia	64
Ecuador	10
Guatemala	103
México	30
Paraguay	42

**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

Figure 18: Years of life lost due to adolescent maternal mortality.



**Source:** Prepared by the authors based on Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay MILENA studies.

According to the Vital Statistics Systems of the countries of the study, every year, on average, 47 women between the ages of 10 and 19 die during pregnancy, delivery or post-partum. These adolescent maternal deaths also involve opportunity costs for society because, as shown by the Years of Potential Life Lost (YPLL) and Years of Potential Productive Life Lost (YPPLL) indicators, if we consider women's life expectancy at birth and their initial employment and retirement ages, each country would lose, on average, 2,984 YPLL and 2,166 YPPLL due to adolescent maternal deaths.

### Adolescent pregnancy health care

The objective of this dimension of the MILENA methodology is to estimate the countries' public expenditure invested in, or allocated to, pregnancy, delivery and newborn care for adolescent mothers. In Section 2.1 we estimated the State's tax revenue lost as a result of declines in women's productivity, employment and income levels due to opportunities and capacities missed as a result of adolescent pregnancy. In this Section we will address another omission cost: the health expenditure countries must incur due to their failure to effectively prevent unintended adolescent pregnancies.

For these estimates, the MILENA methodology relied on the RH Costing Model, a sexual and reproductive health costing model developed by (Weissman, Saltner, & Friedman, 2008) for UNFPA and applied in a study conducted in El Salvador (UNFPA, 2017). This model was proposed as a benchmark for country implementations, bearing in mind that each country may have variations depending on their pregnancy and delivery care guidelines, protocols or systems. Based on the RH Costing Model, we considered the following care categories:

- Antenatal, delivery and postpartum care
- Deliveries
- Newborn interventions
- Obstetric complications
- Other maternal conditions

The costing methodology had to be adapted in each country depending on the accuracy and specificity of information available. In the case of Argentina, a micro-costing analysis was conducted for 18 defined lines of care and, within them, health care practices, benefits and minimum supplies were identified, indicating the nature of practices, quantities and usage rates. In the cases of Colombia, Ecuador, Mexico and Paraguay, a macro-costing or “top-down” method was used to estimate the average cost of services that corresponds to the average operating expenditure to produce the services delivered by the health care provider (hospital or clinic), which includes the cost of human resources, medicines, supplies and other expenses, as specified in each country<sup>17</sup>. In the case of Guatemala, information was gathered on the main items of expenditure for pregnancy, delivery, puerperium and newborn care, based on information available from the Ministry of Finance. We also we identified the frequency of care based on information from the Ministry of Public Health and Social Welfare.

For this reason, the different methodologies implemented do not allow for a homogenous comparison of results obtained and, therefore, these will be presented separately for each country, taking into account that, despite the use of different costing methodologies, costs related to the provision of care in the public component or sector of the corresponding health systems were estimated in all cases. Table 8 shows a summary of the number of deliveries carried out by the public sector in each country.

**8** Table 8: Adolescent deliveries carried out by the public sector of health systems.

Country	Spontaneous deliveries	Caesarean sections	Other deliveries attended	Multiple deliveries	Total No. of Deliveries
Argentina	67,030	16,758			<b>83,788</b>
Colombia <sup>18</sup>	3,226	1,252	295	4	<b>4,523</b>
Ecuador	42,927	18,978	-	-	<b>61,905</b>
Guatemala	53,623	20,196	-	554	<b>74,373</b>
México	269,655	27,658	4,077	243	<b>301,634</b>
Paraguay	7,222	5,009			<b>12,231</b>

**Source:** Prepared by the authors based on MILENA reports.

**9** Table 9: Births to adolescent women (ages 10 to 19), 2018.

Country	Births	Female population Ages 10 to 19
Argentina	108,955	3,481,152
Colombia	128,665	4,053,917
Ecuador	61,905	1,519,217
Guatemala*	74,373	1,877,239
México	359,813	10,988,585
Paraguay*	19,099	658,327

**Source:** Prepared by the authors based on MILENA reports. The numbers of births are based on the countries' Vital Statistics Systems. Female population figures are based on United Nations, DESA, Population Division (2019). World Population Prospects 2019.

**\*Year: 2017.**

18 The number of deliveries reported corresponds to a group of Empresas Promotoras de Salud (“Health Promotion Enterprises”), also known as “Selection EPSs”, that operate under their Contributory Scheme. Therefore, this information corresponds to a specific segment of a health insurance system whose coverage is estimated at one fourth of the total population affiliated with the Colombian health system.

## 2.2.1. Argentina<sup>19</sup>

The Argentine State has a significant level of expenditure for the provision of pregnancy, delivery, puerperium and newborn care for adolescent mothers through the services provided by the Public Health System. Based on the micro-costing analysis, we have estimated this subsystem allocated **USD 200.520.723 to adolescent pregnancy health care in 2018.**

Of that total, two thirds (USD 70,043,302) were allocated to the provision of care for adolescent deliveries and Caesarean sections, which are estimated at 83,788 cases a year (67,030 vaginal deliveries and 16,758 Caesarean sections). These care categories include routine antenatal, delivery, puerperium and newborn care. We also estimated the State spent USD 12.7 million in outpatient care for health problems related to adolescent pregnancy, such as acute anemia, hypertension and gestational diabetes, among others. An additional USD 18 million were allocated to the provision of care for obstetric complications faced by pregnant adolescents who require hospitalization, such as abortions and risk of preterm labor, among others. Finally, the public health system spent close to USD 40 million in the provision of care for newborns of adolescent mothers with low weight at birth and other neonatal complications such as malformations, severe immunosuppression, and cases of meconium aspiration or early-onset neonatal sepsis.

These estimates show that, if the Argentine State made the decision to continue the efforts it has been making since 2017 through the implementation of the Unintended Adolescent Pregnancy Prevention Plan (ENIA Plan), in addition to reducing AP –and everything that entails in terms of women’s rights and human development, as well as promoting their productive potential–, they could also save a significant amount of fiscal resources. If we consider that in 70% of live births to adolescents ages 15 to 19, and 80% of those among girls ages 10 to 14, adolescents and girls report their pregnancies were unintended, that means the State could save close to 140 million dollars a year by preventing these pregnancies, which is eight times the amount invested in the ENIA Plan<sup>20</sup>.

## 2.2.2. Colombia

In the case of Colombia, the information gathered corresponds to a group of Empresas Promotoras de Salud (“Health Promotion Enterprises”), also known as “Selection EPSs”, that operate under their Contributory Scheme. Therefore, this information corresponds to a specific segment of a health insurance system whose coverage is estimated at one fourth of the total population affiliated with the Colombian health system.

This particular segment allocated USD 4,076,560 to adolescent pregnancy care, including antenatal, delivery, postnatal and newborn care.

48% of that total was invested in the provision of antenatal and delivery care (prenatal care, hypertension during delivery and post-partum care), and 41% was spent on attending 4,523 deliveries. 66% of the latter amount was spent to attend spontaneous deliveries, followed by 28% on Caesarean sections. Finally, the obstetric complications (6%), other maternal conditions (5%) and newborn interventions (0.05%) categories account for 11.25% of the adolescent pregnancy care expenditure of the “Selection EPSs” that operate under their contributory scheme.

<sup>19</sup> The following sections on adolescent pregnancy and delivery care expenditure are mainly based on the MILENA country reports.

<sup>20</sup> UBA-UNICEF (2019) estimated the explicit costs of the ENIA Plan amount to \$670 million pesos (USD 17.7 million) a year, which indicates a very positive cost-benefit relationship from the perspective of resources invested and fiscal savings resulting from unintended pregnancies prevented.

If we assume that approximately 71.7% of births to adolescent girls ages 10 to 19 were the result of unintended pregnancies<sup>21</sup>, an effective prevention program would allow the health system to generate savings in the same proportion in the areas of adolescent pregnancy, delivery and postpartum care. In the case of the particular segment of the health system addressed here, they could have generated savings in the amount of USD 2,922,894, which could have been reinvested in the same AP prevention program.

### 2.2.3. Ecuador

In 2018, this Andean country allocated **USD 76,904,366 to the provision of care for pregnancies of girls and adolescents ages 10 to 19**, according to official data from the Ministry of Public Health. 75% of this expenditure (USD 58,053,612) corresponds to the provision of care for 61,905 adolescent deliveries, 42,927 of which were vaginal deliveries and 18,978 were Caesarean sections. Antenatal care accounted for 23% of their expenditure (USD 18,006,980), which was mainly allocated to routine prenatal care. They also allocated USD 695,709 (1% of the total expenditure) to the provision of care for obstetric complications, which mainly included care for severe cases of preeclampsia or eclampsia, puerperal sepsis and hemorrhage, both before and after the delivery. While care was provided in other categories, such as newborn interventions –including newborn sepsis/infections and low weight at birth– and care for other maternal conditions –such as urinary tract infections–, these categories accounted for less than 0.2% of the total.

In the case of adolescent pregnancies, the State must focus its efforts on preventing those identified as unintended. If we assume that at least 71.7% of the total number of live births to adolescents ages 10 to 19 were the result of unintended pregnancies<sup>22</sup>, we can conclude the Ecuadorian State could have saved at least USD 55,136,191, which could be reinvested in the adolescent pregnancy prevention strategy or plan.

### 2.2.4. Guatemala

According to our estimates, in 2018, Guatemala's public health services allocated more than USD 21,000 to the provision of adolescent pregnancy and delivery care, considering a total of USD 21,545,379 was allocated to that care category, which does not include expenditure for Caesarean sections<sup>23</sup>. Of this total, USD 4,250,154 were allocated to care for vaginal deliveries, USD 9,088,275 to newborn interventions, including routine newborn care, and cases of sepsis, asphyxia and low weight at birth. They also allocated USD 8,206,950 to antenatal care services, including treatment of acute anemia and hypertension during pregnancy.

If we assume an unintended adolescent pregnancy rate of 60.3%<sup>24</sup>, an effective adolescent pregnancy prevention program would allow the Guatemalan health system to reduce its expenditure in the same proportion. Considering the above-mentioned 21.5-million-dollar figure, they could have saved 12.9 million dollars.

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21 We assumed an unintended pregnancy rate of 71.7%, based on (Bearak, Popinchalk, Alkema, & Sedgh, 2018). In the absence of a specific unintended adolescent pregnancy rate for Colombia, we used the estimated rate for women of childbearing age (15 to 49) in South America. However, we acknowledge the rate among adolescents could be higher, especially in the case of girls/adolescents ages 10 to 14, whose pregnancies are considered the result of sexual abuse or statutory rape.

