

The economic
**cost of
pregnancy**
in girls and adolescents

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Foreword

The study on the economic cost of pregnancy in girls and adolescents, addresses a dimension that changes the traditional analysis that focus exclusively on costs of the provision of healthcare for adolescent mothers and their newborns, or on obstetric events and early childhood. The study on the economic cost of pregnancy in girls and adolescents focuses on the individual implications of early fertility on girl's education and the consequences at an aggregate scale for the State and for society, as a fiscal return of social investment. That is, the study moves away from a more individual perspective and comprises a more collective view.

This document was written to provide economic evidence regarding the consequences of pregnancy of girls and adolescents in order to be used in advocacy particularly targeted at publics and decision-makers whose language comes closer to an economic approach.

Traditionally, we listen to the popular gibberish and sometimes accompanied by misogynistic utterances depending on the context, that pregnancies of girls and adolescents is "the problem of the girl because she kind of did it to herself" and many times we ignore the statistics. For example 38% of the Salvadoran girls between 10 and 12 years old that gave birth during year 2012 reported that they had been forced to engage in sexual relations.

In the contrary, the outcomes of the economic study confirm that pregnancies of girls and adolescents do not only affect the pregnant girls and their families. The difference of the fiscal return of investment after 40 years of work life, owing to the effect of fertility in the 25,021 pregnant girls and adolescents recorded during year 2015, is of \$5,7 for every one dollar invested.

The results show that pregnancy in girls and adolescents is having a negative impact on the benefits to society of the investment by the State in the context of demographic transition, when in fact it is a window of demographic opportunity that must be tapped into.

The study lists the girls and adolescents that dropped out of school in 2015, as a direct consequence of their pregnancy. Further, the study analyzes the capacity of the girls to participate in the labor market, generating revenues and taxes taking into consideration the level of education achieved. Then, it compares the results of the return on social investment in three scenarios, with the same girls and adolescents, testing the effects of fertility over other existing variables, such as poverty, gender inequalities, access to education, employment and the opportunities in the labor market.

The study uses financial tools such as Return on Investment (ROI), the Net Present Value (NPV) and the Internal Rate of Return (IRR), to estimate how the adolescent's pregnancy affects the "profitability" of social investment. Moreover, an incremental analysis is carried out to determine how much additional resources in education would have been necessary to obtain a better yield for each dollar invested and quantify the loss. The study offers alternatives through a comparative assessment of prevention programs and their additional costs, and then brings back the return of investment figures to conclude on how profitable these programs are.

Ing. Carlos Canjura Linares
Minister of Education

Presentation

El Salvador has advanced significantly in strengthening the regulatory framework and operational activities to assist and protect the girls and adolescents that have had to face motherhood and marriages early on. Accordingly, a National Sexual and Reproductive Health Policy was formulated; Friendly Health Services are being implemented for Adolescents and Youths; and also the Comprehensive Sexuality Education (EIS for its initials in Spanish) was included into the national curriculum and , the National Education Plan, "El Salvador Educado" was developed.

In spite of these and other efforts made by the Government between years 2013 and 2015, it was registered, that one out of every three pregnancies were of adolescents.

For the Country Program 2016–2020 between El Salvador and UNFPA, it was agreed to promote, among other aspects, knowledge management through investigations over human rights and gender equality, sexual and reproductive health, and also to facilitate the harmonization between national institutions to enforce policies, protocols and public programs that protect sexual and reproductive rights, focusing special assistance to youths and adolescents.

In this regard, the office of the United Nations Population Fund (UNFPA) during year 2016 published the study: **Map of pregnancies of girls and adolescents in El Salvador**, which details the pregnancy records of girls and adolescents for the 262 municipalities that make up the Salvadoran territory. This document included other data such as coverage of secondary education and reported sexual violence, with the purpose of initiating a broad reading of the social contexts surrounding pregnancies of girls and adolescents.

Continuing with year 2016, several government institutions, of which the Ministry of Health, Ministry of Education, the Salvadoran Institute for Women's Development, the National Council for Children and Adolescents with the support from UNFPA, presented the document: **Motherhood and marriages of girls and adolescents: Consequences of the violation of their rights**. This document delved into the analysis of causes and consequences of the marriages and pregnancies of girls and adolescents in developing countries. It also included the regulatory framework for the protection of the rights of girls and adolescents in El Salvador, as well as data that showed the extent of the occurrence of teenage pregnancies and also, relevant statistics relating to school attendance and sexual assaults against them.

This problem gained new momentum between different State entities, after the publication and dissemination of both documents that were published in 2016; these were analyzed by the Economic and Social Cabinet a venue where representatives from these different entities converge.

This year, in the context of the World Population Day the office of UNFPA El Salvador presented the document: **The social cost of pregnancy and early marriages of girls and adolescents** that compiles 14 stories about girls and adolescents and which symbolizes the 14 departments of the country. These stories highlight the social cost of pregnancies and early marriages, which many times are obsessed with a cultural scotoma, silenced by habits and indifference associated with sexual violence, gender based violence among other different types of violence, and added to all this, abandonment, the lack of opportunities and grief that has never been freely expressed.

By means of this new document: **The economic cost of pregnancy in girls and adolescents**, we seek to determine the economic impact of the teenage pregnancies on the Salvadoran State seen from a perspective of fiscal return on investment that will play a part in scaling up the consequences of the problem that affects the society as a whole.

With all of the information that was collected for this document, the UNFPA EL Salvador office expects to continue supporting the analysis and debates, but above all, to help strengthen the State institutions by offering inputs that will contribute to the decision making processes and build, together with the Salvadoran society, a better present and future for the adolescents.

Dr. Hugo González
UNFPA Representative

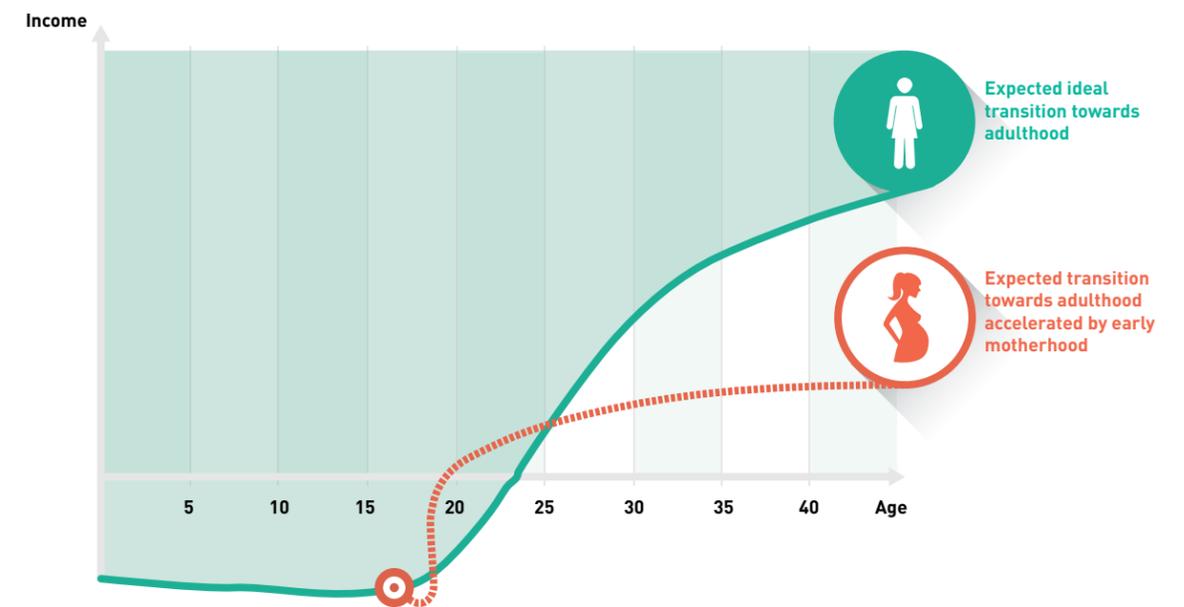
Introduction

Pregnancy in girls who are under 15 years (premature) and who are between 15 and 19 years (early), sets up a problem for El Salvador where it is viewed from different perspectives including the social, health, education, cultural and economic outlook. This work concentrates on the analysis of the economic dimensions of teenage pregnancies, to advocate on the implications of the problem that affects society as a whole, and in this understanding, support the searching for solutions.

From an economic point of view, teenage pregnancy could be assessed from different angles. First of all, from the perspective of the theory of human capital, an analysis could help to forge an economic trajectory of the life of persons in terms of how their balance evolves between the income and expenditures that they generate (Becker, 1994). Thereby, the human beings are not independent during the first years of their lives and depend on the care provided by others (basically the mother and the family group); this care involves greater costs or economic investments other than the income, such as for example, on health, education, food and clothing among others. Afterwards, the phase evolves to another, where the persons are drawn into the productive life and another phase begins that would suppose the generation of income that is greater than the expenses and thus ideally creating savings.

Chart 1 shows the trajectory of the above mentioned perspective where one can observe that persons at about 20 years of age can generate income and ideally this will be greater than their expenses. The slope of the curve is defined by human capital that incorporates that person who we could summarize in terms of his education and health. Therefore, it can be expected that the higher the levels of education and health of the person, the more sustained will be the revenues he/she will generate.

Chart 1. Expected people's income (from a human capital perspective)



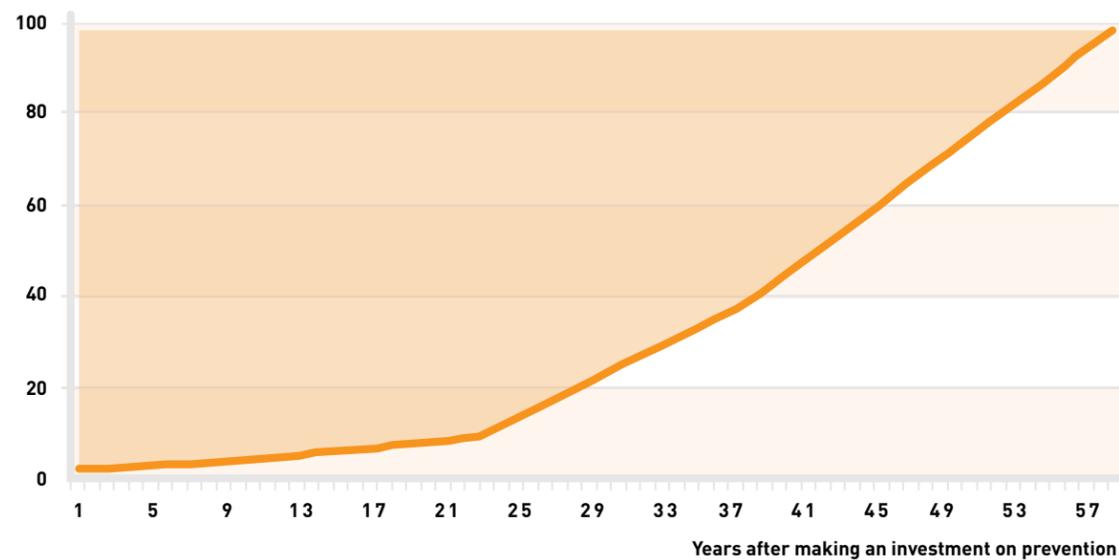
Source: Prepared in-house based on Becker, G. (1994).

Early motherhood changes the economic trajectory of women on the chart, which is represented by a dash line. This means there is a need to incur in greater costs related to pregnancy, delivery and post-natal care, besides subsequent care of the newborn than those registered by an adolescent that does not experience early pregnancy. Additionally, this also involves a possible integration into the productive world at an earlier age and simultaneously, the potential abandonment of human capital formation, that impacts on the possibilities of attaining greater income as a result of a lower professional qualifications. This can be seen further on, under chart 3. In other words, the economic trajectory, education and even health of the teenage mother ends up being affected by early motherhood. The teenage mother registers lower revenues throughout her life, different to what she would have earned if human capital formation had not been interrupted by early motherhood. The above can be seen in table 11.

A second reading on the impact of teenage pregnancy could be assessed in the health economic framework as it relates to the economy of preventing health problems. The lesser the mother's physical maturity, the greater the risks for the pregnant mother and her baby of experiencing complications during pregnancy and delivery. The instruments developed under this field enables the estimation of costs in terms of saved lives and in terms of medical assistance. A very widespread work calculated a cost-benefit ratio for investing in family planning for each region of the world with the conclusion that for each dollar invested it generates a savings of approximately \$1.47. It is clear that in the case of

adolescents, investment performance is even greater. A study commissioned by the UNFPA Program that seeks to prevent unintended pregnancies in developing countries (UNFPA Supplies) found that the cost-benefit ratio of investments in Family Planning increases over time. As chart 2 shows, one year after making an investment on prevention that is equal to one dollar, this generates a savings equal to \$1.47. However, this ratio continues to grow until it reaches \$98.2 for each dollar invested at 57 years (Piskula, 2015).

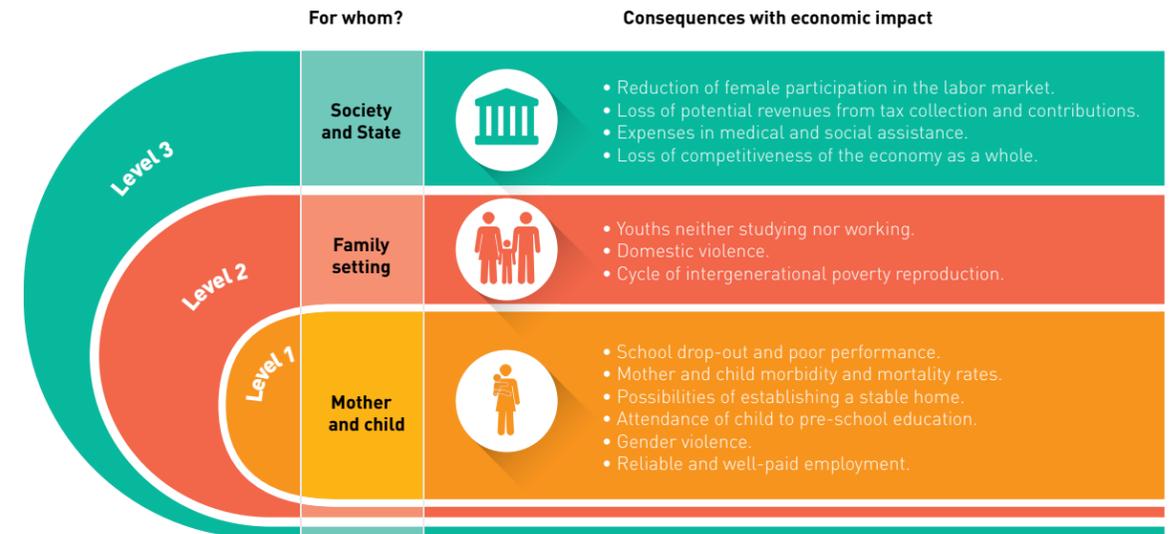
Chart 2. Evolution of cost-benefit ratios for investing on the prevention of unplanned pregnancies in accordance with the period lapsed after the investment



Source: Piskula & Wasserman (2015).

The return of investment or economic costs of omission –i.e. when the expected investment is not carried out and it results in additional important costs –, depends on the perspective over which the analysis is made. It is not only possible to analyze a teenager's motherhood from the individual trajectory – mother-child binomial-, from a primary group – couple or family of the pregnant mother – or even from a dimension of society as a whole, aiming at identifying the macroeconomic consequences of early motherhood. Seen from this perspective, premature and early pregnancies impacts over the economy and the country's competitiveness to the extent that it involves greater expenses by the State and a loss in the collection of income-tax from a less skilled workforce. The following Diagram shows these three differential levels for economic analysis of teenage pregnancy.

Consequences of adolescent pregnancy



Source: Own preparation.

This study is placed at the third level and its objective is to determine the costs of adolescent pregnancy for the Salvadoran State. For that purpose, it considers two dimensions. First, the study estimates the direct costs that involve the abandonment of adolescent's educational project as a consequence of pregnancy occurrence. Second, the costs of omission are estimated or in other words, the loss of revenues in terms of tax collection by the State resulting from a less skilled workforce due to school dropout of the pregnant adolescent. The direct costs of medical assistance during pregnancy, delivery and post-natal care and the newborn care, will be addressed in the future, including obstetric complications, and miscarriage or abortions. It is for that purpose that a cost methodology based on the activities of the Salvadoran health system needs to be carried out.

Context

There are 4,6 million mothers under age 19 in Latin America, and by the end of the decade (UNFPA 2013) there will be five million. This is a phenomenon that requires special attention from the State and from society, because of the frequency and implications with which these adolescent pregnancies are recorded.

In 2015, a total of 25,021 girls and adolescents between 10 and 19 years attended antenatal services at different health facilities of the Ministry of Health of El Salvador. It is possible that the total amount of pregnant adolescents in the country was greater because there are other health providers where the pregnant teenagers can go to. Pregnancy during childhood and adolescence is a great concern, because it is documented that: i) it is most frequently associated to health problems of the mother and the child; ii) it causes discontinuities in the educational trajectory, often aggravated by the expulsion from the educational system as a consequence of moral judgment; iii) it limits the options to find and practice any kind of paid employment in the formal sector; iv) it is far more frequent in poor people, passing on to form part of the intergenerational poverty transmission circle; v) its occurrence has increased outside or regardless of pursuing marriage or stable unions and therefore, parenting ends up under the control of the females and their families of origin; and vi) it is frequent, particularly during premature pregnancies – pregnancy occurrence before 15 years old – that the cause of the pregnancy was rape, abuse or sexual aggression by adults.

The exposure to sexual activity, measured more specifically at the age of initiation of sexual

activities, is one of the next decisive factors of teenage fertility. Accordingly, the dominant social theories foresee that fertility tends to be a bit earlier and will occur more and more frequently before the union – whether it's formal and by consensus and that the ages of sexual initiation of men and women and of persons of different socioeconomic strata will gradually converge. In Spain and in Dominican Republic, the onset of sexual activity among youths 15 years old is significantly similar – 20% and 16% of the adolescents at that age, respectively – however, only 4% of the youths between 18 and 19 years are mothers in Spain, compared to 33% of their peers in Dominican Republic. (Rodríguez, 2016).

What is it that makes the difference for the percentage of pregnant girls to be 10 times greater in Dominican Republic? We will go back to this answer later on in the document.

To understand the relation between teenage pregnancies and human development of women, we will look into some concepts in light of worldwide evidence.

El Salvador is currently in a complete demographic transition that includes the phenomena called demographic dividend that will reach its peak (67%) by 2035 and which is characterized by a population already in working age and proportionally higher than the dependent population (children under 15 and elderly over 65). This represents a unique opportunity for the country inasmuch as this population will be able to have access to good education that will contribute to the development of skilled

workforce (productivity), that grows and has a healthier development, can enter into the formal labor market (employment), generating greater individual incomes that facilitate the exercise of rights to live with dignity and to guarantee better family saving rates and investment for dependents and also to be able to thrive in safe environments.

A successful example is that of South Korea; in 1950 it was a very poor country – much poorer than most of the Latin American countries – and within a period of a few decades, it turned into a country that almost eliminated poverty. In the case of South Korea, productivity and employment thrived during the unfolding of the demographic bonus. Between 1970 and 1995, the global rates of employment grew at an average annual rate of 1.7 percent that explained the 23.1 percent of the average annual growth rate of the GDP for that period, which was of 7.2 percent. On the other hand, productivity increased at an average rate of 5.5 percent, which explained the 76.9 percent of the observed growth rate of the GDP per capita.

The number of children per women decreased during this phase and opened the possibility to substantially increase women's participation in the labor market encouraging the increase of the global work force. This gave rise to the so-called "female dividend". Since the working-age population is the one where normally their consumption is lower than their income, then there is an increase on the savings rate which in turn enables an increase in the individual's or his dependent's rate of investment and contributing to a faster collective economic growth.

In that case, how does teenage pregnancy influence this virtuous circle?

A pregnancy could have immediate and lasting consequences on the health, education, comprehensive development and girl's potential to obtain better income. Teenage pregnancy is a risky condition for the health of a girl, it implies the loss of educational opportunities, and it is a limitation for the teenagers to develop their full potential as productive and social agents and it is a conditioning factor for the perpetuation of poverty, exclusion and discrimination.

The impact on health includes the risk of death, illnesses and disability of the mother; these are much greater for a teenager, as well as the risks on the health of the newborn.

High fertility places girls, adolescents and the families in a low health state, due to:

A) Unmet nutritional demands for each pregnancy and also because of low incomes; and

B) Because of complications resulting from the pregnancy and delivery.

The low income is a consequence of poor education, whereby it doesn't allow the person to enter into a labor market with a high demand for skilled workforce that could facilitate the attainment of greater incomes. Further, the low nourishment impact individual's education performance because affects cognitive development, and thus, limits learning capabilities and school's performance. In addition, poor nutrition, poor health, lack of education and unskilled workforce, impacts on low individual and collective productivity resulting in low incomes.

Low income results in a low savings capacity which is exacerbated because of the poverty environment conditions in which the pregnant girl and her family live and the deterioration of nutritional status that will condition them to having poor health, where the families invest on the procurement of services and medical supplies instead of investing on improving the living conditions to break up the cycle of poverty.

The negative impact of malnutrition on health, education, and productivity implies a high social and economic cost that perpetuates the cycle of poverty and indigence.

On the other hand, child marriages or early unions are also very closely linked to poverty and to the scarce education opportunities for girls; it conditions their autonomy and empowerment to make decisions concerning their lives. In 18 out of the 20 countries with the greatest incidence of child marriages, girls without education are six times more likely to be married before reaching 18 years age, than girls that have a secondary education. Girls living in poor or low-income households are more likely to marry before they are 18 years old, than girls who live in households with high incomes. (Parsons & McCleary-Sills, 2014).

In a study published in El Salvador in year 2015 called "Motherhood and union of girls and adolescents: consequences of violation of their rights" carried out with adolescents between 10 to 17 years old who delivered at health facilities of the Ministry of Health in 2012, it identified that approximately 40% of these adolescents were studying when they became pregnant and three out of every four adolescents, abandoned their studies, with an average of 5,7 years of schooling.

Two years after the first pregnancy, 29% of these adolescents were mothers again or were expecting their second child, while 50% of the new mothers were not using contraceptives two years after the birth of their first child.

Sexual activity begins much earlier without necessarily the establishment of a union; this leads to a growing disconnect of the beginning of both events and in consequence, to an increase of the likelihood of adolescent motherhood outside of a formal union, as is reflected in the upturn of maternity rates. In El Salvador, the type of family arrangement that prevails between the girls who are 10 – 12 years old and were pregnant in 2012, is to live with their family members without a partner, and in 58% of the cases, it can be confirmed that in this age group motherhood is for the most part the consequence of violent sexual acts and unions that do not last probably because of the surrounding conditions. The same study for El Salvador shows that the percentage of maidens is 7 times greater between girls who are 10-12 years old, in relation to adolescents between 15-17 years. However, 50% of the adolescents between 10 and 17 years stated they were living under forced unions and 33% of the adolescents that had established a union had terminated the relationship two years after the birth of their first child.

Among the girls 10-12 years old in El Salvador, 22% of births resulted from sexual aggression by a family member, whereas between girls ages 15 to 17, the percentage was less than 1%. A 38% of the girls aged 10-12 years expressly stated they had been obliged to keep sexual relations; this is a proportion four times higher than for the 15-17 age group. Some of the main perpetrators of these violations are stepfathers and cousins.

Two stories of these girls confirm this information:

Story 1

“He slept with my mother, and at night he used to come to my bed to rape me, to touch me, to do all that. My mom used to go to work and she used to leave us with my grandmother, and the man (the stepgrandfather) also abused me.”

Story 2

“When I got ten years of age, around those days, he wanted to abuse me. Thus, I ran away from home and later I rather married someone else. He used to find a way to cut across in my way to home and he used to say “you will be mine”, which I used to reply “I will not, I am your daughter”, I used to respond. This is why I rather joined in marriage another man.”

These stories bring forward the fact that motherhood and early union between an important number of adolescents, is the result of sexual violations and/or of social, economic, cultural contexts – that oblige them to seek motherhood and marriage as a different destination or project of life alternative. In others, motherhood is the result of an incestuous relation or rape. In the end, it is a forced motherhood or marriage.

How could this situation be reversed?

Currently there is sufficient evidence showing that sexual education programmes delay the onset of sexual activities between adolescents and improve the use of contraceptive methods between sexually active adolescents, so reducing the prevalence of pregnancy in adolescents. (UNFPA, 2015).

Bearinger, Sieving, Ferguson&Sharma (Bearinger LHI, 2007) argued that the reduction of the prevalence of infections due to HIV virus in some western countries was basically due to the efforts made on the promotion of safe sexual behaviors between adolescents, as part of the interventions to reduce pregnancies in adolescents. Below we have listed three types of prevention and health promotion interventions:

- A) Health services that ensure high quality care in sexual and reproductive health;
- B) Sexuality education programmes designed on an evidence-based curriculum and with a family, school and environmental approach;
- C) Youth development strategies to strengthen life skills and to improve their access to educational, economic and cultural community-based opportunities.

A review of the evidence carried out by the WHO concludes with a suggestion to unfold policies centered on five areas of intervention (Chandra-Mouli V1, 2015):

1. Create a favorable environment,
2. Provide sexual education,
3. Providing sexual and reproductive health services and creating a demand and support for its use,
4. Prevent partner violence and sexual violence, and
5. Promote youth participation and leadership.

Three types of successful interventions that were implemented in schools, community centers represented by local governments, health and household services were identified during a recent review of 41 control tests that were carried out in developed countries and were published by Cochrane BVS30. All of the interventions included educational aspects, the promotion of contraceptive methods and the application of multiple interventions. The educational programmes that only promote abstinence for adolescents have not shown great changes in premature or early pregnancies.

The most relevant finding that stems from the recent evidence, is that adolescent fertility continues decreasing, despite the slight advancement of sexual initiation, which concludes that its drop is due solely to the increase in the use of effective contraceptive methods. However, this increase in the use of contraceptives is not enough to make sure that all of the sexual relations of adolescents are protected. It is therefore deduced, unprotected sexual behavior continues to be the main factor of high adolescent fertility in the sub-region, aspect that needs to be considered for the public policies, and which must be of an eminently preventive nature. (Rodríguez, 2013).

To return to the example about Spain and Dominican Republic, the above is highlighted when observing that 85% of the Spanish adolescents use some type of contraceptive method during the first sexual intercourse, in comparison to 24% of their counterparts from Dominican Republic, which largely explains the difference between the percentages of pregnant adolescents between both countries.

Globally, Central America is the fourth sub-region with the greatest prevalence of pregnancies among adolescents, after East, West and Central Africa. Regardless of the latitude and the social and cultural context, there is a reality and that is the increasing and earlier trend of exposure to sexual activities of the adolescents. To deny access to comprehensive sexuality education or to the promotion on the use of contraceptive methods over the base of moral judgment that relates to prenuptial sexual debut, will continue exposing adolescents and their countries of origin to a series of individual and collective repercussions.

Evidence of effective interventions that verify the main advances on prevention and the decrease of pregnancies, have occurred in the programmes that strengthen life skills and develop capabilities and competencies to exercise a healthy, responsible sexuality, and also protects adolescent against sexually transmitted infections.

The United States of America reduced births by 4 million and 57% of the occurrence of adolescent pregnancies during the period 1991 and 2012, through the use of effective interventions. More recently, the Department of Public Health from the State of Colorado in the USA developed a programme to access the long-acting contraceptive methods for women, between the years 2009 and 2015 reducing pregnancies among adolescents by 40% and also a decrease of up to 35% of abortions.

It is therefore essential to make it possible to eliminate child marriages, to achieve gender equality and to exercise the reproductive right to planning when and how many children to have, in order to introduce the individuals and families and in particular women into a virtuous development circle. Reduced fertility allows women to remain in the educational sector, which in turn offers greater opportunities for adopting preventing patterns and to absorb information for their health care and that of their children. In itself, better education could protect against violence, sexual harassment, coercion, and pregnancies at an early age. To have better education helps to access better job opportunities with greater incomes, in particular in the context of equality between men and women. Better education also makes it possible to enjoy greater standards of life and also a better health status. Better incomes and better health status contributes to greater savings and in turn, a better investment in education, health and housing for their children.

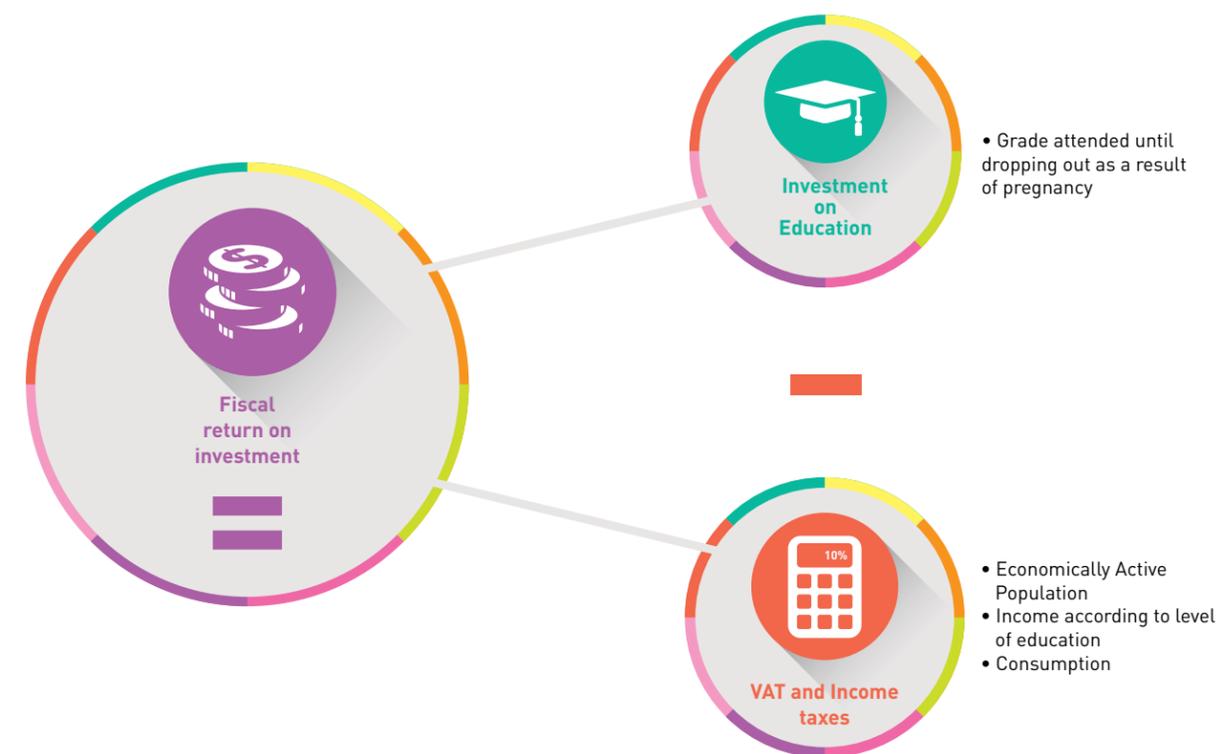
In any case, motherhood and marriage should be the voluntary decision of the persons motivated by acts of love and not by the imposition because of the exercise of coercion, force, abuse, power that eliminates the right of the affected persons to live their life according to their hopes and aspirations and therefore, prevent that their destinies are contingent to not having an option over the base of discrimination because of their economic condition, age and gender.

The economic cost of pregnancy in girls and adolescents

Teenage pregnancy is associated with adverse consequences and particularly for adolescent mothers and their children. Even though the recognition of these implications surpass several spheres of life for an adolescent, this analysis is exclusively centered upon the costs of teenage pregnancy for the public sector.

Since not all of the costs could be measured and because the estimates were structured in a conservative manner, the costs of adolescent pregnancy for the public sector are certainly more extensive than those calculated in this analysis. In other words, the costs that have been included are those attributed exclusively and with high degree of certainty to the pregnancy of adolescents – premature and early fertility – more than to those resulting from a characteristic or disadvantage that frequently accompanies the adolescent pregnancy (for example, poverty).

The cost estimates for this document are centered on those associated with the costs of education of the adolescent, until she abandons school resulting from a direct consequence of the pregnancy. The costs of the teenage pregnancy are measured as the difference of the taxes they will pay, calculated in accordance with their low incomes mediated by the achieved schooling and its consumption patterns, with regards to the public costs invested on education for girls that deserted from the formal education system. Additionally it incorporates the losses on public investment return for pregnant teenagers that died due to causes related to pregnancy, birth and suicide; also considering the years of productive life lost and consequently, the non-generation of taxes during the same period.



The costs associated to health care for the adolescent and her newborn, – *this is only related to the first pregnancy because it is the cause of school dropouts and abandonment of their life project* – will be included in the future, once the data from MINSAL has been obtained, as was explained earlier.

Even though there are no perfect pregnancy cost estimates and where these cannot escape criticism, the costs presented in this analysis reflect a combination of traditional techniques, such as costs by event, using the state of the art techniques for statistics on the probability of occurrences based on estimates of patterns collected through administrative records, surveys and researches recently carried out in the country. Accordingly, the costs reflect those clearly associated with adolescent pregnancy rather than with associated risks. The purpose of this analysis is to provide timely and scientifically robust evidence regarding the costs that adolescent pregnancy imposes on the public sector of El Salvador and carries out an approximate economic value to prevent adolescent pregnancies.