22 We assumed an unintended pregnancy rate of 71.7%, based on (Bearak, Popinchalk, Alkema, & Sedgh, 2018). In the absence of a specific unintended adolescent pregnancy rate for Ecuador, we used the estimated rate for women of childbearing age (15 to 49) in South America. However, we acknowledge the rate among adolescents could be higher.

23 The expenditure reported corresponds to the main items of expenditure based on information from the Ministry of Public Finance (MINFIN). We were unable to perform a macro-costing or micro-costing analysis due to limitations in access to more detailed information.

24 This value corresponds to the unintended pregnancy rate in Central America for women of childbearing age (15 to 49), according to (Bearak et al., 2018).

## 2.2.5. Mexico

According to our estimates, in **2018, Mexico's public health services allocated USD 305,891,932 to adolescent pregnancy and delivery care**, including antenatal care and care for newborn interventions, obstetric complications and deliveries. 84% of the 359,813 deliveries to girls and adolescents ages 10 to 19 reported by the country in 2018 were carried out in public health institutions<sup>25</sup>, which accounts for a total of 301,634 deliveries, for which they allocated a total of USD 76,633,782. Of these 301,634 deliveries, 269,221 (89%) were vaginal deliveries, 27,224 (9%) were Caesarean sections and 5,189 (1.8%) were *Other assisted deliveries, Forceps or vacuum assisted deliveries and Multiple deliveries*.

A total of USD 93,083,050 was allocated to *Delivery and antenatal care* coverage, which includes treatment for acute anemia and hypertension during pregnancy. They also allocated USD 128,220,101 to newborn interventions, which were invested in *Newborn routine care* (49%) and *Low weight at birth care* (51%).

In the case of obstetric complications care, they invested a total of USD 6,890,340, which includes care for *Premature rupture of membranes, Prolonged labor (>18 hours), Pre or postpartum hemorrhage, Puerperal sepsis and Severe eclampsia or preeclampsia*. Finally, USD 1,064,660 were allocated to care for *Other maternal conditions, including care for Mastitis and Urinary tract infections*.

In addition to deliveries taking place in the public sector, of the 359,813 births to girls and adolescents ages 10 to 19 reported by the country in 2018, 52,497 deliveries (15%) were carried out in private hospitals, with a total allocation of USD 93,908,847, of which USD 62,407,216 corresponded to medical services during deliveries, and USD 31,501,631 to medical services and drugs prescribed during pregnancy.

If we assume an unintended adolescent pregnancy rate of 69.1%<sup>26</sup>, an effective adolescent pregnancy prevention program would allow the Mexican public health system to reduce its expenditure in the same proportion. Considering the public sector's 305-million-dollar expenditure, they could have saved close to 211 million dollars.

## 2.2.6. Paraguay

In 2017, 19,099 births to women ages 10 to 19 were reported in Paraguay, according to the country's Vital Statistics Information Subsystem (SSIEV). 12,231 of them took place at health clinics of the Ministry of Public Health and Social Welfare (MSPyBS), for which they allocated a total expenditure of USD 6,707,859, which includes, in addition to delivery care, *Antenatal care, Obstetric complications care and Newborn care*. The rest of these childbirths were carried out at private facilities (3,495), the Social Welfare Institute (1,853), other subsectors of the health system (688) and people's homes (306).

The above-mentioned USD 6,707,859 can only be considered the minimum amount to estimate the cost per pregnancy, considering official data do not specify other associated costs, such as drugs, psychological counseling, transportation and others paid by pregnant women or their families<sup>27</sup>. USD 4,247,703 (63% of that total) were allocated to delivery care, of which USD 2,182,239 were allocated to Caesarean sections, and USD 2,065,464

25 The public health services defined were the following: Mexican Social Security Institute (IMSS), Institute for Social Security and Services for State Workers (ISSSTE), IMSS-Oportunidades, Petróleos Mexicanos (PEMEX), Ministry of National Defense (SEDENA), Naval Secretariat (SEMAR), and Ministry of Health, among others.

26 We assumed an unintended pregnancy rate of 69.1%, based on (Bearak, Popinchalk, Alkema, & Sedgh, 2018). In the absence of a specific unintended adolescent pregnancy rate for Mexico, we used the estimated rate for women of childbearing age (15 to 49) in Latin America and the Caribbean. However, we acknowledge the rate among adolescents could be higher.

27 Among the different health care costing methodologies, the Paraguay MILENA study used the "ex post operating cost", which estimates the costs of human resources, drugs and supplies and other operating costs for State health facilities during the period of analysis, which do not include "capital costs" via the calculation of infrastructure and equipment depreciation.

to spontaneous (vaginal) deliveries. The second category of care with the largest allocation was that for Newborn interventions, with a total investment of USD 1,820,695, which included Routine newborn care and Newborn sepsis/infections. In the case of Antenatal care, Obstetric complications and Other Maternal Conditions –such as mastitis and urinary tract infections–, they allocated USD 406,052, USD 223,557 and USD 9,852, respectively.

Thus, assuming an unintended adolescent pregnancy rate of 71.7%, an effective adolescent pregnancy prevention program would allow the Paraguayan public health system to reduce its expenditure in the same proportion. Considering the 6.7 million dollars of expenditure for the MSPyBS health facilities, that means they could save close to 4.8 million dollars.

## 3. Conclusions and recommendations

Women who become pregnant during adolescence –between the ages of 10 and 19– have lower educational attainment, lower income and lower labor market participation profiles throughout their adult life –between the age of 20 and their retirement age–. This is the main conclusion regarding the consequences of AP for society reached after the implementation of the MILENA methodology in Argentina, Colombia, Ecuador, Guatemala, Mexico and Paraguay.

The main consequences for the State are: i) a lower tax revenue due to the decline in productivity, and ii) a higher health care expenditure for the provision of care for unintended adolescent pregnancies, which accounts for 70% of the total. These consequences represent costs the State must assume as a result of the omission or lack of effective AP prevention programs, which could be avoided if they were able to prevent adolescent unintended pregnancies. The following is a detailed description of the main conclusions for each dimension.

### Education

- On average, while 18.6% of the women who became mothers in the first decade of their adult life (Group 2) achieved some level of tertiary education<sup>28</sup>, only 6.4% of those who became mothers during adolescence (Group 1) achieved that level, which means that, on average, there is a tertiary education gap of 12.2%. This gap is stable and consistent among the countries in the study: Argentina (11.3%), Colombia (14.7%), Ecuador (12.2%), Guatemala (6.9%), Mexico (15.5%) and Paraguay (12.6%).
- If we consider the education gaps between both groups, the average income by level of education, and the employment rate among women, the per capita annual cost faced by a woman who became a mother during adolescence as a result of her education gap has been estimated at USD 573.00 of 2018.<sup>29</sup>
- If we consider the population of women who became mothers during adolescence in the six countries, the total estimated cost of the education gap (the opportunity cost of AP and EC in education) has been estimated at USD 2,860,960,562.

### Labour Income

- We found that labour income levels for women in Group 1 are, on average, 24% lower than those for women in Group 2, considering that, while women in the latter group had an annual income of USD 4,015, the income for those in Group 1 was USD 3,068, which indicates an income gap that affects women who became mothers during adolescence. This gap is one of the most stable and consistent among the countries of the study, with Argentina, Colombia, Ecuador and Guatemala sharing a similar gap of 23%, a 32% gap for Mexico and a 20% gap for Paraguay.

<sup>28</sup> This includes short-cycle tertiary education, bachelor or equivalent (undergraduate) education and doctoral tertiary education (specialization, master's degree or Ph.D.).

<sup>29</sup> Formally known as the opportunity cost of Adolescent Pregnancy and Early Childbearing in educational attainment.

- If we take into consideration the fact that the specific population of women who became mothers during adolescence is of working age<sup>30</sup>, as well as the employment rate<sup>31</sup> among women for each country, we estimate this income gap has a total cost of USD 5,091,144,338.

## Paid labour market participation (unemployment and inactivity)

- While gaps depending on the age at which women became mothers were identified between both groups, their magnitudes are smaller than those obtained in the previous dimensions.
- As regards inactivity in the paid labour market, we found both groups are significantly affected, but those women who became pregnant during adolescence were more affected. While women who became mothers during adolescence had an inactivity rate of 46.8%, the rate for Group 2 was 41.9%, which translates into absolute and relative gaps of 4.9% and 11.5%, respectively<sup>32</sup>. Here, it is worth noting that these high levels of inactivity in the paid labour market are closely related to the high unpaid domestic work (UDW) burden for women in general, especially when they experience early pregnancy<sup>33</sup>.
- Despite the differences in unemployment measurement methodologies for each country<sup>34</sup>, we found a relative gap of 31.1% between unemployment among women who became mothers as adults and those who became mothers during adolescence, with the latter being the most affected by unemployment.
- If we take into account the populations of working age, the economically active population and the employment rate, the annual cost of reduced labour market participation for a woman who became a mother during adolescence is USD 295, and the total cost for the entire population of women in the six countries of the study is USD 1,002,242,880.

## Omission costs: tax revenue lost

Based on the definition of the total productive activity cost as the sum of: (i) the cost of reduced income levels plus (ii) the cost of reduced labour market participation, we have estimated that a woman who became a mother during adolescence faces an annual cost of USD 1,243 (2018), and the total population of women in the countries of the study faces a total productive activity cost, on average, of 0.29% of their GDP.

Tax revenue lost is one of the implications of women's reduced labour market participation and income levels due to adolescent pregnancy. We have estimated that the revenue lost by the State for income tax (also known as *Imporenta* or tax on individual income) and value added tax (VAT, also known as *Impoconsumo*) is USD 110 for every woman who became pregnant during adolescence. The total tax revenue lost by the six countries of the study amounts to USD 746,118,322 of 2018, 56% for VAT and 44% for income tax.

30 It is worth noting that the study's target population were those women who, in the year of the survey (or census) were between the age of 20 and retirement age.

31 The employment rates for the population of women are: Argentina: 0.43; Colombia: 0.59; Ecuador: 0.32; Guatemala: 0.27; Mexico: 0.58; Paraguay: 0.61. The year of reference for all the countries is 2018, except for Ecuador and Paraguay, where we worked with 2017 data.