Estimates of State's investment on education for girls and adolescents that dropout school because of pregnancy

How can one measure the amount of pregnant teenagers?

The units of analysis are the adolescent pregnancies of 10 to 19 year olds recorded during year 2015, between the periods from January 1st to December 31st. According to official data from the Ministry of Health, a total of 25,021 adolescents were registered in antenatal control at this institution's health facilities throughout year 2015. According to the National Health Survey (ENS 2014), 97.8% of the pregnant women under 20 gave birth at a health facility from the public sub-sector. Similarly, 97.8% of the pregnant women received postnatal assistance given by a professional from the public health sub-sector. Unfortunately, the same source does not specify the percentage of women under 20 years that attended the antenatal controls in the public health sub-sector.

Since we did not have the ratio of pregnant women under 20 years that attended antenatal controls, out of all of the women that attended the public health sub-sector, we used the percentages of delivery care and post-natal assistance as a proxy to estimate that out of the 100% of girls

and adolescents between 10 and 19 years that attended antenatal control, 97.8% attended at the public health sub-sector. The previous inference makes it necessary to estimate the adjustment factor that allows calculation of the total pregnant women in the country. For this, we divided the total amount of pregnant women registered in the public sector (25,021) by the antenatal control coverage percentage (97.8), and this gave us the total amount of pregnant girls and adolescents in the country (25,584).

$$\begin{aligned} \text{Adjustment Factor} &= \text{Pregnant women registered at MINSAL/} \\ &\text{Antenatal assistance coverage} \\ \text{Adjustment Factor} &= (25,021/97.8)*100 \\ \text{Adjustment Factor} &= 25,584 \end{aligned}$$

Adjustment is necessary to determine investment on education and not so to calculate the investment by the State on health care, since the estimate should only consider assistance from the public sub-sector.

Estimates of State's investment on education for girls and adolescents that dropout school because of pregnancy

How does adolescent fertility affect the academic project of the girls and adolescents?

According to the United Nations, "pursuing quality of education is the basis for improving people's life and sustainable development" (UN, 2015) and for that reason, one of the sustainable development objectives that has been proposed is to "Guarantee inclusive, equitable and quality education and promote learning opportunities throughout life for all."

In El Salvador, despite the significant progress achieved during the last decades regarding national averages, in achieving equal access to education between men and women, there continues to exist situations and conditions that particularly affect large groups of people making their access to education arise as a disadvantage. As can be seen in the first data reading for 2015 of the Motherhood and Unions in girls and adolescents study, Consequences of the violation of their rights, one of these disadvantaged groups are the girls and adolescents that have been obliged to experience motherhood before they are 19 years old (UNFPA, MINSAL, INS, ISDEMU, CONNA, INJUVE, 2015).

The Household Survey for Multiple Purposes (EHPM) for year 2015 reported that at the national level, the average schooling for men is 6.9, while for women it is 6.7 grades (DIGESTYC, 2016:13); and for the age groups between 20 and 24 years, women have 10.1 and men 10.0 average schooling grades (Prepared In-house. 2017).

However, when women are analyzed in a very special manner according to the starting age of

motherhood – before 19 years, after 19 years, and even at a later stage –, there are very interesting differences regarding their access to greater levels of education.

Data from the 2014 National Health Survey (ENS) reports that the average schooling years in women between 20 and 24 years is 10 grades. However, when disaggregating the analysis by the starting age of motherhood before or after 20 years, the scenario changes. The average schooling of those who had their first child at 19 years or less is 6.4 grades, while the women who had their first child after 19 years is 9.4 grades; in the case of those women who haven't yet had children, average schooling is 10.1 grades.

Of the women 20 to 24 years old who had a child before they were 19, only 3.8% were able to access higher education (university), the percentage increased to 10.6% in women who had their first child after they were 19 years old and in the case of women who have not yet had a child, the percentage increases to 29.9%. If access to middle education for women 20 to 24 years that had a child when they were 19 or less is analyzed, a 22.0% has access to this level, while those women who had a child after 19 years old, their access is 43%, and those women who never had a child, the percentage is 43.9%.

When analyzing the situation of these young women, taking into account the maximum level of education they attended, it turns out that women between 20 and 24 years that had a child before they were 19 years, only 25.7% were able to access any grade higher than 9th grade, while for the women who had their first child after they were 19 years old, the percentage increases to more than double 53.6%, and even greater among women who had no children, it increases to three times the figure up to, 73.7%.

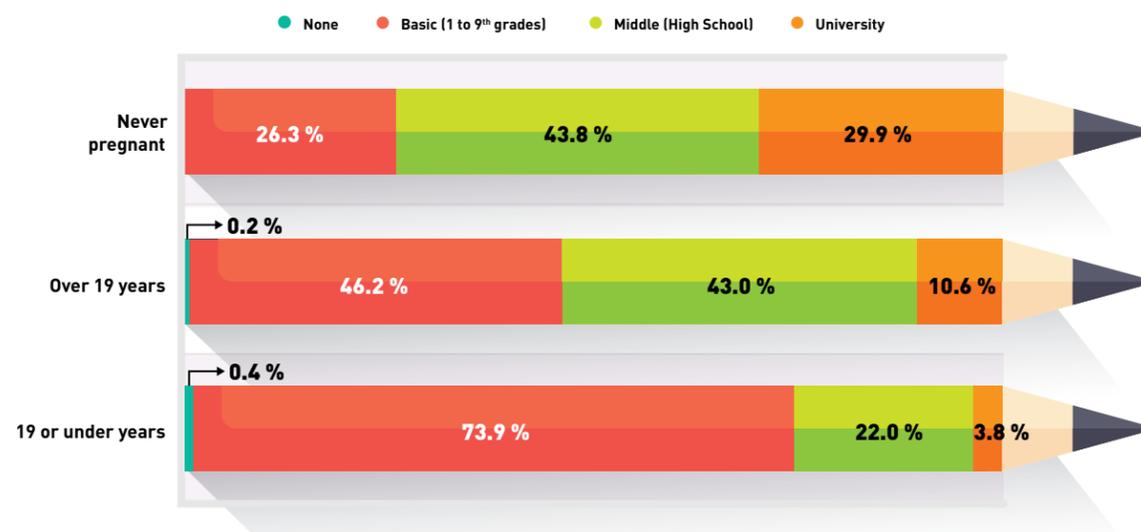
Table 1. Percentage of young women between 20 to 24 years with access to formal education, according to fertility before or after 19 years. ENS 2014

Age	Educational level	Age at the birth of first child			
		19 or less years	Over 19 years	Never been pregnant	Total
20-24	None	0.4 %	0.2 %	0.0 %	0.2 %
	Basic (1 to 9 grades)	73.9 %	46.2 %	26.3 %	43.7 %
	Middle (High School)	22.0 %	43.0 %	43.8 %	37.8 %
	Higher (University)	3.8 %	10.6 %	29.9 %	18.3 %

Source: Own preparation based on analysis of ENS 2014 data base.

We were able to identify that premature and early fertility at the individual level, has a negative impact on the continuity of the educational project of adolescents, limiting significantly the exercise of their rights to education and health as well as to their inclusion into the political, economic, social and development life of the country. Accordingly, one could suppose that at aggregated level, fertility during adolescence affects the development of the country, as it decreases the fiscal return on the State investment on health and education.

Chart 3. Women between 20 to 24 years distributed according to achieved schooling and fertility before or after 19 years. ENS 2014.



Source: Own preparation based on the analysis of ENS 2014 data base.

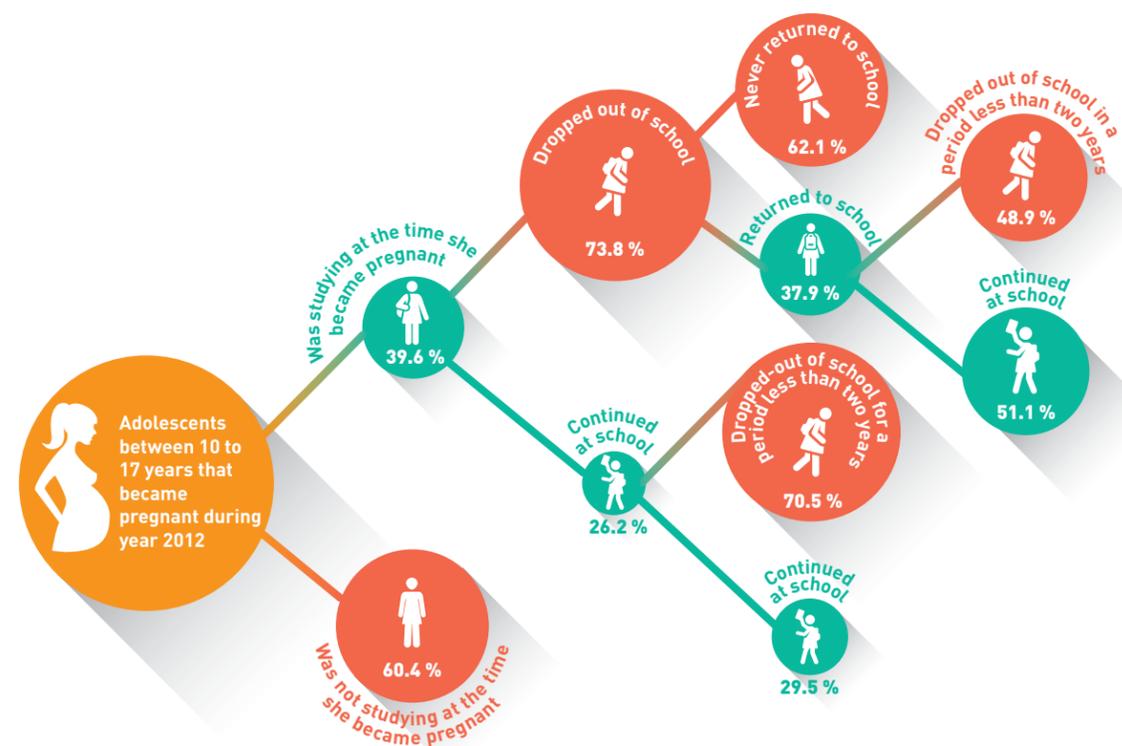
Which is the cost of adolescent pregnancy for the nation at the aggregated level?

To respond to the above posed question, we must recognize two elements: a) the number of adolescents that abandoned their educational project as a result of the pregnancy, and b) the investment that the State makes for education of adolescents that gave up their educational project as a direct consequence of their pregnancy.

- 1) Number of adolescents that suspend their educational project due to their pregnancy.

Given that there are no robust administrative records that demonstrate the data about adolescents that abandoned school as a result of a pregnancy, we carried out an estimate of these data based on the outcomes of the Motherhood and Unions in girls and adolescents study, which carried out a survey in 2015 on women aged between 10 and 17 that had given birth in 2012.

Chart 4. Logical tree of girls and adolescents between 10 to 17 years, according to percentage of dropout or continuity in formal education after the occurrence of pregnancy.



Source: Own preparation based on the Study of Motherhood and Unions in girls and adolescents, 2015.

Chart 4. allows inferring that out of every 100 adolescents who are between 10 and 17 years that get pregnant in El Salvador, 60 had already dropped out of school at the time they became pregnant. Of the remaining 40 that were studying, approximately 30 of them abandoned their studies within a period of up to two years after motherhood and only 10 continued to study, of which there were certain temporary interruptions during the same time period. This finding matches the National Health Survey data with regards to the effects of early fertility on educational projects. However, it could also be inferred that in itself, school is a protective factor for adolescents whilst 60% of the pregnancies occur among adolescents that abandoned their educational project prior to motherhood. Therefore, it is important to support girls and adolescents particularly the most disadvantaged to remain at school through diverse preventive actions, aiming at averting child marriage or early union and teenage pregnancies.

By virtue of the magnitude of the percentages presented in chart 4 in absolute figures, we shall take the 25,584¹ pregnant girls and adolescents in year 2015, as a base.

In so doing, out of 10,131 girls and adolescents that were studying at the time of their pregnancy, 7,900 abandoned school during or after their pregnancy and only 2,231 girls and adolescents remained at school. In other words, 8 girls and adolescents out of every 10 that were studying, abandoned their educational project as a consequence of their motherhood.

- 2) Investment by the State for the education of adolescents that gave up their educational process as a direct consequence of pregnancy.

While the Motherhood and Unions in girls and adolescents study establishes an average of level of education achieved between girls and adolescents that became pregnant and abandoned school, most certainly motherhood between adolescents is generated at different school levels mediated among other factors by their access to the formal educational system, age, and academic performance of the girls and adolescents over the years, starting from school enrollment. In other words, not all of the girls and adolescents that became pregnant whilst studying, abandoned school on the same academic grade.

¹ Total amount of pregnant women recorded in the public sector (25,021) between the ratio of antenatal control coverage (97.8), through which a total of pregnant girls and adolescents in the country (25,584) was estimated.

Chart 5. Number of girls and adolescents between 10 to 17 years classified according to their abandonment or continuity in formal education after experiencing a pregnancy.



Source: Own preparation based on: Study of Maternity and Unions in girls and adolescents, 2015.

This study estimated which would be the approved educational grade at the moment of abandoning school, taking as universe the 7,900 girls and adolescents that gave up their educational project as a result of early fertility. For this, we calculated the distribution of adolescents according to the achieved schooling when they dropped out of the formal educational system, taking as a base the Motherhood and Unions of Girls and Adolescents Study, 2015 (table 2). On the basis of this information, we prepared the Pareto curve of adolescent pregnancies depending on the educational level that had been attained by the teenage mothers (chart 6.a).

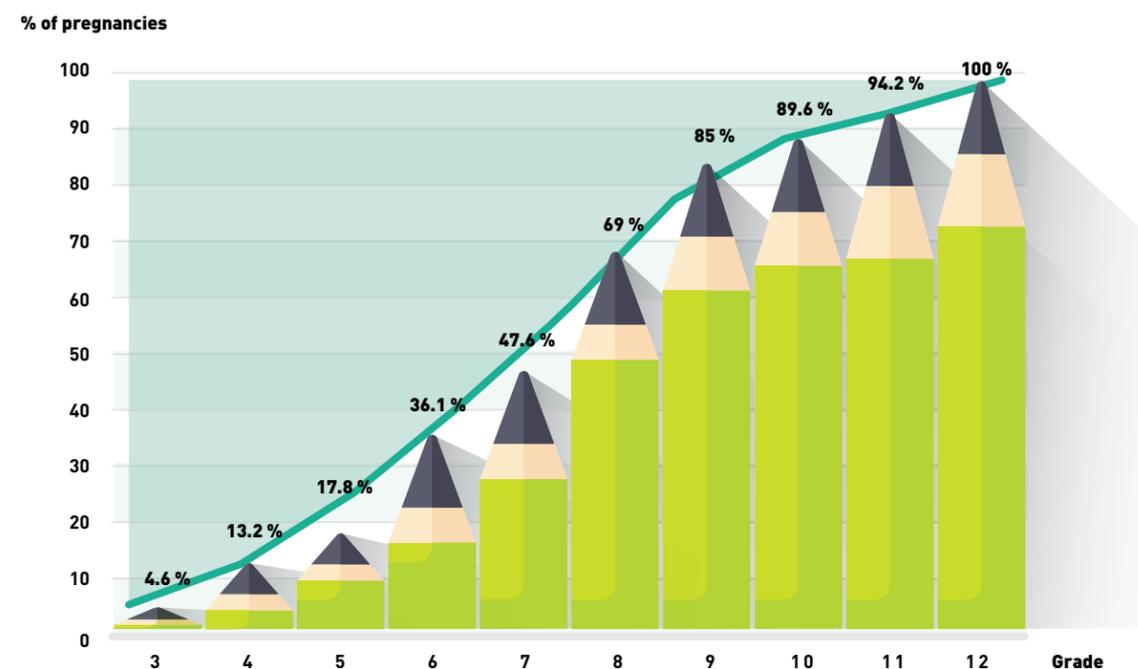
As can be noted, nearly half of the pregnancies (36%) occur before the girls finish their primary education and nearly 90% occurs before they reach the final cycle of high school (grades 11 and 12). However, an intervention in the educational sector for example, must be focused between grades 6th to 9th given that seven out of every ten dropouts occur approximately during this period (chart 6.b).

Table 2. Estimate of pregnant girls and adolescents that dropped out schools at the last grade attended

Grade obtained at the time of dropping out	Percentage distribution according to study	Number of estimated teenage pregnant in 2015 according to grade achieved at the time of dropping out
Total	100.0 %	7,900
3 rd grade	4.6 %	363
4 th grade	8.4 %	664
5 th grade	4.6 %	363
6 th grade	18.3 %	1,446
7 th grade	11.5 %	909
8 th grade	21.4 %	1,691
9 th grade	16.0 %	1,264
10 th grade	4.6 %	363
11 th grade	4.6 %	363
12 th grade	6.0 %	474

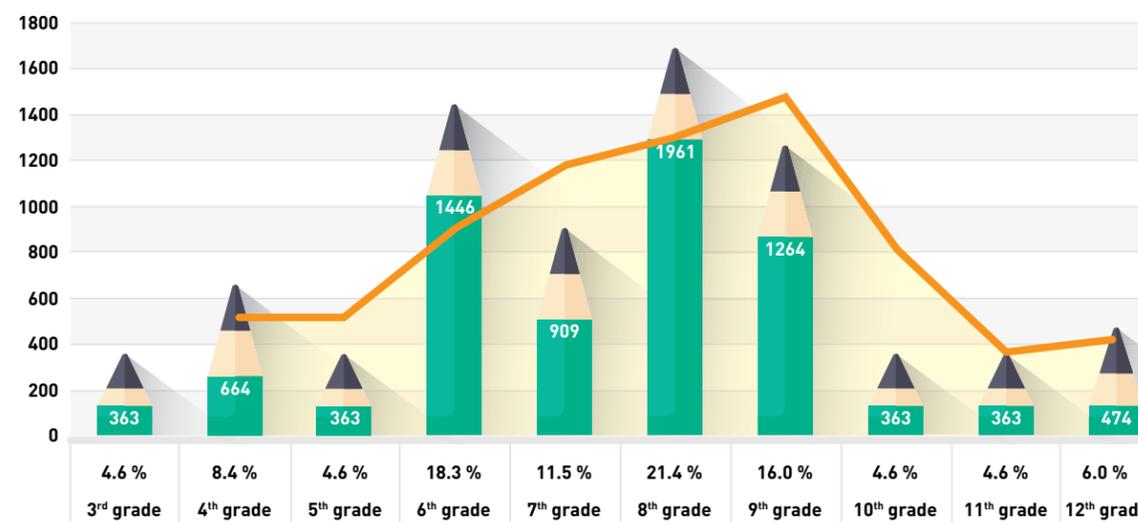
Source: Own preparation based on: Study on Maternity and Unions in girls and adolescents, 2015

Chart 6a. Pareto Curve relative to the impact of adolescent pregnancies in accordance with the level of education reached at the time of school dropouts. El Salvador, 2015.



Source: Own preparation based on table 2.

Chart 6b. Estimate of pregnant adolescents according to schooling achieved at the time of dropout. El Salvador, 2015.



Source: Own preparation based on table 2.

The next step on the proposed analysis consists on calculating the average investment by student depending on their grade level for basic and middle education. For example, to obtain the average investment per student in basic education for year 2015, this study divided the amount spent by the Ministry of Education of El Salvador in the budget line item for Basic Education of the selected year, between the final enrollments for the same year for that level. The same procedure was used for the middle education level. With this, the study obtained the average that the Ministry invested for each student that attended a grade or education level². In consequence, it was estimated that during year 2015, the Ministry of Education of El Salvador made an average investment of \$583.6 dólares per student in basic education and average investment of \$665.1 per student in middle education.

<p>Average investment per capita for each student attending a grade of basic education</p>	=	$\frac{\text{Budget execution in basic education year 2015}}{\text{Final enrollment in basic education, year 2015 (public sector)}}$	=	$\frac{\$558,107,885.95}{956,377} = \583.60
<p>Average investment per capita for each student attending a grade of middle education</p>	=	$\frac{\text{Budget execution in middle education year 2015}}{\text{Final enrollment in middle education, year 2015 (public sector)}}$	=	$\frac{\$104,772,848.39}{157,536} = \665.10

In this way, to calculate the investments for the girls and adolescents that abandoned their educational projects during year 2015 according to the grade reached, the same exercise was made for every year going back to year 2005 in accordance with the records of the Ministry of Finance – investments – and the Ministry of Education – final enrollment –³.

² Costs on infrastructure have not been taken into consideration because on the accountability of the MINED, this line ítem is not separated by educational levels, rather it is only reported as a budgetary execution of \$2,989,500 during year 2015 in the area of programmes and investment projects. The study did not either find the loans reports for educational infrastructure for basic and middle levels during year 2015.

³ Because of the lack of available data for year 2004, the study took as the anual average investment per student for that year the amount calculated for year 2005.

Chart 7. Average annual investment by MINED per student in Basic and Middle Education, 2005-2015.

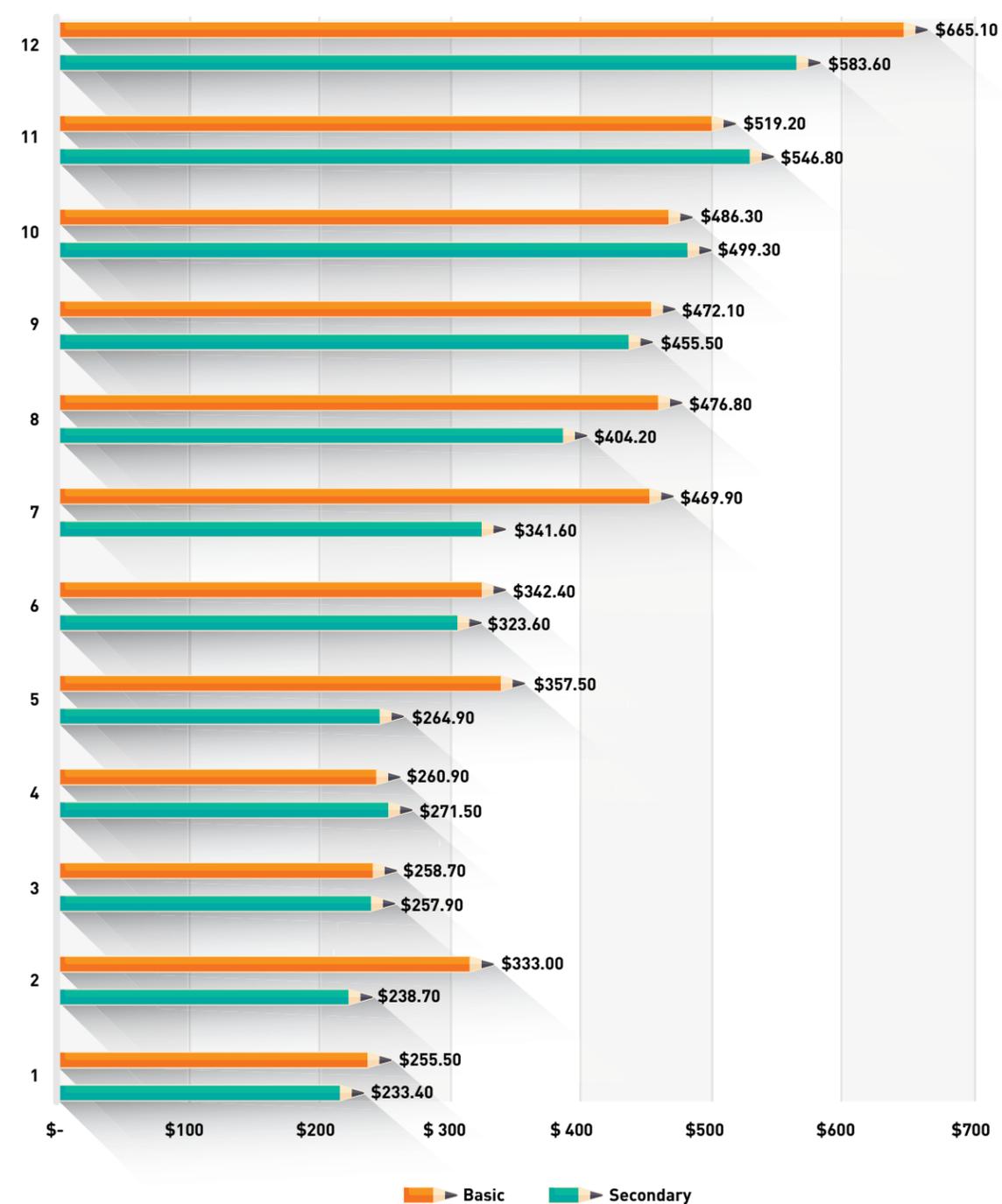


Table 3. Estimate on schooling investment for girls and adolescents that dropped out in 2015 due to pregnancy occurrence, as per the school grade achieved at the time of desertion⁴.

Number of pregnant girls and adolescents that abandoned school in 2015, according to grade levels		Average annual investment by student, according to year and level of schooling 2004-2015			Amount invested according to the number of grades achieved at the time of desertion					Amount invested according to the number of grades achieved at the time of desertion					Total Investment in Education by the State up until 2015		
Grade	n°. pers.	Year	Middle	Basic	Grades of Basic and Middle Education					Grades of Basic and Middle Education							
					12	11	10	9	8	7	6	5	4	3			
1	0	2004	\$233.40	\$255.50	\$121,088.30												\$121,088.30
2	0	2005	\$238.70	\$333.00	\$157,841.70	\$120,878.80											\$278,720.50
3	363	2006	\$257.90	\$258.70	\$122,618.40	\$93,904.00	\$93,904.00										\$310,426.40
4	664	2007	\$271.50	\$260.90	\$123,643.60	\$94,689.10	\$94,689.10	\$329,716.40									\$642,738.20
5	363	2008	\$264.90	\$357.50	\$169,448.50	\$129,767.50	\$129,767.50	\$451,862.70	\$604,509.40								\$1,485,355.60
6	1446	2009	\$323.60	\$342.40	\$162,277.30	\$124,275.60	\$124,275.60	\$432,739.40	\$578,926.00	\$311,202.70							\$1,733,696.60
7	909	2010	\$341.60	\$469.90	\$222,722.40	\$170,565.90	\$170,565.90	\$593,926.40	\$794,564.60	\$427,119.60	\$679,444.30						\$3,058,909.10
8	1691	2011	\$404.20	\$476.80	\$225,983.60	\$173,063.40	\$173,063.40	\$602,623.00	\$806,198.90	\$433,373.60	\$689,393.10	\$173,063.40					\$3,276,762.40
9	1264	2012	\$455.50	\$472.10	\$223,751.90	\$171,354.30	\$171,354.30	\$596,671.70	\$798,237.30	\$429,093.80	\$682,584.90	\$171,354.30	\$313,441.50				\$3,557,844.00
10	363	2013	\$499.30	\$486.30	\$236,683.60	\$176,524.60	\$176,524.60	\$614,675.20	\$822,322.60	\$442,041.00	\$703,180.70	\$176,524.60	\$322,899.00	\$176,524.60			\$3,847,900.50
11	363	2014	\$546.80	\$519.20	\$259,184.10	\$198,489.10	\$188,460.10	\$656,235.70	\$877,922.90	\$471,929.00	\$750,725.30	\$188,460.10	\$344,731.40	\$188,460.10			\$4,124,597.60
12	474	2015	\$583.60	\$665.10	\$276,609.70	\$211,834.00	\$211,834.00	\$840,651.50	\$1,124,637.50	\$604,550.80	\$961,694.70	\$241,421.30	\$441,608.10	\$241,421.30			\$5,156,262.90
	7900				\$2,301,853.30	\$1,665,346.40	\$1,534,438.60	\$5,119,102.10	\$6,407,319.00	\$3,119,310.40	\$4,467,023.00	\$950,823.70	\$1,422,680.00	\$606,406.00			\$27,594,302.30

The following examples are used to facilitate the reading of table 3, "Estimation of investment in schooling for the girls and adolescents that dropped out of school during year 2015 as a result of pregnancy, according to the grade reached at the time of desertion":

Case 1:

A teenager that dropped out in 2015 having reached sixth grade is placed within the 1,446 adolescents (column 2 from left to right) that dropped out in 6th grade (column 1 from left to right). To obtain the annual average investment, the study used annual average values registered for basic education (column 5 from left to right), initiating with the year of desertion, 2015 (column 3 from left to right, last line) going back in time 2014, 2013, 2012...2010-, until accumulating the 6 years in school for this case in particular – i.e. \$665,1 (year 2015, reached 6th grade), \$519,2 (year 2014, reached 5th grade), \$486,3 (year 2013, reached 4th grade), \$472,1 (year 2012, reached 3rd grade), \$476,8 (year 2011, reached 2nd grade), \$469,9 (year 2010, reached 1st grade)-. Each one of the values is placed on the respective lines, according to the year registered in column 3 within the amount invested for 6th grade approved at the time of desertion (column 12 from left to right). Therefore, the amounts recorded under column 12 are the 1,446 adolescents that dropped out with 6 grades approved for the period 2010-2015 for a total amount of \$4.467.023,0.

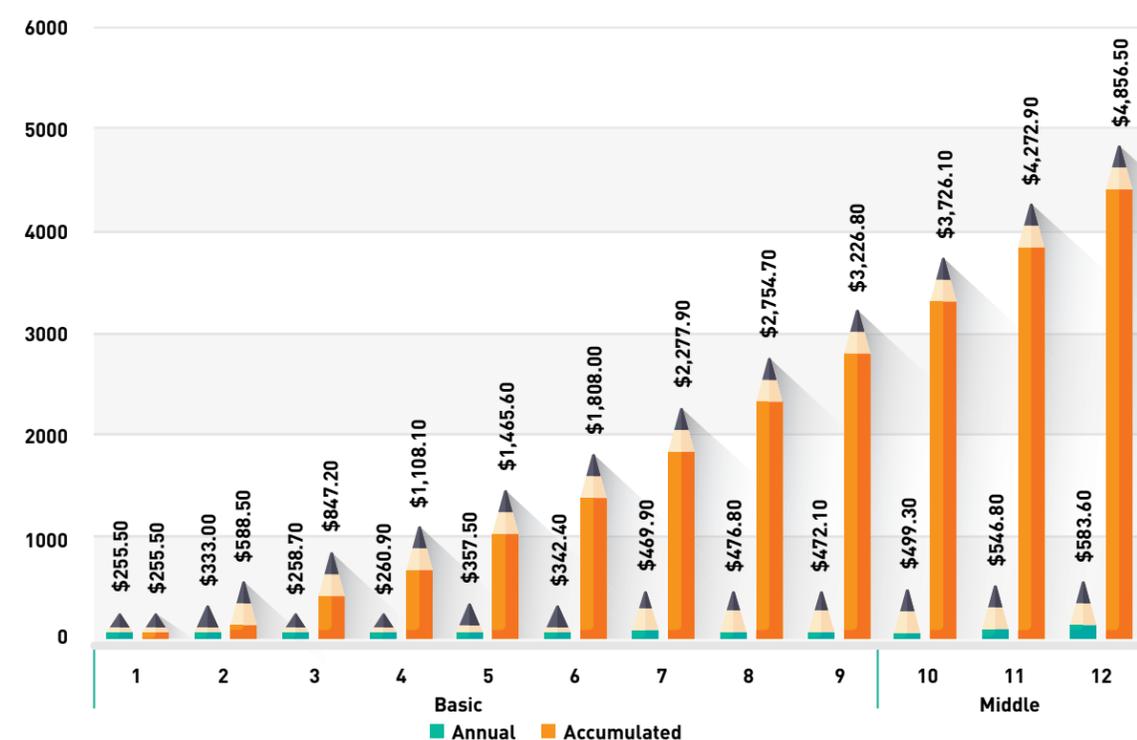
Case 2:

An adolescent that dropped out having reached 12th grade in year 2015 is placed within the 474 adolescents (column 2 from left to right) that dropped out in 12th grade (column 1 from left to right). To obtain the average total investment, the study used annual average values recorded for middle and basic education (column 4 and column 5 from left to right) starting by the year of desertion 2015 (column 3 from left to right) going back in time -2014, 2013, 2012...2004-, up until 12 school years have been accumulated -i.e. \$583,6 (year 2015, reached 12th grade, column 4 middle education), \$546,8 (year 2014, reached 11th grade, column 4 middle education), \$499,3 (year 2013, reached 10th grade column 4 middle education), \$472,1 (year 2012, reached 9th grade, column 5, basic education), \$476,8 (year 2011, reached 8th grade, column 5, basic education), \$469,9 (year 2010, reached 7th grade, column 5, basic education), \$342,4 (year 2009, reached 6th grade, column 5 basic education), \$357,5 (year 2008, reached 5th grade, column 5 basic education), \$260,9 (year 2007, reached 4th grade, column 5 basic education), \$258,7 (year 2006, reached 3rd grade, column 5, basic education), \$333,0 (year 2005 reached 2nd grade, column 5 basic education), \$255,5 (year 2004, reached 1st grade, column 5 basic education)-. Each one of these values is placed on the respective lines according to year (column 3 from left to right) inside the amount invested for 12th grade approved at the time of desertion (column 6 from left to right). Therefore, the amounts recorded under column 6 are for the 474 adolescents that dropped out with an approved 12th grade for the period 2004-2015 and a total amount of \$2.301.853,3.