32 The relative gap is equal to (Group 1 inactivity rate – Group 2 inactivity rate) / Group 2 inactivity rate.

33 As shown by CEPAL (2019), the gender gap in the time spent on unpaid domestic work still persists in all countries in Latin America and the Caribbean. For an exploratory analysis of the relationship between inactivity, UDW and reproductive choices, see Gammage, S. et. al., (2020).

34 The heterogeneity of data sources and unemployment measurement methods used results in significant differences in rates between countries, which makes comparisons between them difficult.

## Omission costs: health expenditure

In this section we have addressed another omission cost: the health expenditure incurred by countries due to the failure to effectively prevent adolescent unintended pregnancies.

For these estimates, the MILENA methodology relies on the *RH Costing Model*, a sexual and reproductive health costing model developed by (Weissman, Saltner, & Friedman, 2008) for UNFPA, which allows for variations in each country depending on their pregnancy and delivery care guidelines, protocols or systems.

Each country adapted the model depending on the accuracy and specificity of information available. Some countries followed a micro-costing model, while others adopted a macro-costing or “top-down” method. In other cases, they managed to consolidate the main items of expenditure and the categories for pregnancy, delivery, puerperium and newborn care. Thus, considering the different methodologies implemented, a homogenous comparison of the results obtained is not the best approach. However, the cost of care provided by the sector or public component of the corresponding health systems was estimated in all cases and, therefore, their aggregated results can be compared.

In the countries of the study, the average cost of care for a natural or spontaneous delivery and a Caesarean section is USD 679 and USD 997, respectively –which does not include antenatal, postpartum, newborn or obstetric complications care–.

In general, based on the number of deliveries attended, as well as the associated care categories and their costs, the public sector’s total expenditure ranged from 6.7 to 305 million dollars. Bearing in mind the high rates of unintended adolescent pregnancy (UAP), the countries of the study could have saved between 60% and 72% of their current expenditure if those pregnancies had been prevented effectively.

10

**Table 10: Health expenditure and other expenditure avoidable as a result of effective prevention**

Country	Public sector expenditure for provision of AP care <sup>1</sup>	Expenditure avoidable through effective UAP prevention	UAP rate
Argentina	\$ 200,520,723	\$ 140,364,506	70.0%
Colombia <sup>2</sup>	\$ 4,076,560	\$ 2,922,894	71.7%
Ecuador	\$ 76,898,454	\$ 55,136,191.34	71.7%
Guatemala	\$ 21,545,379	\$ 12,991,863	60.3%
México	\$ 305,891,932	\$ 211,371,325	69.1%
Paraguay	\$ 6,707,859	\$ 4,809,535	71.7%

1. Levels of expenditure are not strictly comparable, because each country used its own methodology to estimate them, and not all of them used the same care categories.

2. The information gathered in Colombia corresponds to a group of Empresas Promotoras de Salud (“Health Promotion Enterprises”) that operate under their Contributory Scheme. Therefore, this information corresponds to a specific segment of a health insurance system whose coverage is estimated at one fourth of the total population affiliated with the Colombian health system.

**Source:** Prepared by the authors based on MILENA country reports.

Summarizing the results obtained, the global impact<sup>35</sup> of adolescent pregnancy has been estimated at 0.35% of the GDP (the simple average for the countries of the study), and it ranges from 0.22% of the GDP for Argentina to 0.58% for Colombia. We have also concluded that, in all the countries of the study, the biggest impact is on women's labour income due to existing income gaps between both groups of women. (Table 11).

11

**Table 11: Global impact and impact by dimension, by country. (Millions of USD)**

Impact on:	Dimension	Argentina	Colombia	Ecuador	Guatemala	México	Paraguay
Society (women who became mothers during adolescence)	Education	\$288	\$755	\$60	\$55	\$1,607	\$96
	Labour income	\$360	\$1,241	\$132	\$152	\$3,109	\$97
	Labour market participation	\$208	\$489	\$55	\$58	\$165	\$28
State	Tax revenue	\$66	\$61	\$10	\$19	\$586	\$5
	Health expenditure	\$201	\$4	\$77	\$22	\$306	\$7
Global impact		\$835	\$1,794	\$273	\$251	\$4,165	\$137
Nominal GDP		\$385,479	\$311,317	\$104,296	\$76,252	\$1,222,503	\$39,015
<b>Global impact as % of GDP</b>		<b>0.22%</b>	<b>0.58%</b>	<b>0.26%</b>	<b>0.33%</b>	<b>0.34%</b>	<b>0.35%</b>

**Fuente:** Prepared by the authors based on MILENA country reports. US dollars of 2018. (Exchange rate: domestic monetary units per USD for the corresponding year).

1. By global impact we understand the impacts on Society and the State, including all the different dimensions, except for that of education, because its effects are captured by the labour income dimension.

## Lessons learned and recommendations

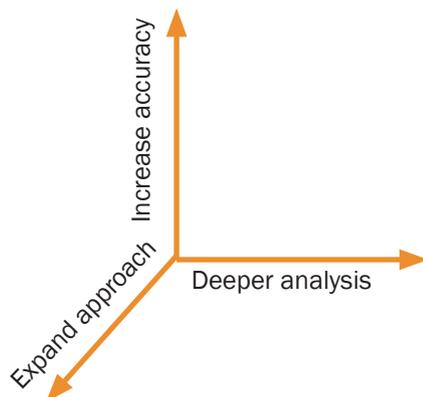
Similar to the study of any social phenomenon, no analysis of the determinants and consequences of AP and EC can be conclusive. The implementation of the MILENA methodology in the six LAC countries raised new questions about the consequences of AP for society and the State:

- *What is the impact of reduced levels of income and labour market participation of women who experienced an AP on contributions or fees paid to health and retirement systems?*
- *If both groups of women, depending the age at which they got pregnant, have high levels of labour inactivity associated, how does this relate to Unpaid Domestic Work (UDW) burdens? Do those who experienced an AP face higher UDW burdens?*
- *What part of the lower education, income and labour market participation profiles can be attributed to AP and what part is due to pre-existing poverty and vulnerability conditions?*

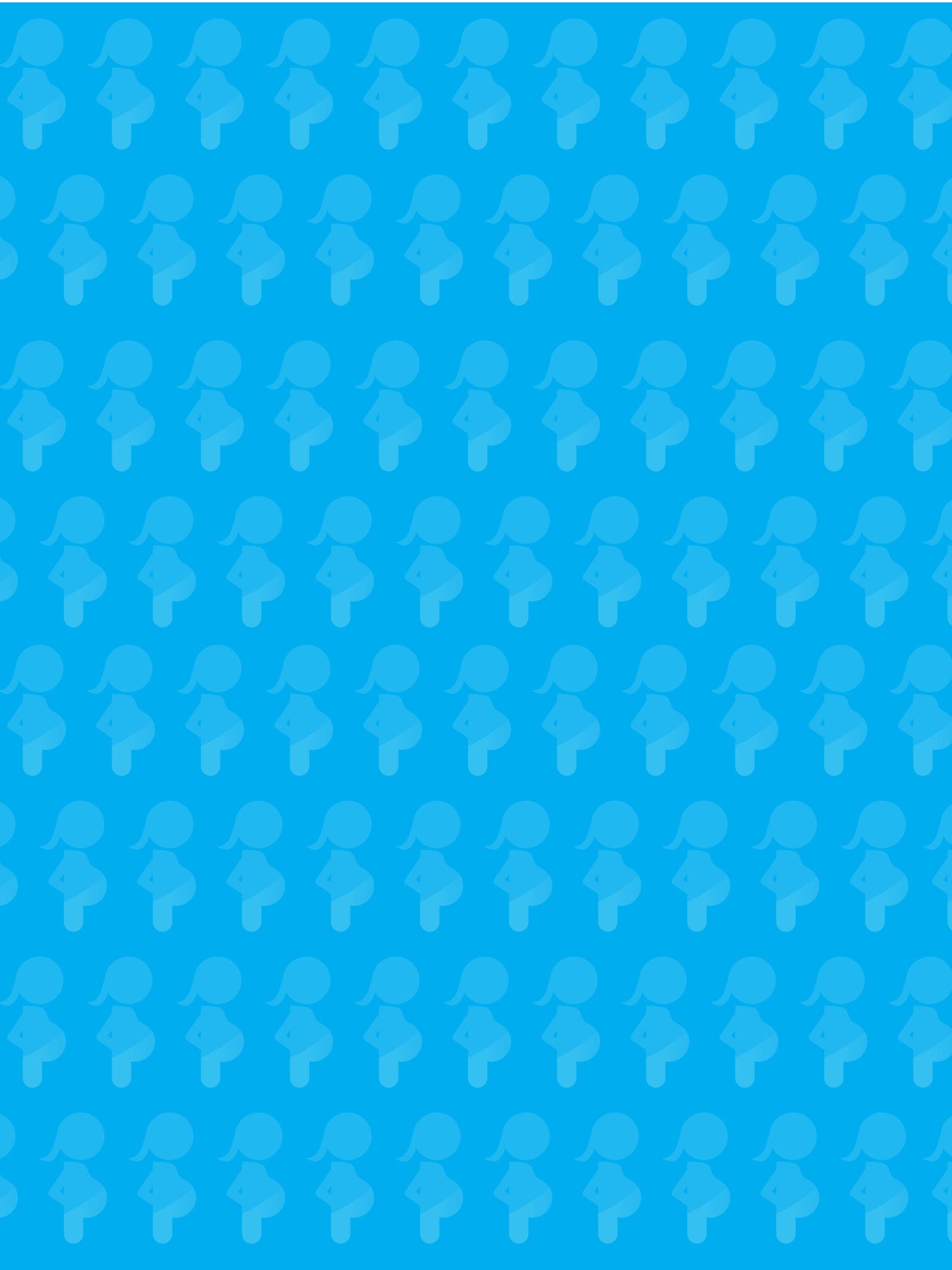
<sup>35</sup> By global impact we understand the impacts on Society and the State, including all the different dimensions, except for that of education, because its effects are captured by the labour income dimension.