To calculate the amount invested by the Salvadoran State on education of adolescents that abandoned their educational project due to pregnancy, we multiplied the number of years approved at the time of desertion by the annual average investment for each year carried out by the Ministry of Education (MINED) for one student.

For example, a student that in 2015 was attending her twelfth year, probably entered into the formal educational system in year 2004, if she did not repeat a grade. For the Ministry of Education, the total cost of her education represented an investment of around \$4,856.5, which results from the sum of the annual average investment in basic and middle education.

Chart 8. Total investment of the Ministry of Education of El Salvador for a student that graduated from high school in 2015, El Salvador. 2015



Source: Ministry of Education of El Salvador.

In consequence, it can be concluded that the Salvadoran State invested an approximate amount equal to \$27,6 million dollars (table 3) on the pregnant girls and adolescents that abandoned their educational project in 2015.

Notwithstanding the above, the market participation of the public sub-sector, or in other words, the coverage by MINED, has not gone 100% for basic and middle education. According to table 5, the trend of the public sub-sector in basic education is going downward in contrast with the private sub-sector, ranging between 79% and 73% during the 2005 to 2015 periods. The same middle education sub-sector shows an upward trend with a range of between 8% and 12% during the same period.

Table 4.

Annual Market Share Distribution of the Education Sector											
Sector Educational	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Basic	88.43 %	88.41 %	88.27 %	88.02 %	87.92 %	87.54 %	86.96 %	85.69 %	85.4 %	84.79 %	84.20 %
Private	9.08 %	9.60 %	10.33 %	10.77 %	9.91 %	9.22 %	9.41 %	9.66 %	9.98 %	11.38 %	11.38 %
Public	79.35 %	78.81 %	77.94 %	77.26 %	78.02 %	78.32 %	77.55 %	76.03 %	75.06 %	73.41 %	72.81 %
Middle	11.57 %	11.59 %	11.73 %	11.98 %	12.08 %	12.46 %	13.04 %	14.31 %	14.96 %	15.21 %	15.80 %
Private	3.16 %	3.16 %	3.54 %	3.35 %	3.16 %	3.15 %	3.30 %	3.67 %	3.88 %	4.13 %	4.13 %
Public	8.41 %	8.43 %	8.19 %	8.63 %	8.92 %	9.30 %	9.74 %	10.65 %	11.08 %	11.08 %	11.67 %
Grand Total	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

Given that we were unable to obtain the origin of school dropouts resulting from early motherhood by sub-sector – public or private–, the calculations for the investment by the State were estimated by assuming that the phenomenon of early fertility affects the majority of girls and adolescents that come from families with some degree of poverty and therefore they attend the public subsector. However, for the purpose of having greater accuracy, consideration could be given to investment subject to these market share percentages.

After the analysis of the above mentioned figures, and the use of these with the adolescents that year by year abandon their educational project as a result of pregnancy, it would well be worth asking the following: is the female demographic bond being maximized in El Salvador? Which could be the additional investment that the Salvadoran State could make to maximize the fiscal return on investment on education for girls and adolescents that annually drop out of school as a result of early motherhood? We expect to respond to these questions at the conclusion of this document.

Estimates of State's investment on the provision of pregnancy and delivery related health services for girls and adolescents

As mentioned earlier, the health costs were not included because the country still does not count with sufficient data where it can carry out accurate estimates, although at this time the Ministry of Health is working to have this available in the future. However, for illustrative purposes of the reader, this study explains the methodology proposed by the study to estimate the health costs.

The universe of the analysis is represented by the girls and adolescents aged between 10 and 19 years, that registered to receive antenatal and child birth assistance at the facilities of public health subsector (MINSAL) during the selected year (from January 1st to December 31st).

The base of the calculation would consider the statistics and epidemiological considerations of the Ministry of Health to estimate the investment made by the State in terms of health services

directly provided for the pregnant girls and adolescents during the selected year around:

- The pregnancies that unfolded with or without complications during the mentioned period and which required antenatal medical attention at the Ministry of Health facilities.
- The abortions, births and its complications attended during the selected period at Ministry of Health facilities.
- Post-partum and newborn care over the children born alive registered at the Ministry of Health facilities.

For example, during year 2015 a total of 25,021 adolescents were registered to receive antenatal assistance, in accordance with official figures from the Ministry of Health; a total of 23,005⁵ births were attended at health facilities and a total of 23,007 children were born alive⁶.

5 Child births attended includes still-born children (110), live births (23,007) registered in the Morbidity-Mortality Information System from the Ministry of Health, El Salvador during year 2015.

6 Child births attended includes still-born children (110), live births (23,007) registered in the Morbidity-Mortality Information System from the Ministry of Health, El Salvador during year 2015. Live births of single child and multiple births registered in the Morbidity-Mortality Information System from the Ministry of Health, El Salvador during year 2015.

To estimate the healthcare costs, the proposed model analyzes the activity-based costs according to the diagnosis and health services including the costs of staff, medicines and medical supplies as well as the costs incurred during patient's stay in hospital.

For each one of the activities related to teenage pregnancy – antenatal, birth, and post-natal care, including any type of complication that may arise, and care to the newborn – the proposed model has carried out a detailed disaggregation for frequent diagnosis that defines the time invested by the staff,

Table 5. Parameters of costs and prevalence to estimate healthcare costs related to antenatal, childbirth, and care of the newborn.

		Cost	Prevalence
ANTENATAL	Antenatal care (4 controls)*	\$	100.0 %
	Treatment for severe anemia	\$	42.0 %
	Hypertension during pregnancy	\$	4.3 %
	Malaria prevention during the antenatal care period	\$	0.0 %
	Treatment of malaria during antenatal care	\$	0.0 %
CHILDBIRTH-POST-PARTUM COMPLICATIONS	Care during childbirth	\$	100.0 %
	Care after childbirth	\$	100.0 %
	Emergency care prior to the referral	\$	20.0 %
	Rupture of membranes before delivery	\$	10.0 %
	Prolonged labor (>18 hours)	\$	6.2 %
	Birth assisted by forceps or vacuum extractor	\$	3.1 %
	Cesarean	\$	5.2 %
	Hemorrhage before childbirth	\$	0.7 %
	Hemorrhage after childbirth	\$	2.7 %
	Puerperal Sepsis	\$	5.8 %
	Eclampsia / Grave Pre eclampsia	\$	4.3 %
	Treatment of complications after an abortion	\$	6.8 %*
	Obstetric fistula	\$	0.0 %
	Urinary tract infection	\$	25.0 %
	Mastitis	\$	15.0 %
NEWBORN	Routine care of the newborn	\$	100.0 %
	Sepsis / infections of the newborn	\$	5.0 %
	Asphyxia / breathing difficulties at birth	\$	3.0 %
	Low birth weight	\$	7.0 %

multiplied by the salary, the amount of supplies and medicines that were used multiplied by their price, as well as the hospital stay multiplied by the cost and average days of hospitalization. In addition, the model uses official prevalences reported by the Ministry of Health, and in their absence, uses data published by the United Nations for diagnoses related to antenatal, birth and post-natal care including its complications, as well as care provided to the newborn.

To estimate the investment in healthcare by the Salvadoran State on pregnancies of girls and adolescents aged between 10 and 19 years that occurred during year 2015 one would have to multiply the number of events estimated by the unit cost. The total investment of the adolescent pregnancy would result in the sum of all of the costs included.

Table 6. Investment estimates in antenatal assistance to pregnant adolescents, El Salvador 2015.

	Cost	Prevalence	Persons	Inv.
Antenatal care (4 antenatal care)*	\$	100.0 %	25,021	\$
Treatment of severe anemia	\$	42.0 %	10,509	\$
Hypertension during pregnancy	\$	4.3 %	1,076	\$
Malaria prevention during antenatal care	\$	0.0 %	0	\$
Treatment of malaria during antenatal care	\$	0.0 %	0	\$
				\$

Table 7. Estimates on healthcare investment for childbirth, post-partum and obstetric complications of pregnant adolescents, El Salvador 2015.

	Cost	Prevalence	Persons	Inv.
Care during childbirth	\$	100.0 %	23,005	\$
Care after childbirth	\$	100.0 %	23,005	\$
Emergency care before referral	\$	20.0 %	4,601	\$
Rupture of membranes before delivery	\$	10.0 %	2,301	\$
Prolonged labor (>18 hours)	\$	6.2 %	1,426	\$
Birth assisted by forceps or vacuum extractor	\$	3.1 %	713	\$
Cesarean	\$	5.2 %	1,196	\$
Hemorrhage before childbirth	\$	0.7 %	161	\$
Hemorrhage after childbirth	\$	2.7 %	621	\$
Puerperal Sepsis	\$	5.8 %	1,334	\$
Eclampsia / Grave Pre eclampsia	\$	4.3 %	989	\$
Treatment of complications after an abortion	\$	6.8 %*	2,140	\$
Obstetric fistula	\$	0.0 %	0	\$
Urinary tract infection	\$	25.0 %	5,751	\$
Mastitis	\$	15.0 %	3,451	\$
				\$

Table 8. Estimates on healthcare investment for newborn from adolescent mothers, El Salvador 2015.

	Cost	Prevalence	Persons	Inv.
Routine care of the newborn	\$	100.0 %	23,007	\$
Sepsis / infections of newborn	\$	5.0 %	1,150	\$
Asphyxia / breathing difficulties at birth	\$	3.0 %	690	\$
Low birth weight	\$	7.0 %	1,611	\$
				\$

Table 9. Estimate of total investment in health care of adolescent's pregnancy, El Salvador 2015.

Area	Investment
Antenatal	\$
Childbirth, Post-Partum and Complications	\$
Newborn	\$
Total	\$

Does the above calculate the total cost of adolescent pregnancy in health?

With regards to this question, there are three aspects that are worth clarifying.

Firstly, the amounts to be estimated would not represent the total investment made by the MINSAL in pregnant girls and adolescents who received care in 2015, given that some of them enrolled in 2014 and continue to receive antenatal care in 2015, or pregnant teenagers enrolled in 2015 who will continue receiving antenatal, delivery, and postnatal care, including newborn care and care for complications in 2016. Therefore, the investment would refer only to events and activities - antenatal, childbirth, and postnatal care, its complications, and newborn care - of the new antenatal control enrollments for 2015 equivalent to 25,021 pregnant girls and adolescents, as well as deliveries, postnatal care and care for live births recorded during the same period. For example, in the year 2015 there were a total of 176,948 total services of antenatal care for girls and adolescents from the ages of 10 to 19, including the new enrollments for that year (25,021). By multiplying the unit cost of antenatal care for the Ministry of Health of El Salvador, the total investment would be different from the amount invested in antenatal care for the 25,021 girls and adolescents during 2015.

Secondly, for the selected period it would be necessary to consider the registry of abortions between girls and adolescents from the ages of 10 to 19 and the "real" figures, in light of the fact that the existence of the restrictions derived from the enforcement of national laws, which impose imprisonment for performing abortions, probably masks the magnitude of the total number of abortions and, with it, the

related costs. According to the Guttmacher Institute publication (Guttmacher Institute, 2016), researchers estimated that for the year 2008, the year with the most recent data, the annual abortion rate among adolescents aged 15 to 19 globally was approximately 16 abortions performed under unsafe conditions for every 1,000 adolescents aged 15 to 19. This figure, however, conceals the substantial variations between geographical regions. For example, Africa and Latin America and the Caribbean, where countries with restrictive laws on abortion exist, experienced high rates of unsafe abortions: 26 unsafe abortions per 1,000 adolescents in Africa, 25 unsafe abortions per 1,000 adolescents in Latin America and the Caribbean. In Asia where there are countries with non-restrictive laws on abortion, the unsafe abortion rate was 9 per 1,000 adolescents in 2008.

Thirdly, for the year 2015 there were 20 deaths of pregnant adolescents between the ages of 10 and 19. In addition to the unfortunate implications for their families, the cost derived from the loss of years of productive life and, consequently, the fiscal return of that income and lost consumption patterns add an additional cost to the fiscal non-return of the public investment made, for example, in the education of these adolescents that pass away.

Taking into account the considerations addressed so far, the question is: are the implications of premature and early adolescent fertility limited to the individual sphere of pregnant girls and adolescents and their families, or does the situation perhaps possess economic and social implications for society as a whole?

Projected loss of State's revenue as a consequence of adolescent fertility

Expenditure or Social Investment? Reaching a consensus

The notion of the word investment entails the idea of using resources in order to achieve some benefit, be it economic, political, social, or personal satisfaction, among others.

Within the business context, investment is the act through which certain goods are used with the aim of obtaining income or revenue over time. Investment refers to the use of capital in some kind of economic activity or business, with the objective of increasing it. In other words, it consists in relinquishing current and certain consumption, in exchange for obtaining future benefits which are distributed over time.

But, could these market precepts apply to the State in its role as a social investor?

After the Keynesian proposal,⁷ different paradigms have flourished in the design of the State, such is the case of the "Social Investment State" proposed by Giddens, whose main criticism was a shift away from the foundations that were theorized in the Welfare State – or *État-providence* – as a model of "good society".

At present, the ideological debate on doctrinal foundations seems irrelevant when compared to the size of the challenges that societies must face. In this sense, the Giddensian State paradigm is reborn as a new goal with the aim of proactively intervening and not having to do it when the damage is already done (poverty, exclusion, educational deficiencies and so on). Giddens (Giddens, 2004) proposes a Social Investment State over a Welfare State. The modern Welfare State or the modern Social Investment State would have to more alike to a type of asset-based State, i.e., one that is concerned about the development of assets in the hands of the people, whether it be education or any other type of quality and capacity.

From this perspective –as stated by Morel (Morel, 2012) et al –, the idea that social policy should help "prepare" the population to prevent certain social and economic risks associated with changing employment conditions and family models, has turned out to be central in the modernization of welfare systems. So much so, that we should perceive social and educational policies – fundamental for economic competitiveness, social cohesion and citizen wellbeing – more as an investment than as an expense. This position is circumscribed within the framework of a new perspective of social policies favorable to the reorientation of the Welfare State in going forward, which conceives social spending not as a cost to the economy but as a necessary investment to guarantee lasting, strong and shared growth, as well as a response to new social needs. This social investment strategy redefines the social priorities of the State in order to benefit individuals throughout their life trajectory.

According to Giddens' theories, in a society in which work continues to be essential for self-esteem and for the standard of living, access to it is a major area of opportunity. Education is another, and it would be so even if it were not so important for employment opportunities, for which it is, in fact, crucial. Governments must promote education throughout the lifespan, developing educational programmes that begin in the early years of an individual and continue even at a mature age. The guiding principle is the investment in human capital wherever possible, rather than the direct provision of personal economic support.

If social and employment policies are increasingly oriented towards the development of human resources for a balance of high-level skills, they can take on the role of "productive factors". (Hemerijck, 2002) Investment in education is one of the most obvious ways in which social investment can have an impact on economic performance.

Above all else, the social investment strategy aims to produce quality employment through the acquisition of skills, which endorses the "prepare more than repair" perspective of social investment in various ways. According to Nelson and Stephens, (Moirá & Stephens, 2011) training individuals to participate in the labor market underlines the growing need to rely on market incomes to maintain the standard of living, since State-based support is less viable or sustainable. Thus, policies that promote participation in the labor market offset the growth of unemployment, precarious employment and poverty, which increase when individuals lack the necessary skills to be able to successfully integrate themselves in the labor market.

This strategy has a wider impact on society, improving the connection between individuals and the labor market, increasing the country's income, reducing dependence on social benefits, as well as decreasing budgetary pressure, and encouraging new types of business investment (Bartolomé & Olano, 2012).

What is the relationship between adolescent fertility and Giddens' State?

Investment in education is undoubtedly one of the most obvious ways in which social investment can have an impact on economic performance. As mentioned above, adolescent fertility in education behaves like an expeller; eight out of every ten adolescents who experience motherhood abandon their academic project, placing the benefit or social return of that investment at risk. There is a subsequent decline in economic performance as a result of a decrease in productivity by a less-skilled labor force, and with it the imminent loss in the opportunity of making the most of the female demographic dividend.

The generation of wealth, including the payment of tax obligations by the human capital produced, is a part of the desired return that goes back to the State in order to continue the investment cycle throughout generations in the form of a "social barter". This assumes that the greater the development of that capital, the better the income, the greater the wealth and, consequently, the higher the tax revenue.