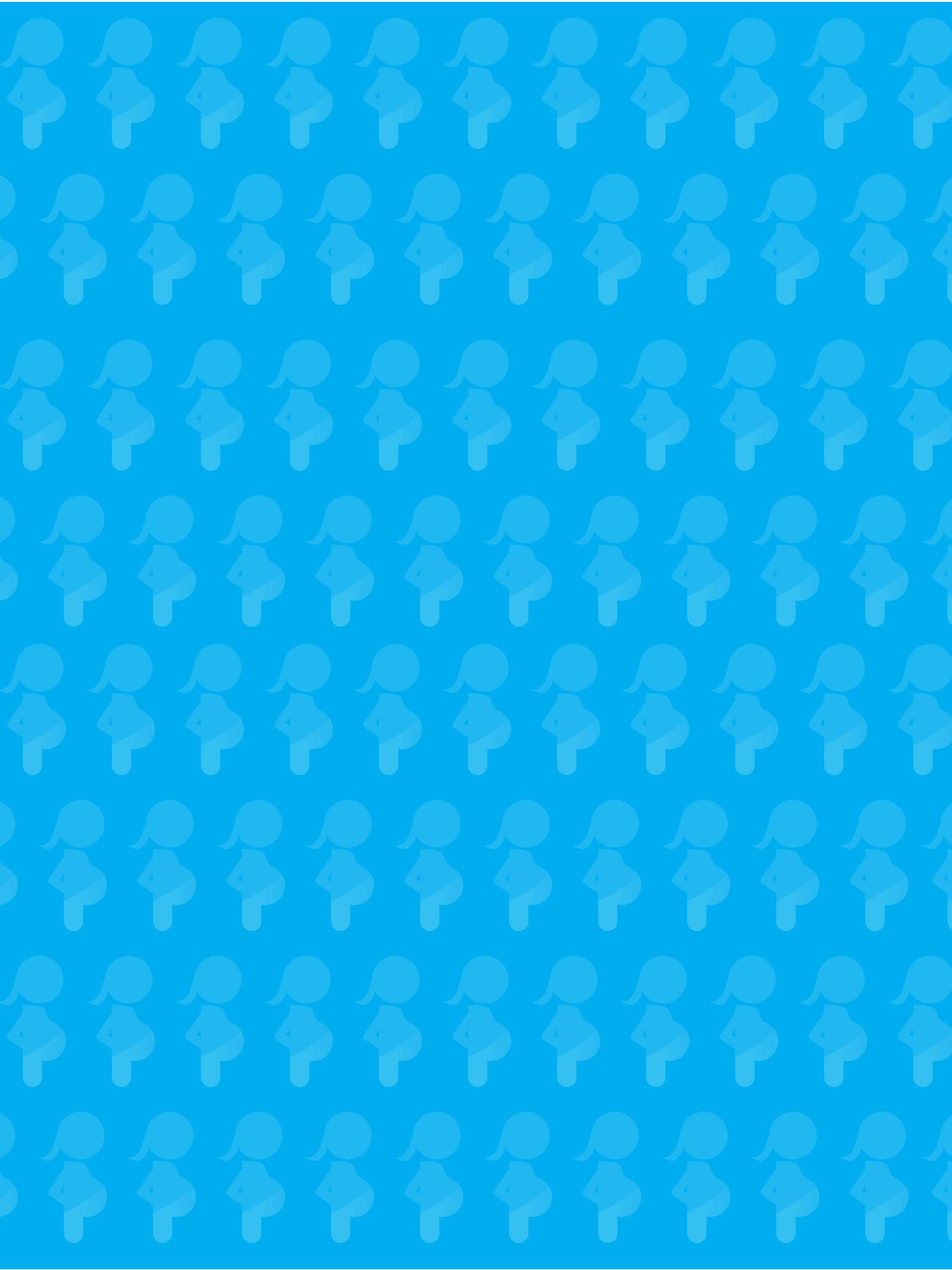
Based on these questions raised by the implementation of the MILENA methodology, the following is a description of the next steps that could guide the study of the consequences of AP and EC. These steps include a deeper analysis of the dimensions already addressed, expanding the approach to new dimensions, or a more accurate identification of the causality between those factors associated with AP. (Figure 19).

**19** Figure 19: Next steps in the study of the consequences of AP.



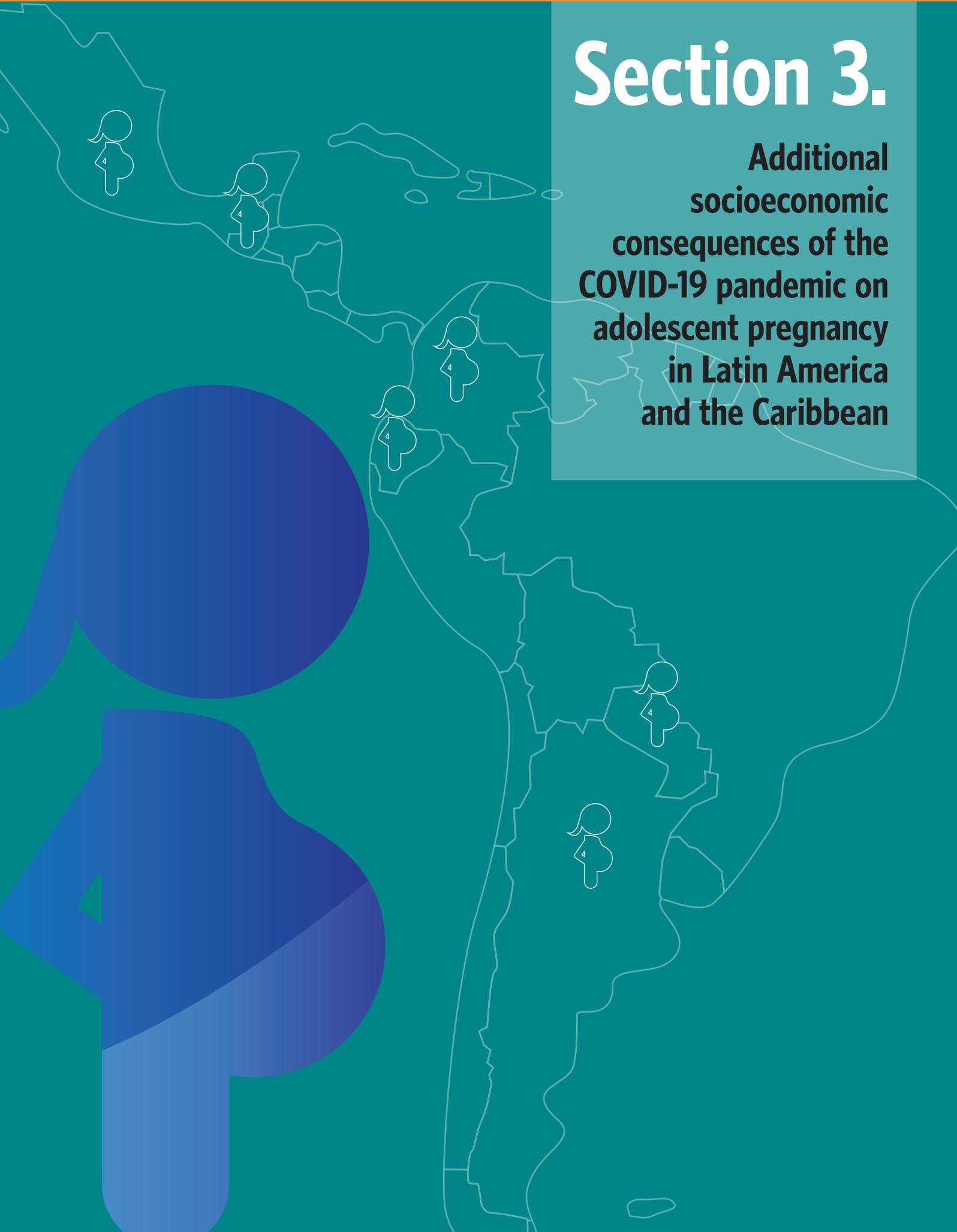
Evaluating the consequences for contributions made to health and retirement systems can be a way of conducting a *deeper analysis* of the fiscal dimension, which was already proposed and partially addressed. Exploring the relationships between AP and UDW can be a way of *expanding* the current scope of the AP study, which would provide a more comprehensive perspective of the consequences for women's activity –both in the paid labour market and in care work–. Applying causal inference models would allow us to have more accurate information on the effects and impact of AP, and also to identify specifically what part of the lower socioeconomic achievement profiles is due to AP and what part is due to pre-existing conditions.





# Section 3.

**Additional socioeconomic consequences of the COVID-19 pandemic on adolescent pregnancy in Latin America and the Caribbean**





# Introduction

The impact of the coronavirus pandemic on sexual and reproductive health in Latin America and the Caribbean is bigger for girls and adolescent girls than adult women. The difficulties in access to sexual and reproductive health services (CEPAL & UNICEF, 2016) adapted to their needs (USAID, 2009) they already face are compounded by the challenges posed by the current crisis. After the World Health Organization (WHO) declared the COVID-19 pandemic on March 11 2020, global health systems were forced to reorganize their services, infrastructure, human resources and supplies to respond to an unprecedented demand for services. Some health facilities remain closed and/or have reduced their services. Outpatient services at the primary and secondary levels of care have been significantly restricted. Those that are still open have already felt the effects of a disrupted supply chain that has resulted in a reduced availability of contraceptive methods and sexual and reproductive health commodities (UNFPA, 2020, ARF, 2020).

Countries have imposed lockdown restrictions to address the COVID-19 health crisis. But these restrictions limit movement and public transport, and make geographical access to health facilities difficult. They also increase the possibilities of exposure to situations of sexual violence and domestic abuse.

As in previous health crises, women and girls face the highest risk of being affected by the negative consequences of the coronavirus pandemic. On one hand, women represent the majority (approximately 70%) of health workers (Boniol et al, 2019). Women also predominate among caregivers of children and the elderly, which means they are at higher risk of contracting the coronavirus, and measures implemented to fight the virus make women and girls extremely vulnerable. If we take into consideration that pregnancy among girls and adolescents is closely linked to inequality, as well as the characteristics of the current health crisis, we can infer the problem will only tend to grow in a context like that of Latin America and the Caribbean, and will also cause socioeconomic consequences for adolescent mothers, their families and society as a whole (UNFOA, 2019; Sachs, 2020).

A publication by Pickett and Wilkinson (2009) on the importance of equity as a development factor also states that, given the lack of opportunities in a given context, even an unwanted pregnancy may be a viable life project for adolescent girls. This situation, extrapolated to the Latin America and the Caribbean context –which is characterized by a high level of social inequality and where country economies will be hard hit by the pandemic– could also contribute to an increase in adolescent pregnancy.