Under this premise, this study wanted to propose a formula that would enable us to complete the equation for the return of social investment and the impact of early fertility thereupon, after discounting the investment in education and health generated by human capital, although only

7 Keynesianism is an economic theory proposed by John Maynard Keynes, embodied in his work *The General Theory of Employment, Interest and Money*, published in 1936 in response to the Great Depression of 1929. It is based on the stimulus of the economy during times of crisis. Keynesian economics focused on the analysis of the causes and consequences of changes in aggregate demand and their relationship with the level of employment and income. Keynes's ultimate interest was to try to equip national or international institutions with the power to control the economy in times of recession or crisis. This control was exercised through the budgetary expenditure of the State, a policy that was called fiscal policy. The economic justification for acting in this manner is, above all, part of the multiplying effect that, according to Keynes, is produced by an increase in aggregate demand.

investment in education is discounted in this case due to the reasons described above. One approach was to accept that the level of direct taxing (income) and/or indirect taxing (consumption) by pregnant adolescents would be largely mediated by their level of skill as part of the labor force, which is reached through education, and that the net benefit would result after discounting the investment made in said adolescents. In turn, this could result in a measurement of the impact of motherhood on the return of these adolescents.

$$\text{Fiscal return on social investment} = \text{tax revenue} - (\text{investment in health} + \text{investment in education})$$

(ROI)

Estimation of income not received as taxes from adolescents who experienced early motherhood.

Data from the Multi-Purpose Household Surveys (EHPM, for its Spanish initials) from the last decade show that there is a directly proportional relationship between the years of schooling achieved by people with regards to their participation in the labor market and the wages they obtain when they work, that is to say, the more years of schooling, the greater the chances of entering the labor market and the greater the wages obtained throughout their working life.

Fiscal policy in El Salvador sets out the amount of taxes according to the income received, which implies that the higher the income of the taxpayers, the greater the revenue collected by the State in terms of taxes. Under this premise, the potential individual income is estimated along with the percentage of participation in the Economically Active Population (EAP) from adolescents who abandon their educational project according to the years of schooling achieved. Subsequently, the direct and indirect taxes that these adolescents generate are calculated as a fiscal return, where the State regulates its redistribution in social investment.

The calculation procedure consists of estimating the amount of tax revenue from VAT and Income Tax generated by women who dropped out school due to pregnancy according to the average years of schooling at the time of dropping out, and then constructing a probable scenario of what could have generated if none of them had experienced motherhood before the age of 24 and, as a result thereof, had reached different and higher levels of schooling.

In order to estimate how much the State does not get in return as a direct result of pregnancy among girls and adolescents, the following basic variables have been used:

- Estimation of the school dropout rate due to pregnancy
- Estimation of the average years of schooling of adolescents who drop out of school due to pregnancy,
- Estimation of women aged 20 to 24 with access to education according to fertility before the age of 19 and with no pregnancy.
- Women in the Economically Active

Population (EAP) aged 20 to 24

- EAP women aged 20 to 24 according to years of schooling for those who dropped out due to pregnancy before the age of 19 and for women who had their first child after the age of 19 and after the age of 24,
- Average yearly salary for women aged 20 to 24 according to years of schooling for those who dropped out due to pregnancy before the age of 19 and for women who had their first child after the age of 19 and after the age of 24,
- Variations in time of the EAP and salaries
- Percentage of Value Added Tax (VAT)
- Percentage of Income Tax (ISR, for its Spanish initials)
- Amounts of annual income exempt from Income Tax

By 2015, 7,900 adolescents abandoned their academic project due exclusively to early motherhood. The data from the Motherhood and Union study [es. Maternidad y Unión] quoted above provides an account of the years of schooling achieved by adolescents who drop out of school (see table 10). This result coincides with the analysis of data from the 2014 ENS on women aged 20 to 24 according to levels of formal education who experienced motherhood before the age of 19.

In order to carry out the projections, we used the data in Table 10, with the aim of aligning the years of schooling of the 7,900 adolescents at the time they abandoned their academic project as a result of pregnancy, as well as with data on salaries and the EAP according to years of schooling.

Table 10⁸. Estimate of girls and adolescents by level of education achieved that dropout school as a result of a pregnancy .

Level of education achieved when adolescent dropped out	Percentage distribution according to study	Estimate of number of pregnant adolescents in 2015 according to achieved grade at time of drop out
Total	100.0 %	7,900
3 rd grade	4.6 %	363
6 th grade	31.3 %	2,473
9 th grade	48.9 %	3,864
12 th grade	15.2 %	1,200

Source: Prepared in-house based on: *Estudio de Maternidad y Uniones en niñas y adolescentes* [en. Study of Motherhood and Unions in girls and adolescents], 2015

According to the 2015 EHPM, it is reported that women aged 20 to 24 who have completed primary school (sixth grade) have an average monthly income of \$149.8 dollars, i.e., \$1,797.9 dollars per year. Those who have completed secondary school (12 grades) earn average salaries of \$245.2 dollars per month, i.e., \$2,942.4 per year. Those with higher education (17 grades) obtain salaries equivalent to \$395.0 dollars per month equivalent to \$4,739.5 dollars per year. This data indicates that holding a high school diploma (which according to the Convention on the Rights of the Child is mandatory) and higher education by grade 17 increases the income received annually by 163% and 264% respectively with regards to the salary received by having completed primary school.

Table 11. Average salaries of women from 20 to 24 years of age according to their level of education.

Grade	Monthly Salaries (\$)	Annual Salaries (\$)
0	117.50	1,410.30
3	140.70	1,688.20
6	149.80	1,797.90
9	156.60	1,879.10
12	245.20	2,942.40
15	342.20	4,106.50
17	395.00	4,739.50

Source: Own preparation based on EHPM 2015

Not all of the working-age population actually works or seeks to work, so not all pregnant girls and adolescents who dropped out of school will work or seek to work when they are 20 or 24 years old, i.e., not all of them will be part of the Economically Active Population (EAP).

The participation of the population in the EAP varies depending on the geographical area, age and educational level. According to the 2015 EHPM, in the group of women aged 20 to 24 who have completed primary school (sixth grade), the EAP is 32.5%; in those who have completed secondary school (12 grades) it is equivalent to 56.1%; and in those who have completed 17 grades, it is 70.5%.

Table 12. Proportion of women in EAP between 20 to 24 years of age according to schooling levels. EHPM 2015

Schooling	Women
0	34,9 %
3	37,3 %
6	32,5 %
9	39,3 %
12	56,1 %
15	40,9 %
17	70,5 %

Source: Own preparation based on EHPM 2015

Applying the information above to the 7,900 girls and adolescents who dropped out of school due to pregnancy, it would be estimated that approximately 39.7% will be part of the EAP when they reach the ages of 20 to 24, meaning that only 3,133 will work.

If these adolescents had not experienced motherhood before the age of 24 and had consequently reached schooling levels according to the data reflected in the 2015 EHPM, the rate of participation in the EAP increases from 39.7% to 50.8%, which would imply that 4,012 girls and adolescents would be part of the EAP when reaching the ages of 20 to 24.

By multiplying the number of adolescents who would be part of the EAP (3,133) by the average annual salary for women between the ages of 20 to 24 according to the grades or years of schooling, it turns out that under these conditions, the girls and adolescents who dropped out of school directly due to pregnancy would earn \$6,511,960.3 dollars in a year (table 13.a).

Using the same concept, but this time with the group of adolescents who did not experience motherhood before the age of 24, assuming that these women reach schooling levels in the percentages shown in Table 13.b, all 4,012 women would earn \$12,986,307.9 dollars in one year.

Table 13a. Estimate of girls and adolescents according to their level of education that abandoned school as a result of a pregnancy

Distribution of the 7,900 pregnant girls and adolescents according to average grade attended			EAP according to level of education of women between 20 to 24 years	Average annual salary according to level of education of women between 20 to 24 years	Estimated annual earnings to be received for 7,900 girls and adolescents
Grade attended	Distribution of percentage frequency	Distribution of absolute frequency			
3	4,6 %	363	37,3 %	\$1,688.20	\$228,687.80
6	31,3 %	2.473	32,5 %	\$1,797.90	\$1,446,145.40
9	48,9 %	3.864	39,3 %	\$1,879.10	\$2,855,652.10
12*	15,2 %	1.200	56,1 %	\$2,942.40	\$1,981,475.10
TOTAL	100,0 %	7.900			\$6,511,960.30

*To make the grades of the ENS-MICs comparable with the EHPM, one single category of technical vocational high school has been added to the ENS-MICs, assigning 12 grades according to EHPM.

Source: Own preparation based on micro data analysis of the ENS-MICs 2014 and EHPM 2015.

Table 13b. Estimate of annual salaries earned by 7,900 women between ages 20 to 24 that did not experience motherhood

Distribution of the 7,900 pregnant girls and adolescents according to average grade attended			EAP according to level of education of women between 20 to 24 years	Average annual salary according to level of education of women between 20 to 24 years	Estimated annual earnings to be received by 7,900 girls and adolescents
Grade attended	Distribution of percentage frequency	Distribution of absolute frequency			
0	0,4 %	35	34,9 %	\$1,410.30	\$17,245.50
3	2,5 %	198	37,3 %	\$1,688.20	\$124,488.90
6	8,5 %	669	32,5 %	\$1,797.90	\$390,972.20
9	15,2 %	1.199	39,3 %	\$1,879.10	\$886,080.10
12*	43,4 %	3.430	56,1 %	\$2,942.40	\$5,664,036.10
15	15,4 %	1.213	40,9 %	\$4,106.50	\$2,038,678.90
17	14,6 %	1.156	70,5 %	\$4,739.50	\$3,864,806.30
TOTAL	100,0 %	7.900			\$12,986,307.90

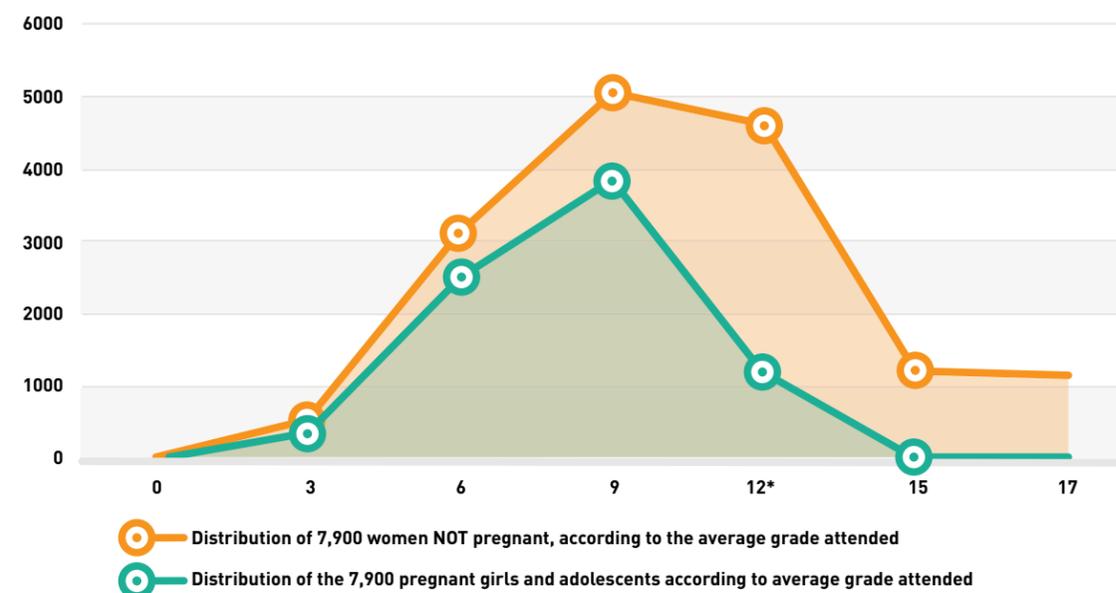
*To make the grades of the ENS-MICs comparable with the EHPM, one single category of technical vocational high school has been added for the ENS-MICs, assigning 12 grades according to EHPM.

Source: Own preparation based on micro data analysis of the ENS-MICs 2014 and EHPM 2015.

The data above enables the analysis of the impact of pregnancy in women's opportunities in light of the fact that the early fertility factor is isolated while maintaining other variables that affect them, for example, poverty, educational coverage and access, and the social value of women and the consequent gender inequality expressed in unpaid jobs, salaries and unequal percentage distribution of the EAP between men and women.

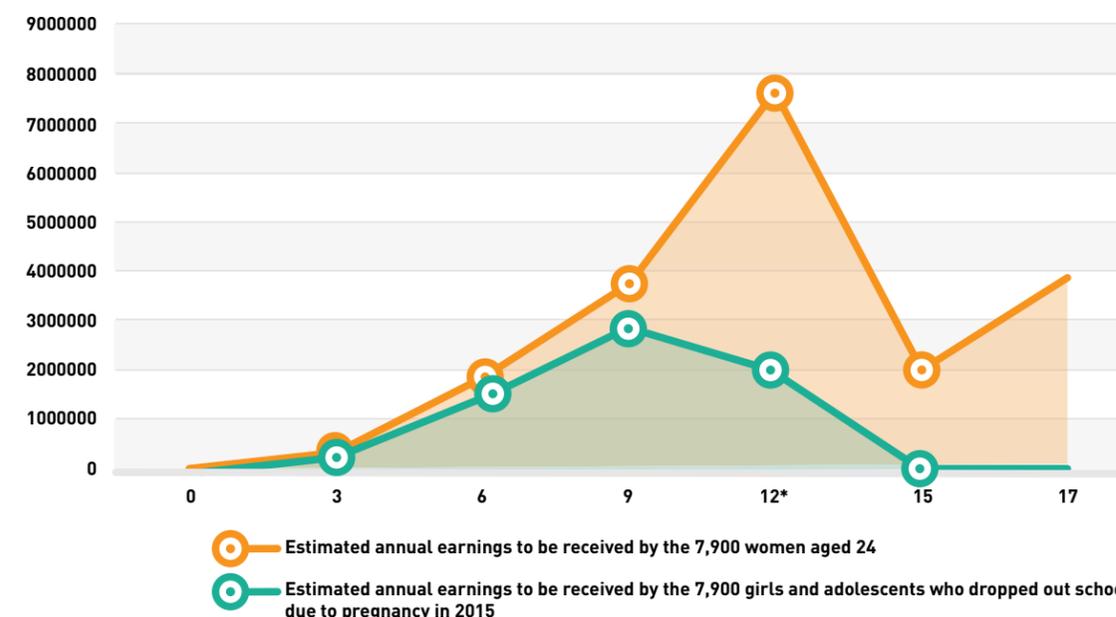
As a result, the quantitative difference between the EAP of girls and adolescents who experienced motherhood before the age of 19 and those who did not experience it before the ages of 20 to 24, is 879 women, which represents a significant equivalent increase to 28.1%. However, the most important variation is "qualitative" in light of the fact that women who do not experience motherhood achieve a qualitatively better schooling, for example 2,369 of them (29.9%) reach some degree of higher education. This qualitative difference in the level of education attained has a positive impact on the income of women, with an increase of up to 99.4%, compared with the income of girls and adolescents who abandoned their academic project as a direct consequence of motherhood before the age of 19.

Chart 9. Distribution of 7,900 girls and adolescents that experienced motherhood during year 2015 by average grade attended compared with the same group if they would have postponed motherhood after 20 to 24 years of age.



Source: Own preparation based on EHPM 2015

Chart 10. Estimate of annual earnings from 7,900 girls and adolescents that experienced motherhood during year 2015, by level of education compared with annual earnings of the same group if they would have postponed motherhood after 24 years of age.



Source: Own preparation based on EHPM 2015

How is estimated the revenue received by the State as tax contributions?

In order to determine the fiscal return on social investment, it is important to examine the direct and indirect tax contributions on income and consumption patterns of the population groups selected under this analysis.

According to Article 37 of the Income Tax Law (ISR) natural persons who obtain income will be taxed in the following manner (Executive Branch, 2011):

Table of tax-monthly retention					
	From	To	% to apply	On the excess of:	Plus fixed charges of:
I Tranche	\$0.01	\$472.00	Without deduction		
II Tranche	\$472.01	\$895.24	10 %	\$472.00	\$17.67
III Tranche	\$895.24	\$2,038.10	20 %	\$895.24	\$60.00
IV Tranche	\$2,038.10	En adelante	30 %	\$2,038.10	\$288.57

For the calculation of withholdings, only the remuneration paid in the respective period should be taken into consideration. Taxable remunerations shall be determined by deducting all non-taxable remunerations and labor contributions to Social Security from the total remunerations for the period. Pension contributions to the Pension Fund Administrators and Public Pension Institutions are included in the concept of non-taxable remunerations.

The data from the EHPM reflects that the annual income of women aged 20 to 24 who experienced motherhood before the age of 19 in 2015, as well as that of those who did not experience motherhood before the ages of 20 to 24, with years of schooling between 0 to 17 grades, is less than the limit set forth in the Law on Income Tax to pay Income Tax. Therefore, the State would not receive any Income Tax revenue from them. In other words, the income tax revenue of the State would not increase by the 7,900 girls and adolescents who abandoned their educational project as a result of motherhood in 2015.

The other tax incorporated into the analysis is VAT, which is an indirect regressive tax that depends on consumption patterns, which are in turn restricted by income.

For purposes of calculating VAT, we will use the equivalent income of \$6,511,960.3 for the 7,900 girls and adolescents who dropped out of their academic project as a result of motherhood and who, at the ages of 20 to 24, would maintain years of schooling and a participation in the EAP as indicated in table 13.a. Likewise, VAT is calculated on the income equivalent to \$12,986,249.4 for the group of girls and adolescents who at the age of 24 would not have experienced motherhood and who reached years of schooling and a respective EAP for each group in the percentages described in Table 13.b.

According to section 8 of the 2015 EHPM, out of total household expenses, 51% is consumed at supermarkets, informal stores, specialty stores, warehouses, or restaurants, which are establishments that usually sell their products taxed with VAT. On the other hand, 49% of purchases are made in places such as Carts, Stalls, Markets, Diners, Cafeterias, Food Stands or some other informal establishment. This allows us to estimate that, out of the total income of households, 51% is intended for purchases at establishments that withhold VAT and, therefore, collect that revenue for the State.

In order to estimate the contribution to VAT on the income obtained by pregnant girls and adolescents in 2015, who will obtain the aforementioned income at the ages of 20 to 24, said obtained income is multiplied by 51%, and the result is multiplied by the VAT (13%), which results in annual contributions in terms of taxes. The same procedure would be carried out with the hypothetical group that did not experience motherhood.

Main place of shopping	WEEKLY EXPENSE	
	Expense (US\$)	%
Supermarket	31,336.40	4.9 %
Informal shop	157,281.30	24.7 %
Specialized shop	136,083.60	21.3 %
Restaurant	678.60	0.1 %
Store	67.70	0.0 %
Cart	96.30	0.0 %
Vendor	108,654.70	17.0 %
Others (Specify)	24,677.10	3.9 %
Market	119,419.10	18.7 %
Cafeteria	678.60	0.1 %
Canteen	57,636.80	9.0 %
Informal canteen	1,032.80	0.2 %
Total	637,642.70	100.0 %

Table 14. Distribution of household expenditures, according to where they make their food shopping.

Source: Own preparation based on EHPM 2015

When undertaking the exercise, the VAT to be received by the State in one year would be equivalent to \$431,743.0 from the girls and adolescents who abandoned their educational project and who would obtain the income according to the years of schooling indicated. However, if those girls and adolescents had not experienced motherhood and generated the calculated income for the ages of 20 to 24, the State would have received a VAT that would have been equivalent to \$821,852.1 which represents 190% more when compared to the first group. The State would not receive tax revenue from Income Tax in any of the groups. In other words, the State stops receiving \$390,109.1 dollars in one year as VAT due to the motherhood of 7,900 girls and adolescents who dropped out of school in 2015.

Table 15a. Estimate of economic contribution by girls and adolescents if they would not have experienced motherhood after 20 to 24 years of age

Variables	Average level of education reached							TOTAL
	0 Grades	3 Grades	6 Grades	9 Grades	12 Grades	15 Grades	17 Grades	
Percentage of 24 year old women with access to education that have not yet had children (ENS 2014)	0.4 %	2.5 %	8.5 %	15.2 %	43.7 %	15.1 %	14.6 %	100%
Number of girls and adolescents between 10 to 19 years of the 7,900 according to average grade attended that had not experienced motherhood by the ages 20-24	35	198	669	1,199	3,430	1,213	1,156	7,900
Percentage of Economically Active women between 20 to 24 years EHPM 2015	34.9 %	37.3 %	32.5 %	39.3 %	56.1 %	40.9 %	70.5 %	
Number of girls and adolescents between 10 to 19 years of the 7,900 according to EAP and level of education	12	74	217	472	1,925	496	815	4,012
Annual average salaries that girls and adolescents between 20 to 24 that work would receive according to grades of schooling EHPM 2015	\$1,410.30	\$1,688.20	\$1,797.90	\$1,879.10	\$2,942.40	\$4,106.50	\$4,739.50	
Annual average amount that girls and adolescents between 10 to 19 years would earn without experiencing motherhood at the ages between 20 to 24 years	\$17,245.50	\$124,488.90	\$390,913.70	\$886,080.10	\$5,664,036.10	\$2,038,678.90	\$3,864,806.30	\$12,986,249.40
Estimate of taxable income with VAT (51% of purchases that retain the VAT. EHPM 2015)	\$8,792.20	\$63,489.30	\$199,395.80	\$451,900.80	\$2,888,658.40	\$935,753.60	\$1,773,946.10	\$6,321,939.30
Estimate of VAT revenues.	\$1,143.40	\$8,253.60	\$25,921.50	\$58,747.10	\$375,525.60	\$121,648.00	\$230,613.00	\$821,852.10
Estimate of IRS contribution	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Table 15b. Estimates of economic contributions by adolescents that had a child before they were 19 years and dropped out of school as a result of their pregnancy

Variables	Average level of education reached				TOTAL
	3 Grades	6 Grades	9 Grades	12 Grades	
Percentage of girls and adolescents between 10 and 19 years of the 7,900 according to schooling achieved until dropping out of school because of pregnancy	4.6 %	31.3 %	48.9 %	15.2 %	100 %
Number of girls and adolescents between 10 and 19 years out of the 7,900 according to grade of schooling attended at the time they dropped out of school because of pregnancy	363	2,473	3,864	1,200	7,900
Percentage of Economically Active women between 20 to 24 years EHPM 2015	37.3 %	32.5 %	39.3 %	56.1 %	
Number of girls and adolescents between 10 and 19 years out of the 7,900 that dropped out of school according to EAP and Level of Education	136	804	1,520	673	3,133
Average salaries of women in ages between 20 and 24 that work, according to educational grades attended EHPM 2015	\$1,688.20	\$1,797.90	\$1,879.10	\$2,942.40	
Annual average amount that girls and adolescents between 10 and 19 years would earn, out of the 7,900 that dropped out school	\$228,687.80	\$1,446,145.40	\$2,855,652.10	\$1,981,475.10	\$6,511,960.30
Estimate of taxable income with VAT (51% on purchases that retain the VAT. EHPM 2015)	\$116,630.80	\$737,534.10	\$1,456,382.60	\$1,010,552.30	\$3,321,099.70
Estimate of taxable income with VAT	\$15,162.00	\$95,879.40	\$189,329.70	\$131,371.80	\$431,743.00
Estimate of contributions to IRS	\$ -	\$ -	\$ -	\$ -	\$ -

Lastly, to the estimate we must add the 40 years of average productive life lost (60 years being the maximum working age, minus 20 years of age of the adolescents) of the 20 girls and adolescents who died in 2015 due to causes related to premature and early pregnancy. Following the previous calculations for adolescents who experienced motherhood before the age of 19, if the average years of schooling, participation in the EAP, and the annual income of the girls and adolescents who passed away was similar to those who survived, they could have accrued a total of \$15,898.3 in one year.

In 40 years of productive life assuming that the variables are maintained over time, an income equivalent to \$635,931.0 would be obtained, and of this, 51% (\$324,324.8) would potentially be taxed with VAT, which means that these maternal deaths would have contributed \$42,162.2 to the State. In other words, the State stopped receiving \$42,162.2 due to the effect of early motherhood from these 20 girls and adolescents who died of pregnancy related causes.

Variables	Average level of education reached				TOTAL
	3 Grades	6 Grades	9 Grades	12 Grades	
Percentage of girls and adolescents between ages 10 and 19 years out of the 20 deceased adolescents according to average grade reached at the time of their death	4.6 %	31.3 %	48.9 %	15.2 %	100 %
Number of pregnant adolescents that died resulting from a pregnancy, according to schooling status	1	6	10	3	20
Economically active women between 20 and 24 years with 6 grades of schooling EHPM 2015	37.3 %	32.5 %	39.3 %	56.1 %	
Estimate of pregnant adolescents that will work when they reach the ages between 20 and 24 years	0	2	4	2	8
Average salaries for women between ages 20 to 24, according to the years of education EHPM 2015	\$1,688.20	\$1,797.90	\$1,879.10	\$2,942.40	
Annual average amount that the 20 deceased girls and adolescents would have earned	\$ -	\$3,657.80	\$7,222.40	\$5,018.10	\$15,898.30
Average amount lost in 40 years that would be earned by the 20 deceased girls and adolescents	\$ -	\$146,313.10	\$288,895.80	\$200,722.10	\$635,931.00
Estimates of taxable income with VAT (51% of purchases in places that retain VAT. EHPM 2015)	\$ -	\$74,619.70	\$147,336.90	\$102,368.30	\$324,324.80
Estimates of VAT revenues	\$ -	\$9,700.60	\$19,153.80	\$13,307.90	\$42,162.20
Estimates of contributions to IRS	\$ -	\$ -	\$ -	\$ -	\$ -

Now, performing the previous calculations, but this time assuming that these adolescents would not have experienced motherhood until the age of 24 at different levels of schooling for the 20 girls and adolescents who passed away, with participation in the EAP at different percentages according to years of schooling and, consequently, different annual incomes for each deceased female, this could have represented a total of \$31,974.4 in one year. During a productive life of 40 years and assuming that the variables remain the same over time,

the 20 girls and adolescents who passed away would obtain an income equivalent to \$1,278,976.0 and, from it, 51% (\$624,563.3) would potentially be taxed with VAT. It turns out that these maternal deaths would have contributed \$81,193.2 in VAT to the State. In other words, the State stopped receiving \$81,193.2.

Table 16a. Estimates of financial contributions of deceased adolescents who became mother before reaching 19 years old.

Table 16b. Estimates of financial contribution lost from deceased adolescents if they would not have had children before 19 years old of age.

Variables	Average level of education reached							TOTAL
	0 Grades	3 Grades	6 Grades	9 Grades	12 Grades	15 Grades	17 Grades	
Percentage of 24 year old women with access to education and have not yet had children (ENS 2014)	0.4 %	2.5 %	8.5 %	15.2 %	43.7 %	15.1 %	14.6 %	100%
Number of pregnant adolescents that died during pregnancy, by schooling status	0	0	2	3	9	3	3	20
Percentage of Economically active women between 20 and 24 years EHPM 2015	34.9 %	37.3 %	32.5 %	39.3 %	56.1 %	40.9 %	70.5 %	
Estimates of the distribution of the 20 deceased, according to EAP and level of education	0	0	1	1	5	1	2	10
Average salaries of working women between 20 and 24 years, by schooling status EHPM 2015	\$1,410.30	\$1,688.20	\$1,797.90	\$1,879.10	\$2,942.40	\$4,106.50	\$4,739.50	
Annual average amount that the 20 deceased girls and adolescents would have earned	\$ -	\$ -	\$1,797.90	\$1,879.10	\$14,711.90	\$4,106.50	\$9,479.00	\$31,974.40
Average amount lost in 40 years that would have been earned by the 20 deceased girls and adolescents	\$ -	\$ -	\$71,916.00	\$75,164.00	\$588,476.00	\$164,260.00	\$379,160.00	\$1,278,976.00
Estimates of taxable income with VAT (51% of purchases in places that retain VAT. EHPM 2015)	\$ -	\$ -	\$36,677.20	\$38,333.60	\$300,122.80	\$75,395.30	\$174,034.40	\$624,563.30
Estimates of VAT revenues	\$ -	\$ -	\$4,768.00	\$4,983.40	\$39,016.00	\$9,801.40	\$22,624.50	\$81,193.20
Estimates of contributions to ISR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

What is the final result of estimating costs in terms of the fiscal return on social investment?

In order to answer, we will perform the analysis with the 25,021 girls and adolescents from 2015 who experienced early motherhood in three scenarios with the data in Table 1:

Scenario 1: The 25,021 girls and adolescents do not experience motherhood, postponing it until the age of 24.

Scenario 2: The 25,021 girls and adolescents experience motherhood after the age of 19.

Scenario 3: The 25,021 girls and adolescents experience motherhood before the age of 19.

We run the numbers over time under these three scenarios, with the knowledge that:

1. The per capita in education for the different levels of schooling selected is \$3,089.2⁹ for 6 grades, \$4,856.5 for 12 grades and \$ 6,016.5 for 17 grades, all multiplied by the percentages of women who will reach each educational portion according to the data shown in chart 3, which sets out public investment in education¹⁰;

2. The annual tax contributions in terms of VAT and of Income Tax from these women according to the EAP and their salaries based on the levels of schooling were projected and adjusted for the ages of 20 to 60; this is a conservative estimate seeing as it does not incorporate future variations but rather current values at those ages defined by current national, regional and global conditions and contexts.

If health costs had been included, it would also have been necessary to take into consideration that:

1. The global fertility rate -number of children per woman- for a Salvadorian woman throughout her reproductive life (15 to 49 years) -equivalent to 2.3 according to the 2014 ENS - and its differentials -1.7 (university student) and 2.8 (primary school) - multiplied by the costs for the public sector of antenatal, delivery, postnatal and newborn care, which provides public investment in maternal care;
3. The estimated annual per capita for a family planning user according to preferences for the use of modern methods is equivalent to \$12.8 multiplied by three adherence ranges

of 10, 15 and 20 years according to fertility, which provides the public investment made in family planning;

Table 17a. Public social Investment and fiscal return according to the fertility of 25,021 girls and adolescents in 2015.

Fiscal Return and Social Investment	Experienced Motherhood after turning 24	Experienced Motherhood after turning 19	Experienced Motherhood before turning 19
Education			
6 grades	\$20,328,551.70	\$35,711,152.0	\$57,196,538.00
12 grades	\$53,223,345.10	\$52,372,496.0	\$26,735,032.50
17 grades	\$45,011,115.10	\$16,106,170.5	\$6,022,516.50
Sub-total investment in education	\$118,563,011.80	\$104,189,818.5	\$89,954,087.00
Total public investment on education	\$ 118,563,011.84	\$ 104,189,818.50	\$ 89,954,087.00
Tax contributions			
VAT	\$206,496,431.60	\$147,655,823.20	\$112,823,651.86
IRS	\$79,820,222.90	\$28,561,792.30	\$10,679,997.79
Total tax contributions	\$286,316,654.60	\$176,217,615.50	\$123,503,649.60
Fiscal return of social investment	\$167,753,642.73	\$72,027,796.95	\$33,549,562.65
Rate of return	2,4	1,7	1,4
NPV (3%)	\$66,440,180.65	\$2,084,643.67	-\$19,092,410.15
IRR (10%)	5 %	3 %	2 %

The results are revealing. The 25,021 girls and adolescents who experienced motherhood will have a return to Salvadorian society of approximately \$33.5 million, after subtracting public investment in education during their productive and reproductive life. However, if these same girls and adolescents had postponed their fertility after the age of 19 or even until the age of 24, that return on investment would be equivalent to \$72.0 and \$167.8 million, respectively. For every dollar invested by the Salvadorian State in the 25,021 girls and adolescents who experienced motherhood in 2015, \$1.40 of public investment will be obtained; conversely, if the same girls had postponed motherhood until after the age of 19 or until age the age of 24 onwards, returns of \$1.7 and \$2.4 would be obtained.

9 This amount equivalent to \$3,089.2 results from adding the average per capita over the last six years, taking 2015 as the last year.

10 The estimation of the amount of investment per capita per student in a university degree in the public sector was made by dividing the amount of the budget executed by the University of El Salvador during 2015 (\$56,572,900*), among the active students in said university during that year (46,937**), which results in an investment per student of \$1203.29 for 2015. *Ministry of Finance, Report on the financial management of the State, Fiscal financial year 2015, page 348. **Ministry of Education, Results of the information from higher education institutions 2015, page 16.

We have incorporated the use of Net Present Value (NPV)¹¹ and the Internal Rate of Return (IRR)¹². Although the use of both measures to gauge the profitability of the investment in this situation is limited, since they do not include the payment of intangibles and even the tangible ones that have not been calculated, the results show the way in which the fertility factor determines differences in the three investments. The NPV calculated at 3% inflation is positive at a little more than \$66.4 million for the group of girls and adolescents who postpone fertility after the age of 24, while for the group who experience motherhood before the age of 19, the value is negative in -\$19.1 million. This result demonstrates the negative effect of premature and early fertility on the profitability of social investment in the education of girls and adolescents. Likewise, the internal rate of return is considered optimal when it is around 9%, and only the group of girls and adolescents who postpone motherhood after the age of 24 reflect a result close to the optimum, equivalent to 5%.