The objective of this document is to analyze the potential impacts of COVID-19 on adolescent pregnancy in Latin America and the Caribbean as of July 2020, including its economic consequences. To this end, we conducted a review of academic literature and technical reports from national, regional and international public organizations, including gray literature, that address the potential impacts of the COVID-19 pandemic on adolescent pregnancy. We also identified two possible hypotheses about the impact of COVID-19 on adolescent pregnancy:

1. Difficulties and barriers in access to contraceptives and sexual and reproductive health services could increase the region's adolescent pregnancy and childbearing rate.
2. Confinement measures increase exposure to situations of sexual violence and abuse in the household.

The following is an analysis of these hypotheses about the impact of COVID-19. In addition, we estimated the number of adolescent pregnancies that could be reported in Latin America and the Caribbean, as well as their social costs.

## 1. Difficulties and barriers in access to contraceptive methods and sexual and reproductive health services during the COVID-19 pandemic

Sexual and reproductive health services and the supply of contraceptive methods free of charge have been affected by lockdown measures and movement restrictions imposed by most countries during the COVID-19 pandemic (SEC,2020; Riley et al, 2020). This will have short, mid and long-term consequences for the population, such as unintended pregnancies, an increase in pregnancy among girls and adolescents, an increase in the number of STIs (sexually transmitted infections) and unsafe abortions, and higher levels of maternal mortality and morbidity.

Health crises tend to worsen existing inequalities in access to health services for reasons of gender and other social, economic and even cultural inequalities (Zampas, 2020). Despite improvements in access to contraceptives in Latin America and the Caribbean in recent years, the unmet need for modern contraception remains high. According to data from UNFPA (2014), 62% of women aged 14 to 48 years in the region want to avoid pregnancy. United Nations projections from early 2020 estimated that 19,720,000 women lacked access to modern contraceptives (UN,2020). It is also worth noting that the availability of these commodities in health systems was already irregular prior to the current health crisis (Martich, 2018).

In the particular case of adolescents, barriers in access to traditional contraceptives are combined with others such as legal barriers to the delivery of contraceptives to minors (UNFPA, 2017) and cultural aspects (UNFPA & Pathfinder, 2012), which make the situation even more difficult and pose a major challenge to health systems. 11% of births worldwide occur to young girls aged 15 to 19 years. Every year, 16 million adolescents aged 15-19 years and 2 million girls under the age of 15 become mothers in low- and middle-income countries (WHO, 2020). The latter (pregnancies in girls under the age of 15) are mainly forced and a consequence of sexual violence<sup>36</sup>. **In Latin America and the Caribbean, pregnancy among young girls aged 15 to 19 years accounts for 19% of pregnancies in the region**, with significant variations between countries.

**Latin America and the Caribbean reports a bigger impact on access to contraceptives due to COVID 19 compared to the rest of the regions.** UNFPA, in collaboration with Avenir Health, the Johns Hopkins University (United States) and Victoria University (Australia), assessed the impact COVID-19 could have on reproductive health globally. They projected that some 47 million women will discontinue contraceptive use, resulting in around 7 million unintended pregnancies in 114 developing countries. In Latin America and the Caribbean, where the lockdown period has been the longest (for example, of more than 100 days in countries like Argentina and Panama), and the economic consequences of COVID-19 have been the worst, a UNFPA regional study estimated 3.9 million women would discontinue contraception due to difficulties in access in the private sector and 13.1 million due to shortages in public services. If we add those 17 million users who will discontinue contraception due to the COVID-19 outbreak to the 19.7 million women that, according to an estimate of the United Nations Population Division, were already facing an unmet need for modern contraceptives, the percentage of women in the region facing an unmet need for contraceptives will go back to levels of 27 years ago, from 11.4% to 16.3% (UNFPA, 2020)

**In Latin America, difficulties in access to contraceptive methods as a consequence of the pandemic occur both in the public and the private sector.** In the former (the public sector), the difficulties are due to disruptions in the supply chain, and in the latter (commercial pharmacies) due to reduced income in households. In line with this regional assessment conducted by UNFPA, the following is an analysis of the differentiated impact on adolescent girls' access to contraceptives in both sectors.

36 <https://www.alianzaporlasolidaridad.org/crisis-coronavirus/consecuencias-coronavirus-aumento-embarazos-no-deseados-violaciones>

**The impact on restricted access to the supply of contraceptive methods in public health services is bigger for adolescent girls compared to adult women.** For example, in Bolivia, during the month of April 2020, the delivery of modern contraceptives by public health services declined by 64% for women aged 20-24 years, compared to the same month of 2019. However, for adolescents aged 15 to 19 years, the decline was 75%, that is, eleven percentage points higher (Tobar,2020). The same analysis conducted in Guatemala, a country that had reported a low rate of the virus in April, showed a decline in the delivery of methods of 41% for adolescent women, compared to only 6% for women aged 20 to 24 years<sup>37</sup>.

**The impact of restricted access on the purchase of contraceptive methods from private pharmacies is bigger for adolescent girls compared to adult women.** Analyses of the discontinuation of contraceptive use (survival analysis) have documented a higher risk of “undesired” interruptions among young women and adolescent users. That risk increases in the case of short-term modern methods and is inversely proportional to household incomes (Bradley et al, 2009). Of a total of eight countries analyzed, Colombia stands out due to its risk of contraceptive use discontinuation, which was three times higher for the group in the 15 to 24 age range compared to the group in the 25 to 34 age range, and 5 times higher compared to the group of users older than 35. In addition, an econometric study based on information from 12 Latin American countries over a five-year period performed multiple regressions to identify the elasticity of consumption of modern contraceptives purchased from private pharmacies vs. a series of macroeconomic and social indicators (Godoy Garraza et al, 2019). This study concluded that for each percentage point increase in unemployment, consumption of contraceptives purchased from pharmacies drops by 2.5 points, and for each percentage point increase in the population living on less than 3.2 USD a day, that consumption drops by 2 points. In Latin America and the Caribbean there is ample evidence that levels of poverty are higher among adolescents, and also that unemployment is higher among young people compared to the adult population (ILO,2020).

## 2. Lockdown measures increase exposure to situations of sexual violence and abuse in the household.

Sexual abuse has a significant weight in adolescent pregnancy rates, especially in the case of pregnancy among girls (10 to 14 year of age). It has been found **most aggressors belong to their inner social and family circle** (CLACAI,2019). Even where pregnancy is not the result of rape, the trajectories of these girls and adolescents are marked by different forms of violations of their sexual integrity and unequal power relations (UNICEF,2017).

Despite the urgent need to address the problem in Latin America and the Caribbean, its analysis is fairly complex for several reasons: 1) underreporting (victims usually remain silent or prefer not to report rapes or acts of violence out of fear, embarrassment or distrust in institutions) (UNCEF,2014), 2) the diversity of sources (very specific studies, surveys limited by their own samples and data) and government bodies (justice, health, gender) that participate in the multisectoral response to violence, 3) the different legal definitions of sexual violence adopted by countries (the main discrepancies have to do with the minimum age of consent, which ranges from 13 to 15 years of age), and 4) the lack of systematized records and statistics at the country level, especially in the health sector. All of the above makes regional analyses and comparisons difficult (even within countries), and that is why we believe we prefer to speak about estimations of the prevalence of sexual abuse.

During the COVID-19 crisis, one measure widely used to mitigate the effects of the pandemic has been the adoption of lockdown and movement restriction measures, which increase vulnerability and the risk of experiencing sexual and gender-based violence, and have a negative impact on the unintended pregnancy rate. Considering Latin America and the Caribbean is the world’s most dangerous region for women, only second to countries in situations of armed conflict or war, the landscape is alarming. To this we must add the fact that 8 out of 10 aggressions

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37 Guatemala. Ministry of Public Health and Social Welfare. Health Management Information System. SIGSA. SIGSAWEB. National Reproductive Health Program.

are perpetrated by the victims' partners or former partners, that is, persons in their inner circle, including in their households (FIO,2019). It has been estimated that six months of lockdowns would produce an additional 31 million cases of gender-based violence worldwide, and every additional 3 month lockdown would produce an additional 15 million cases of gender violence.

Evidence available worldwide shows women and girls are at higher risk of being negatively affected by COVID-19. Natural catastrophes, such as Hurricane Katrina in the United States, created significant difficulties in access to sexual and reproductive health services and contraceptive commodities (Kissinger et al, 2007). The same happened with past epidemics, like the Ebola crisis in Sierra Leone (UNPD, 2015) (where lockdowns were also imposed), that led to a 65% increase in adolescent pregnancy in some communities in the country due to the socioeconomic conditions caused by the outbreak. Movement restrictions also make it difficult for victims to report acts of abuse and, therefore, it is really complicated to determine if these pregnancies were the result of consensual sex between adolescents or child sexual abuse.

In Latin America, as days of lockdown increased (a measure adopted by several countries in the region), a significant increase in reports of household violence and rape was also reported. Victims of sexual violence face barriers in access to emergency contraception (which is even prohibited in countries like Honduras) or the legal termination of pregnancy, which could lead to unintended pregnancies among adolescents and girls. The following table shows the increase reported in the number of complaints filed in several countries in the region:

**1** **Table 1: Gender-based violence and rape complaints filed during the coronavirus quarantine in a group of Latin American countries.**

Country	Situation of gender-based violence during the lockdown period
Argentina	25% increase in the number of domestic violence complaints. The Ministry of Justice and Human Rights also reported a 67% increase in calls for help by women in April 2020, compared to the same month of the previous year.
Bolivia	During the quarantine, and as of April 15 2020, 33 cases of rape of underage girls and 1,200 case of violence against women were reported.
Brazil	50% increase in the number of domestic violence complaints.
Colombia	During the early days of the quarantine, a 51% increase in cases of domestic violence was reported.
Mexico	The number of rape complaints increased from 2 or 3 to 5 a day in April 2020.
Peru	During a 15-day lockdown period, 43 rapes were reported, in 23 of which the victims were girls (53%).

**Source:** Prepared by the authors based on:

- United Nations. Policy Brief: The Impact of COVID-19 on Women. April 9 2020 Available at: <https://www2.unwomen.org/-/media/field%20office%20americas/documentos/publicaciones/2020/05/un%20women%20violence%20prevention%20brief%20ingles.pdf?la=es&vs=0>
- Lucila Sigal, Natalia A. Ramos Miranda, Ana Isabel Martínez y Mónica Machicao. "Otra pandemia": violencia do-méstica aumenta en América Latina durante cuarentena <https://lta.reuters.com/articulo/salud-coronavirus-latinoamerica-violenci-idLTAKCN2291KJ-OUSLT>.
- UN Women BRIEF v 1.1. 23.04.2020. Strategies for the Prevention of Violence Against Women in The Context of Covid-19 in Latin America and The Caribbean.

Considering the above-described scenario, it will be really important to increase efforts to address the issues of gender violence, child abuse and pregnancy rates among girls and adolescents in the region in the coming months.

## Quantifying the impact of COVID-19 on adolescent pregnancy and its economic consequences

To estimate the number of additional adolescent pregnancies linked to the COVID-19 health crisis, we developed three alternative scenarios. The first one, the most conservative, discards the previous analysis, which relies on two hypotheses that suggest the impact on the sexual and reproductive health outcomes for adolescent girls in Latin America would be bigger compared to adult women. The second one, a moderate scenario, only considers the first hypothesis of impact, assuming difficulties in access to contraceptives would be 20% higher for adolescents compared to adult women. The third one, the extreme scenario, also assumes an impact based on the second hypothesis, in addition to a 5% increase in the number of unintended adolescent pregnancies linked to the increased number of rapes during the lockdown period. Table 2 shows the three scenarios, assuming a Specific Adolescent Fertility Rate (SAFR) expected for the region of Latin America and the Caribbean prior to COVID-19 of 64 per one thousand girls aged 15 to 19 years (UNFPA, 2020), and also that this rate equals 8,420,158 births.

**2** Table 2: Expected impact of COVID-19 on adolescent pregnancy in Latin America and its economic cost for the State and society

Scenario	Hypothesis	Incremental number of adolescent pregnancies (thousands)	Marginal increase	SAFR expected	Additional social cost (in USD)
Conservative	Adolescents report the same restrictions in access as average women	418	5%	64	505,780,000
Moderate	The impact on adolescent girls' access to contraceptives is 20% higher than the average	501.6	6%	65	606,936,000
Extreme	In addition to increased restrictions in access, there is a higher risk of pregnancy (5%)	922.6079	11%	68	1,116,355,559

■ **Source:** Prepared by the authors.

To build the first scenario, we took into account UNFPA's estimates for Latin America and the Caribbean, which show disruptions in access (in the public and private supply channels) caused by COVID-19 led to at least an additional 2.2 million unintended pregnancies, considering both adult women and adolescents. Reports from the United Nations Population Division also show 19% of live births in the region are to mothers aged 15 to 19 years. A lineal projection of both figures shows there would be at least an additional 418,000 live births to adolescent mothers. For the second scenario, that number increased by 20%, considering that, as analyzed in hypothesis 1, adolescent girls are more sensitive to restrictions in access to modern contraceptives caused by the pandemic. For the third scenario, we considered the estimation of the second scenario plus a 5% increase in the birth rate attributed to the increased vulnerability of adolescents to rape during lockdown (hypothesis 2).

To quantify the social cost of adolescent pregnancies affected by the COVID-19 pandemic in the three scenarios, we considered an absolute average cost of 1,210 USD of 2018. This includes the costs for women who will become early mothers in terms of income lost due to a suboptimal work trajectory (lower schooling, lower participation in the formal labour market and lower income), an also for the State in terms of tax revenue lost. These values are based on different studies of the Socioeconomic Consequences of Adolescent Pregnancy that used the MILENA methodology in six countries in the region. This figure considers a standard error of \$101, with a confidence interval of 95%, and excludes medical expenses related to pregnancy, delivery and puerperium, a highly scattered item of expenditure across countries that would make its extrapolation unreliable.

## CONCLUSIONS

The full-blown impacts of the coronavirus pandemic on the sexual and reproductive health of adolescents in Latin America and the Caribbean can only be assessed accurately once the pandemic is over. However, based on currently available information, we can infer its consequences on pregnancy rates among girls and adolescents in the region are really worrying.

**The effects of the COVID-19 pandemic on adolescent pregnancy in Latin America can be estimated at around half a million additional pregnancies, which would translate into social costs of 606.9 million USD.** These figures are based on a moderate scenario and could literally double in an extreme scenario.

In other words, **achievements made in terms of the Specific Adolescent Fertility Rate (SAFR) in Latin America and the Caribbean could be set back by 5 years due to the COVID 19 health crisis, with a decline from 61 to 65 live births per one thousand adolescents aged 15 to 19 years.** In the most conservative scenario, that impact would represent a 4-year setback, while the most extreme scenario would cause an 8-year setback.

### 3 Table 3: Proposals to strengthen the post-COVID-19 response to Adolescent Pregnancy in Latin America and the Caribbean.

Objectives	Strategies
Restore supply chains to reduce barriers in access to Adolescent Sexual and Reproductive Health services and commodities.	<p>Reduce administrative barriers to the supply of contraceptive commodities, especially for emergency contraception;</p> <p>Train human resources so they can adopt a sensitive and “friendly” approach to adolescents’ sexual and reproductive health needs;</p> <p>Promote mechanisms to protect the right of adolescents to intimacy (confidentiality, informed consent, specific medical care models)</p>
Early detection of exposure to situations of gender-based violence and sexual abuse	<p>Strengthen preventive work through primary health care services (considering their proximity to the context of male and female users);</p> <p>Implementation of interdisciplinary and interinstitutional approaches with the participation of different sectors, such as health, education, specific areas of gender and the judicial sector;</p> <p>Resume Comprehensive Sexual Education (CSE) programs in schools beginning at the lowest levels.</p>

Source: Prepared by the authors

For all of the above, it is essential to consider potential approaches to address the issue. The table below describes a series of mid-term objectives and strategies countries should consider.

Bringing attention to the social issue of adolescent pregnancy and its potential growth due to the COVID-19 crisis in the region is fundamental. Countries should also participate in regional and national efforts to conduct an *ex post* evaluation of changes in the fertility rates of girls and adolescents as a consequence of the pandemic.

## References

- Altamirano, A., Pacheco, C., Huelva, L., Sáenz, M., & López, A. (2016). *Embarazo adolescente en Nicaragua: causas y consecuencias económicas y sociales del embarazo adolescente en Nicaragua* (Serie de documentos de trabajo No. 7). Managua. Recuperado de <http://www.funides.com/publicaciones/informe-y-estudios/200-causas-y-consecuencias-economicas-y-sociales-del-e/>
- Alianza por la solidaridad (2020) [Consecuencias del coronavirus: aumento de embarazos no deseados y violaciones](https://www.alianzaporlasolidaridad.org/crisis-coronavirus/consecuencias-coronavirus-aumento-embarazos-no-deseados-violaciones). Recuperado de <https://www.alianzaporlasolidaridad.org/crisis-coronavirus/consecuencias-coronavirus-aumento-embarazos-no-deseados-violaciones>
- Articulación Regional Feminista (ARF) (2020) “Los derechos de las mujeres de la región en épocas de COVID-19. Estado de situación y recomendaciones para promover políticas con justicia de género”. *Equipo latinoamericano de justicia y género*. Buenos Aires. Recuperado de <http://www.ela.org.ar/a2/index.cfm?aplicacion=app187&cnl=87&opc=53>
- Aurino, E., Behrman, J., Mary, E., & Schott, W. (2017). Education and Adolescent Motherhood: Evidence from Background: Why Adolescent Motherhood? In *Workshop on Demographic Effects of Girls' Education in Developing Countries*. Washington DC: The national academic press. Recuperado de [https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse\\_181700.pdf](https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_181700.pdf)
- Avellaneda, C. N., & Dávalos, E. (2017). Identifying the Macro-Level Drivers of Adolescent Fertility Rate in Latin America: The Role of School-Based Sexuality Education. *American Journal of Sexuality Education*, 12(4), 358–382. Recuperado de <https://doi.org/10.1080/15546128.2017.1372830>
- Bearak, J., Popinchalk, A., Alkema, L., & Sedgh, G. (2018). Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014. *The Lancet Global Health*, 6(4), e380–e389. Recuperado de [https://doi.org/10.1016/S2214-109X\(18\)30029-9](https://doi.org/10.1016/S2214-109X(18)30029-9)
- Berthelon, M., & Kruger, D. (2014). The Impact of Adolescent Motherhood on Education in Chile. *IZA Discussion Paper*, 8072(8072).
- Berthelon, M., Kruger, D., & Eberhard, J. (2017). Estimating the effects of teen motherhood in Chile: a family fixed effects approach. *Estudios de Economía*, 44(1), 5–32. Recuperado de <https://doi.org/10.4067/s0718-52862017000100005>
- Blanc, A. K., Tsui, A. O., Croft, T. N., & Trevitt, J. L. (2009). Patterns and trends in adolescents' contraceptive use and discontinuation in developing countries and comparisons with adult women. *International perspectives on sexual and reproductive health*, 35(2), 63–71. Recuperado de <https://doi.org/10.1363/ipsrh.35.063.09>
- Boniol, M., Mclsaac M., Xu L., Wuliji T., Diallo K., Campbell J. (2019) Gender Equity in the Health Workforce. *Health Workforce Working paper 1, World Health Organization*. Recuperado de <https://apps.who.int/iris/bitstream/handle/10665/311314/WHO-HIS-HWF-Gender-WP1-2019.1-eng.pdf>
- Bradley, S., Schwandt, H., Khan, S. (2009). Levels, Trends, and Reasons for Contraceptive Discontinuation. DHS Analytical Studies No. 20. Calverton, Maryland, USA: ICF Macro.

Cepal, & OIJ/Naciones Unidas. (2012). *Juventud y bono demográfico en Iberoamérica*. (CEPAL, Ed.). Santiago de Chile. Recuperado de <https://www.cepal.org/es/publicaciones/1495-juventud-bono-demografico-iberoamerica>

Céspedes, C., Robles, C. (2016). Niñas y adolescentes en América Latina y el Caribe. *Serie Asuntos de Género No 133*. N° 133. Recuperado de <https://www.unicef.org/lac/media/6316/file/PDF%20Ni%C3%83%C2%B1as%20y%20adolescentes%20en%20Am%C3%83%C2%A9rica%20Latina%20y%20el%20Caribe:%20Deudas%20de%20igualdad.pdf>

Clacai (2019). Embarazo y maternidad en niñas y adolescentes menores de 15 años. Aportes de evidencias socio-sanitarias y jurídicas en la región. Recuperado de <https://clacai.org/portfolio-item/embarazo-y-maternidad-en-ninas-y-adolescentes-menores-de-15-anos/>

Conde-Agudelo, A., Belizán, J. M., & Lammers, C. (2005). Maternal-perinatal morbidity and mortality associated with adolescent pregnancy in Latin America: Cross-sectional study. *American Journal of Obstetrics and Gynecology*, 192(2), 342–349. Recuperado de <https://doi.org/10.1016/j.ajog.2004.10.593>

Delprato, M., Akyeampong, K., Sabates, R., & Hernandez-Fernandez, J. (2015). On the impact of early marriage on schooling outcomes in Sub-Saharan Africa and South West Asia. *International Journal of Educational Development*, 44, 42–55. Recuperado de <https://doi.org/10.1016/j.ijedudev.2015.06.001>

Federación Iberoamericana de Ombudsman (2019) *Violencia de Género*. XVII Informe sobre Derechos Humanos. Trama: Madrid.

Gammage, S., Joshi, S., & Rodgers, Y. van der M. (2020). The Intersections of Women's Economic and Reproductive Empowerment. *Feminist Economics*, 26(1), 1–22. Recuperado de <https://doi.org/10.1080/13545701.2019.1674451>

Godoy Garraza L., Tobar F., Rodríguez Bernate I. (Forthcoming, 2020). Out-of-pocket spending for contraceptives in Latin America. *Sex Reprod Health Matters SRHM* under review.

Lima, E. E. C., Zeman, K., Sobotka, T., Nathan, M., & Castro, R. (2018). The Emergence of Bimodal Fertility Profiles in Latin America. *Population and Development Review*, 44(4), 723–743. Recuperado de <https://doi.org/10.1111/padr.12157>

Londoño, S., & Sánchez, A. (2016). *El Impacto de la Maternidad Adolescente en Colombia: Efectos sobre el mercado laboral y la asistencia escolar a corto plazo*. Universidad EAFIT. Recuperado de [https://repository.eafit.edu.co/bitstream/handle/10784/11969/Santiago\\_LondonoMartinez\\_Andres\\_SanchezSierra\\_2016.pdf?sequence=2&isAllowed=y](https://repository.eafit.edu.co/bitstream/handle/10784/11969/Santiago_LondonoMartinez_Andres_SanchezSierra_2016.pdf?sequence=2&isAllowed=y)

Martich, E. (2018) *Acesso a contraceptivos: estratégias políticas e configuração institucional dos sistemas de saúde da Argentina e do Brasil* (Tesis de Doctorado) Universidad Federal Fluminense. Escuela de Servicio Social. Programa de Estudios de Postgrado en Política Social. Brasil. Recuperado de [https://www.academia.edu/40289007/ACESSO\\_A\\_CONTRACEPTIVOS\\_estrat%C3%A9gias\\_pol%C3%ADticas\\_e\\_configura%C3%A7%C3%A3o\\_institucional\\_dos\\_sistemas\\_de\\_sa%C3%BAde\\_da\\_Argentina\\_e\\_do\\_Brasil](https://www.academia.edu/40289007/ACESSO_A_CONTRACEPTIVOS_estrat%C3%A9gias_pol%C3%ADticas_e_configura%C3%A7%C3%A3o_institucional_dos_sistemas_de_sa%C3%BAde_da_Argentina_e_do_Brasil)

OIT (2020). Informe Mundial sobre el Empleo Juvenil 2020. Tendencias mundiales del empleo juvenil 2020: La tecnología y el futuro de los empleos. Recuperado de [https://www.ilo.org/global/publications/WCMS\\_737662/lang-es/index.htm](https://www.ilo.org/global/publications/WCMS_737662/lang-es/index.htm)

Pardo, I., & Cabella, W. (2018). A Bimodal Pattern in Age at First Birth in Southern Cone. *Population Review*, 57(2), 1–22. Recuperado de <https://doi.org/10.1353/prv.2018.0004>

Riley, T., Sully, E., Ahmed, Z. & Biddlecom, A. (2020). Estimates of the Potential Impact of the COVID-19 Pandemic on Sexual and Reproductive Health In Low- and Middle-Income Countries. Institute Guttmacher. International Perspectives on Sexual and Reproductive Health, Volume 46, 2020, p. 73-76. Recuperado de <https://www.guttmacher.org/journals/ipsrh/2020/04/estimates-potential-impact-covid-19-pandemic-sexual-and-reproductive-health>.

Rodríguez-Vignoli, J., & Cavenaghi, S. (2014). Adolescent and youth fertility and social inequality in Latin America and the caribbean: What role has education played? *Genus*, 70(1), 1–25. Recuperado de <https://doi.org/10.4402/genus-543>

Rodríguez Vignoli, J. (2017). *Fecundidad no deseada entre las adolescentes latinoamericanas: un aumento que desafía la salud sexual y reproductiva y el ejercicio de derechos*. (No. 119). *Población y desarrollo* (Vol. 119). Santiago de Chile. Recuperado de [https://repositorio.cepal.org/bitstream/handle/11362/42511/1/S1700871\\_es.pdf](https://repositorio.cepal.org/bitstream/handle/11362/42511/1/S1700871_es.pdf)

Sachs, J. (2020) How Inequality Fuels COVID-19 Deaths. *Project Syndicate*. Recuperado de <https://www.project-syndicate.org/commentary/inequality-fuels-covid19-mortality-by-jeffrey-d-sachs-2020-06>

Sistema de Información gerencial de Salud. Ministerio de Salud Pública y Asistencia Social de Guatemala (Sigsa Mspas) (2020) Programa Nacional de Salud Reproductiva. Guatemala.

Sociedad Española de Contracepción (2020) Posicionamiento de la Sociedad Española de Contracepción sobre la atención a la Salud sexual y reproductiva durante el estado de Alarma Sanitaria por la pandemia del COVID-19. Recuperado de [http://hosting.sec.es/descargas/PosicionamientoSEC\\_Covid.pdf](http://hosting.sec.es/descargas/PosicionamientoSEC_Covid.pdf)

Starrs, A. M., Ezeh, A. C., Barker, G., Basu, A., Bertrand, J. T., Blum, R., ... Ashford, L. S. (2018). Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission. *The Lancet*, 6736(18). Recuperado de [https://doi.org/10.1016/S0140-6736\(18\)30293-9](https://doi.org/10.1016/S0140-6736(18)30293-9)

Tobar, F. (2015). *La anomalía del embarazo adolescente en América Latina y el Caribe*. Recuperado de <https://lac.unfpa.org/es/publicaciones/anomalías-del-embarazo-adolescente-en-américa-latina-y-el-caribe>

Tobar, F. (3 de julio de 2020). Impacto del Covid-19 en el acceso a los anticonceptivos [Webinar]. *Impacto de Covid-19 en la salud sexual y reproductiva en Bolivia y América Latina*. Unfpa.

Unicef (2014). Ocultos a plena luz: un análisis estadístico de la violencia contra los niños. Recuperado de: <https://www.unicef.es/sites/unicef.es/files/informeocultosbajolaluz.pdf>

Unicef (2017). Embarazo y Maternidad en adolescentes menores de 15 años. Hallazgos y desafíos para las políticas públicas. Argentina.

United Nations (2020) Estimates and Projections of Family Planning Indicators 2020. Department of Economic and Social Affairs. Population Division. Recuperado de: [https://www.un.org/en/development/desa/population/theme/family-planning/cp\\_model.asp](https://www.un.org/en/development/desa/population/theme/family-planning/cp_model.asp)

Unfpa & Pathfinder (2012). Introducción de métodos anticonceptivos en la oferta de servicios públicos. Demanda Potencial. Lima 2012. Disponible en: <https://lac.unfpa.org/es/publicaciones/estudio-introducci%C3%B3n-de-m%C3%A9todos-anticonceptivos-en-la-oferta-de-servicios-p%C3%BAblicos>

Unfpa (2014) Latin America and Caribbean Fact Sheet. Adding It Up: The Costs and Benefits of Investing in Sexual and Reproductive Health 2014. New York: Guttmacher Institute. Recuperado de <http://www.unfpa.org/resources/adding-it-2014-latin-america-and-caribbean-fact-sheet>

Unfpa (2017). Análisis sobre legislaciones y políticas que afectan el acceso de adolescentes y jóvenes a los servicios de SSR y VIH en América Latina. Panamá. 2017. Recuperado de <https://lac.unfpa.org/es/publications/an%C3%A1lisis-sobre-legislaciones-y-pol%C3%ADticas-que-afectan-el-acceso-de-adolescentes-y>

Unfpa. (2017). *El costo económico del embarazo en niñas y adolescentes, El Salvador 2017*. Recuperado de [http://elsalvador.unfpa.org/sites/default/files/pub-pdf/Costo económico del embarazo adolescente\\_0.pdf](http://elsalvador.unfpa.org/sites/default/files/pub-pdf/Costo%20econ%C3%B3mico%20del%20embarazo%20adolescente_0.pdf)

Unfpa. (2018). *Estado de la población mundial 2018*. Recuperado de <https://www.unfpa.org/es/swop-2018>

Unfpa (2019). Metodología para Estimar el Impacto Económico del Embarazo y la Maternidad Adolescentes en Países de América Latina y el Caribe – Milena 1.0 noviembre, 2019. Fondo de Población de las Naciones Unidas - Oficina Regional para América Latina y el Caribe. Panamá

Unfpa (2019). Sistematización de evidencias sobre consecuencias económicas y sociales del embarazo adolescente. Diciembre 2019. Fondo de Población de las Naciones Unidas - Oficina Regional para América Latina y el Caribe. Panamá. Recuperado de: <https://lac.unfpa.org/es/publications/sistematizaci%C3%B3n-de-evidencias-sobre-consecuencias-econ%C3%B3micas-y-sociales-del-embarazo>

Unfpa (2020). Atención en Salud Sexual y Reproductiva y Planificación Familiar durante la emergencia sanitaria por la COVID-19 en América Latina y el Caribe. *Resumen técnico interno*. Recuperado de <https://lac.unfpa.org/es/publications/atenci%C3%B3n-en-salud-sexual-y-reproductiva-y-planificaci%C3%B3n-familiar-durante-la-emergencia>

Unfpa (2020). Embarazo adolescente y bono demográfico. Septiembre, 2020. Fondo de población de las Naciones Unidas – Oficina Regional para América Latina y el Caribe. Panamá.

Unfpa (2020). Impacto del COVID-19 sobre el acceso a anticonceptivos en países de América Latina y el Caribe. Oficina Regional para América Latina y el Caribe. Recuperado de [https://peru.unfpa.org/sites/default/files/pub-pdf/factsheet\\_peru\\_impacto\\_del\\_covid\\_19\\_en\\_el\\_acceso\\_a\\_los\\_anticonceptivos\\_2.pdf](https://peru.unfpa.org/sites/default/files/pub-pdf/factsheet_peru_impacto_del_covid_19_en_el_acceso_a_los_anticonceptivos_2.pdf)

Unfpa (2020). Repercusión de la pandemia de COVID-19 en la planificación familiar y la eliminación de la violencia de género, la mutilación genital femenina y el matrimonio infantil. *Nota técnica provisional*. Recuperado de <https://lac.unfpa.org/es/publications/repercusi%C3%B3n-de-la-pandemia-de-covid-19-en-la-planificaci%C3%B3n-familiar-y-la-eliminaci%C3%B3n-de>

Unfpa (2020). State of World population 2020. Recuperado de <https://sites.lumapps.com/a/unfpa/myunfpa/state-of-world-population-2020-against-my-will>

Usaid (2009). Levels, Trends, and Reasons for Contraceptive Discontinuation. *DHS Analytical Studies* N°. 20. Calverton, Maryland, USA: ICF Macro. Recuperado de [https://pdf.usaid.gov/pdf\\_docs/PNADQ639.pdf](https://pdf.usaid.gov/pdf_docs/PNADQ639.pdf)

Weissman, E., Saltner, J., & Friedman, H. (2008). Reproductive Health Costing Model Version 3.0. New York.

World Health Organization (2015). *Strategies toward ending preventable maternal mortality (EPMM)*. Department of Reproductive Health and Research World Health Organization: Switzerland. Recuperado de [https://doi.org/ISBN978 92 4 150848 3](https://doi.org/ISBN9789241508483)

World Health Organization (2020) *El embarazo en la adolescencia*. Recuperado de <https://www.who.int/es/news-room/fact-sheets/detail/adolescent-pregnancy>

Zampas, C. (2020) Covid 19: awake-up call to eliminate barriers to SRHR. *Sexual and Reproductive Health Matters*. Recuperado de <http://www.srhm.org/news/covid-19-a-wake-up-call-to-eliminate-barriers-to-srhr/>

# Annex 1. Individual income taxes in countries of the study.

12

Table 12: Individual income tax in Argentina (Argentine pesos)

Net accumulated income divided by:		Fixed rate	% of excess amount over lower limit
Lower limit	Upper limit		
\$0	\$25,754	\$ -	0%
\$25,754	\$51,508	\$ 1,288	9%
\$51,508	\$77,262	\$ 3,606	12%
\$77,262	\$103,016	\$ 6,696	15%
\$103,016	\$154,521	\$ 10,559	19%
\$154,521	\$206,032	\$ 20,346	23%
\$206,032	\$309,048	\$ 32,193	27%
\$309,048	\$412,064	\$ 60,007	31%
\$412,064	and above	\$ 91,942	35%

Tax = fixed rate + % of excess amount over lower limit of the corresponding interval.

Source: Argentina MILENA study, based on data from AFIP.

13

Table 13: Individual income tax in Colombia (Colombian pesos)

UVT (Fiscal Value Unit) brackets		Monthly salary brackets		Marginal fee
Lower limit	Upper limit	Lower limit	Upper limit	
>0	1090	0	\$3,011,670	0%
>1090	1700	\$3,014,433	\$4,697,100	19%
>1700	4100	\$4,699,863	\$11,328,300	28%
>4100	and above	\$11,331,063	and above	33%

Source: Colombia MILENA study, based on Law 1819 of 2016.

14

Table 14: Individual income tax, Paraguay (Guaraní).

Taxable net income	General rate
Non-taxable minimum	Exempt
Up to 10 monthly minimum wages	8%
More than 10 monthly minimum wages	10%

■ **Source:** Prepared by the authors based on Law 4673/12.

15

Table 15: Income tax, Ecuador (US dollars)

Monthly salary earned divided by:		Fixed rate	% of excess amount over lower limit
Lower limit	Upper limit		
\$0	\$11,290	\$ -	0%
\$11,290	\$14,390	\$ -	5%
\$14,390	\$17,990	\$ 155	10%
\$17,990	\$21,600	\$ 515	12%
\$21,600	\$43,190	\$ 948	15%
\$43,190	\$64,770	\$ 4,187	20%
\$64,770	\$86,370	\$ 8,503	25%
\$86,370	\$115,140	\$ 13,903	30%
\$115,140	and above	\$ 22,534	35%

Tax = fixed rate + % of excess amount over lower limit.

■ **Source:** Ecuador MILENA study, based on data from their Internal Revenue Service, 2016.

16

Table 16: Income tax, Mexico (Mexican pesos).

Monthly salary earned divided by:		Fixed rate	% of excess amount over lower limit
Lower limit	Upper limit		
<b>\$0</b>	\$579	\$ -	1.92%
<b>\$579</b>	\$4,910	\$ 11.11	6.40%
<b>\$4,910</b>	\$8,629	\$ 288.33	10.88%
<b>\$8,629</b>	\$10,031	\$ 692.96	16.00%
<b>\$10,031</b>	\$12,010	\$ 917.26	17.92%
<b>\$12,010</b>	\$24,222	\$ 1,271.87	21.36%
<b>\$24,222</b>	\$38,178	\$ 3,880.44	23.52%
<b>\$38,178</b>	\$72,888	\$ 7,162.74	30.00%
<b>\$72,888</b>	\$97,183	\$ 17,575.69	32.00%
<b>\$97,183</b>	\$291,550	\$ 25,350.35	34.00%
<b>\$291,550</b>	and above	\$ 91,435.02	35.00%

Tax = fixed rate + % of excess amount over lower limit of the corresponding interval.

**Source:** Mexico MILENA study, based on Tax Administration Service (SAT).

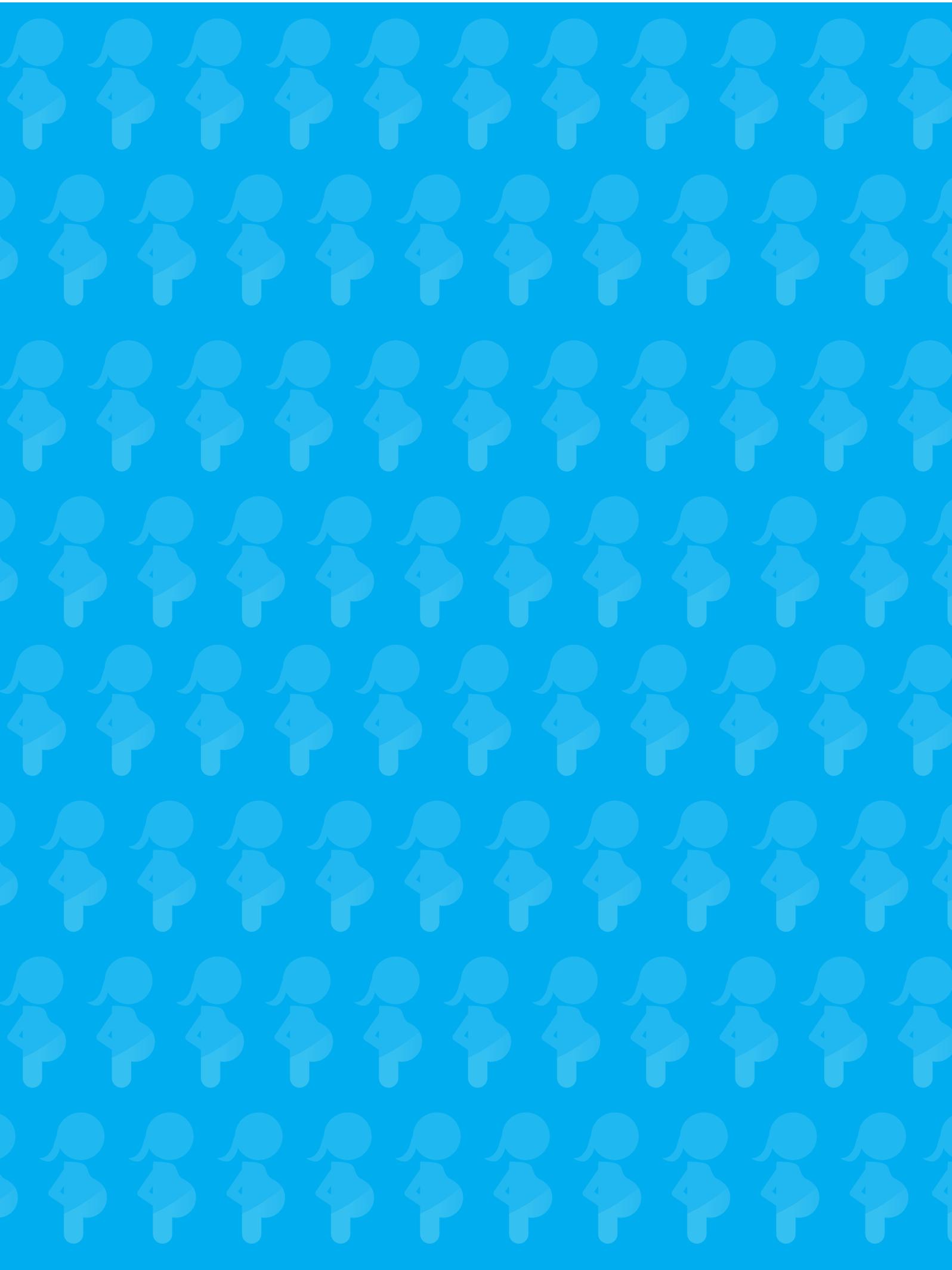
17

Table 17: Income tax, Guatemala (Quetzales)

Monthly salary earned divided by:		Fixed rate	% of excess amount over lower limit
Lower limit	Upper limit		
<b>\$0</b>	\$65,000	\$ -	15%
<b>\$65,000</b>	\$180,000	\$ 9,750	20%
<b>\$180,000</b>	\$295,000	\$ 32,750	25%
<b>\$295,000</b>	and above	\$ 61,500	31%

Tax = fixed rate + % of excess amount over lower limit.

**Source:** Guatemala MILENA study based on Decree 26/92 and Regulations 206/2004.







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