Even better, the incremental economic analysis shows that with a public investment in education

by the Salvadorian State of \$14.4 million and \$28.6 million to achieve higher levels of schooling and therefore better salaries, Salvadorian society would have obtained an additional \$95.7 million and \$134.2 million, respectively, as return on investment, taking into account that for every additional \$1.0 dollar invested, \$7.7 and \$5.7 dollars of return on investment would have been obtained during the productive and reproductive life.

Both analyses have not included the contribution in lost taxes in the amount of \$81,193.2 derived from the productive years of the 20 girls and adolescents who passed away while experiencing motherhood, if they had survived and postponed motherhood until the age of 24 onwards and had completed 40 years of productive life.

11 **The Net Present Value (NPV)** allows for the calculation of the present value of a certain number of future cash flows, originated by an investment and the calculation of its difference. To do this, all future cash flows are brought into the present, discounting them at a specific interest rate. The NPV will express a measure of profitability for the project in absolute net terms, i.e., in number of monetary units. The NPV serves to generate two types of decisions: first, to see if the investments are realizable, and second, to see which investment is better than another in absolute terms. If its value is greater than zero, the project is profitable, taking into consideration the minimum value of return for the investment. A company usually compares different alternatives to check whether a project suits them or not. In general, the alternative with the highest NPV is usually the best one for the entity.

12 **The Internal Rate of Return (IRR)** is the interest rate or profitability provided by an investment; i.e., it is the percentage of profit or loss that an investment will have. The internal rate of return (IRR) gives us a relative measure of profitability, i.e., it will be expressed as a percentage. The IRR can be used as an indicator of the profitability of a project: the higher the IRR, the greater the profitability; thus, it is used as one of the criteria to decide on the acceptance or rejection of an investment project.

Table 17b. Incremental analysis over public investment and return according to fertility of 25,021 girls and adolescents for year 2015.

Social Investment and Fiscal Return	Experienced Motherhood after turning 24	Experienced Motherhood after turning 19 (B)	Experienced Motherhood before turning 19 (C)	Difference A-B	Difference A-C
Education					
6 grades	\$20,328,551.70	\$35,711,152.00	\$57,196,538.00	-\$15,382,600.30	-\$36,867,986.30
12 grades	\$53,223,345.10	\$52,372,496.00	\$26,735,032.50	\$850,849.10	\$26,488,312.60
17 grades	\$45,011,115.10	\$16,106,170.50	\$6,022,516.50	\$28,904,944.60	\$38,988,598.60
Sub total investment in education	\$118,563,011.80	\$104,189,818.50	\$89,954,087.0	\$14,373,193.30	\$28,608,924.80
Total public investment	\$118,563,011.84	\$104,189,818.50	\$89,954,087.00	\$14,373,193.30	\$28,608,924.80
Tax contributions					
VAT	\$206,496,431.60	\$147,655,823.20	\$112,823,651.86	\$58,840,608.50	\$93,672,779.80
IRS	\$79,820,222.90	\$28,561,792.30	\$10,679,997.79	\$51,258,430.70	\$69,140,225.20
Total contributions	\$286,316,654.60	\$176,217,615.50	\$123,503,649.60	\$110,099,039.10	\$162,813,004.90
Fiscal return on investment	\$167,753,642.70	\$72,027,797.00	\$33,549,562.60	\$95,725,845.80	\$134,204,080.10
Rate of return	2,4	1,7	1,4	7,7	5,7

Now, let us return to the analysis only on the basis of the 7,900 girls and adolescents who abandoned their educational project as a direct consequence of motherhood in 2015.

The total of taxes to Salvadorian society during 1 year of productive life that the 7,900 girls and adolescents will contribute to society, with a differentiation in the average years of schooling, will be equivalent to \$431,743.0 dollars. Given the years of schooling obtained at the time of dropping out and therefore the salary level, the concept of the taxes contributed only takes into account VAT. In contrast, if the same number of girls and adolescents had postponed their motherhood until the age of 24, their contribution in taxes during 1 year of productive life would be

equivalent to \$821,852.1 in VAT, which represents 190% when compared to the first group. In other words, the State stopped receiving \$390,109.1 dollars in one year as VAT due to the effect of motherhood.

If these figures were repeated linearly under the same circumstances and conditions during the future 40 years of life of the 7,900 girls and adolescents who abandoned their educational project as a result of motherhood in 2015, the Salvadorian State would stop receiving \$15,604,364.0 resulting from the difference in taxes obtained from 7,900 girls and adolescents with fertility before the age of 19 and another one after the age of 24.

Now consider that in the country, year after year, 25,021 new girls and adolescents between the ages of 10 and 19 who reach an average of 5.7 grades of schooling experience premature and early motherhood, although with some variations. What will be the accrued economic effect in a decade? What is the effect for a society that in a few years will initiate its demographic winter because the percentage of the dependent population will be greater than that of the working age population? What will be the effect for a rapidly aging population who will demand resources, possibly higher in contrast to peer populations in developed countries, due to the disadvantaged conditions in terms of health and education in which they grew up as a result of the limitations of the State social investment?

What could be the cost of additional investment in order to reduce the risks of early fertility and obtain a better fiscal return on investment?

Returning to data from El Salvador, if we took the results of the 2014 ENS regarding contraceptive use preferences among adolescents aged 15 to 19, the couple years of protection and the costs of family planning services including counseling and the provision of modern methods of contraception (staff and supplies), the Ministry of Health of El Salvador would have invested \$320,268.8 dollars to prevent 25,021 adolescent pregnancies in 2015, assuming that these pregnancies were caused in consensual sexual relations in which there was a lack of use of contraceptive protection. Seen from another perspective, if the MINSAL had invested in a family planning programme with modern methods to postpone the pregnancy of those 25,021 adolescents in 2015 at a per capita cost of \$12.8, plus the \$28.6 million in education, the return on the investment would have been equivalent to \$133.9 million dollars.

Of course, for the purpose of making a cost analysis comparison, the adoption of the preferences indicated in the 2014 ENS implies the right to decide when and how many children to have and displays, both empirically and practically, an avenue towards the prevention of unplanned or forced motherhood. However, the supply of options to prevent adolescent motherhood is not restricted to contraception as indicated below. The most important thing is for girls and adolescents to have opportunities and options to decide and to protect their integrity and their life projects, to postpone sexual debut and/or motherhood.

The lack of available data on healthcare costs for adolescent-pregnancy did not contribute to making a comparison between (a) the investment in improving access to and the use of contraception or another programme and (b) the per capita cost of antenatal, delivery, postnatal and newborn care for the 25,021 adolescents between the ages of 10 to 19 who experienced motherhood in 2015. Surely, the public health sub-sector would have saved an important amount of resources in costs related to motherhood for every adolescent.

A study published by the RAND Corporation in 2016 (Kase & Kilburn, 2016) estimated the costs of an adolescent pregnancy prevention school-programme in Tulsa, Oklahoma developed by the Children's Aid Society (CAS-Carrera). Although the main focus of CAS-Carrera is to prevent pregnancy among adolescents, the programme also aims to improve other outcomes such as academic performance and the reduction of risky behaviors. CAS-Carrera is aimed at students from sixth to ninth grade, although normally CAS-Carrera services span all 12 grades. This programme provides a multi-component intervention consisting of education, employment, mental and physical health, life and sexuality, self-

expression and sports-related programming. The after-school model involves students in activities that take place after the regular school day, and the in-school model incorporates students into activities within the regular school day. According to the results of this study, the annual cost per student for the activities of the in-school model is approximately \$3,283, while the cost of the after-school activity model amounts to \$5,248, i.e., it incorporates an additional cost of \$1,965 to that of the in-school model.

The use of the study as a benchmark presents the limitation that costs are represented only for this particular implementation and could only be mainstreamed in other places to the extent that other places have similar labor costs, structures, availability of facilities and other structural similarities. For example, 84% of the costs of this program are represented by the budget item "personnel", whose hourly costs range between \$19.5 per hour (32%), \$26 per hour (64%) and \$35 per hour (4%). That is, a similar programme in El Salvador could represent a much lower investment figure per student when taking this parameter into consideration.

If we used the annual investment figures per student of the CAS-Carrera programme at one third of the original costs, due to a reduction in labor costs, equivalent to \$1,094 for a period of at least four years - 6th, 7th, 8th and 9th grades according to chart 6.b.- to prevent pregnancy among adolescents out of the 25,021 girls who experienced motherhood in 2015, the cost would amount to \$109.5 million. This amount would be in addition to the investment from the education system of \$118.5 million shown in tables 17a and 17b, for a total that is equivalent to \$227.0 million. Assuming that this additional investment would have no effect in the type of employment and

income with regards to the current conditions of the beneficiaries, and therefore the generation of taxes estimated at \$286.3 million would remain the same, the fiscal return once the investment is discounted would still have a positive effect of \$59.3 million over 40 years of productive life, a figure almost two times higher than the fiscal return generated by the girls and adolescents who experienced motherhood before the age of 19, according to tables 17a and 17b.

If the annual investment per student of a program similar to CAS-Carrera were even lower by one fifth of the original costs, the return from the 25,021 girls and adolescents would be equivalent to approximately \$102.1 million, representing an increase of 305% with regards to the return that those girls and adolescents will offer after having experienced motherhood before the age of 19 (\$33.5 million).

Final Thoughts

The aim of the analysis of the economic cost of premature – before the age of 15 – and early motherhood is to open up a dialogue with a different language, one aimed at certain audiences within which the social lens is less attractive and who seek tangible figures to measure risks, losses and gains. In no way is the purpose hereof to allocate figures to each person and/or their histories or decisions. Rather, the intent is to use these trial and error tests to draw attention and raise awareness on the fact that the implications of this motherhood, which for many of these girls and adolescents is a forced motherhood, go beyond individual boundaries and, conversely, actually affect society as a whole.

It is not right to normalize the fact that 10-year-old girls are giving birth; neither is it right for 18 year-olds to do so. It is not good for the rights and opportunities of these girls and adolescents to be left behind, or at the mercy of culturally imposed sexist roles, whose direct consequences decimate the future of a person and their offspring, with a map georeferenced by poverty and destitution, violence and the abuse, shortage, and denial of the reproductive right to plan their family, the deprivation of the right to a dignified, safe and prosperous life where motherhood and union are not perceived as a mirage of destiny to the

situation that they live or suffer through; lives plagued by black clouds with no silver linings, hope or aspirations in sight, without access to paths that prevent and punish harassment, sexual violence, incest and statutory-rape according to existing legal regulations.

It is not right for the country to go through a historical demographic opportunity in which, with important adjustments, its human capital, the divine treasure, can be used to the fullest, based on the right of each individual and sheltered by the ambition of citizens to produce development under conditions of equality and equity regardless of race, creed, religion, ethnic and cultural diversity, or sexual preference. A demographic dividend which, under the tutelage of a State social investment, enhances productivity and employment, improves the opportunity of making the most out of the female dividend which, nowadays, barely has 35.9% of labor participation in rural areas. To do the opposite is to back the future of the nation into a corner, making it retreat inch by inch against an atavism for which everyone will pay the price, both in the short and in the long term.

Adolescent fertility will leave girls and adolescents behind in the aspiration of reaching the

Sustainable Development Goals (SDG), while this fertility will actually affect poverty (SDG1), hunger (SDG2), good health and well-being (SDG3), quality education (SDG4), gender equality (SDG5), clean water and sanitation (SDG6), decent work and economic growth (SDG8), reduced inequality (SDG10), sustainable cities and communities (SDG11), Peace and Justice Strong Institutions (SDG16), and the partnerships to achieve the goals (SDG17). In other words, 11 sustainable development goals out of a total of 17.

The analysis of the economic cost of early motherhood sets forth the resources that the State and Salvadorian society no longer receive as a result of premature and early fertility. Likewise, the analysis shows that an investment barely greater than the current one, equivalent to \$28.6 million dollars in education, would contribute to the completion of secondary and higher education for a significant number of girls and adolescents, with a multiplier effect of 5.7 times in the return on investment calculated at \$134.2 million, which represents a profitable investment.

Although the analysis of the costs of adolescent fertility does not address costs related to the spheres of the children of these girls and adolescents beyond their birth, mainly due to methodological reasons, there are other studies that do show the economic costs related thereto.

According to Hoffman (Hoffman, 2006) in his study "By the Numbers: The Public Costs of Teen Childbearing", the sons (males) of adolescent mothers aged 17 or younger are 2.2 times more likely to be incarcerated and 2.5 times more likely to spend more time in prison than the children of mothers over the age of 20. Seen from another perspective, having the State and society protect their girls and adolescents in order to postpone

motherhood until after the age of 20 would reduce the chances of being incarcerated by 10.6% and the average years of incarceration by 13.4%, according to this study. In turn, this would reduce the prison population by 4.0%, which would range from 100,000 to almost 175,000 inmates, with a reduction in costs of approximately \$4.2 trillion. The study goes on to mention that the children (males) of mothers aged 18 and 19 are 40% more likely to have been incarcerated and 30% more likely to spend more time in prison until the age of 40 than the children of women that delayed motherhood until their early 20's. If these teenage mothers delayed motherhood until after reaching the age of 20, the probability of being incarcerated would be reduced by 5.8% and the time spent in prison by 6.7%, with a reduction in the incarcerated population by more than 7,000 and a reduction of public costs of around \$175,000 million dollars.

On the other hand, the probability of the daughters of adolescent mothers aged 17 or younger of experiencing motherhood at an early age are almost a third of the total thereof, i.e., almost 33% compared to a probability of 11% among the daughters of women who experienced motherhood after the age of 20. Delaying birth among girls and adolescents under the age of 17 until they reach the age of 20 or more would reduce the probability of daughters to experience premature and early motherhood by 60%. In the case of the daughters of adolescents aged 18 and 19, the probability of experiencing early motherhood is 17% when compared to the daughters of women over the age of 20. Delaying motherhood among these adolescents would have the effect of reducing the experience of being a mother at an early age by one third among the daughters of adolescents who were mothers at the age of 18 and 19.

The above is not the result of a biological condition that is passed on from mothers/fathers to sons and daughters, but rather it might be the consequence of limitations and lessons that are fostered by the family and community contexts in a specific society that could develop protection mechanisms.

Evidence of effective interventions in other countries corroborates that the main progress made in the prevention and reduction of pregnancy have occurred in programmes that empower and strengthen life skills, and develop skills and capacities for exercising a healthy, responsible, and pleasant sexuality among adolescents.

Sexuality education that is school-based, based on the family and on the environment of the adolescents also works, since it has been noted that the best sources of information on sexuality and healthy behaviors are, first and foremost, the parents, provided that the relationships within the family are positive.

Adolescents who decide to postpone or initiate their sexual activity must have access to contraceptive methods in a timely manner with an emphasis on long-term reversible methods for a longer time of adherence; therefore, it is necessary and urgent to overcome the legal barriers that still exist and which impede the access of adolescents to sexual and reproductive health services and supplies.

In the United States, the State of Colorado developed a programme between 2009 and 2015 in which long-term reversible contraceptive methods were provided (Intrauterine Devices and Implants). As a result, pregnancies among adolescents decreased by 40% and abortions were reduced by 35% according to data from the Department of Public Health and Environment of said State.

When extracting the results of seven Impact Evaluations (IEs) supported by the World Bank on the delay of the early age of marriage, i.e., after the age of 18, it is established that the programmes must simultaneously counteract the elements that encourage child marriage - poverty, limited opportunity for education and student retention, education or vocational training, and the low value of girls in societies according to the context of each country -. To this end, programmes must provide vocational education and life skills, increase access to free education, provide mentoring and counseling, access to sexual health education and counseling for girls and their communities. Conditional transfers can counteract the economic elements that encourage early marriage (Parsons & McClearly-Sills, 2014).

The same evaluations carried out by the World Bank Group establish that gender equality cannot be achieved until women have control over decisions regarding their sexual and reproductive health, including those that determine their risk of contracting HIV and other sexually transmitted infections, as well as unplanned pregnancies.

Broad programmes with interactive interventions in schools and communities that increase access to education and promote the empowerment of girls offer better results in sexual and reproductive health among adolescents. Effective programmes to reduce adolescent pregnancy that show a decrease in pregnancies before the age of 16 and 18 include components related to conditional transfers in order to provide care for the sexual and reproductive health of women, to reduce the costs of education for poor families, to provide education or vocational training, to provide education and information on sexual and reproductive health and healthy behaviors, including the risks of contracting HIV, and employment opportunities (Heath and Mobarak, 2012).

Research indicates that no programme is capable of reducing the risk factors associated with the problem and that its effectiveness will depend on the clarity of the purpose, objectives and goals of the interventions. They recommend that the programmes must have the capacity to influence (to a certain extent) the cultural patterns of the community with regards to adolescent pregnancy, as well as to engage parents, schools and the community as a whole in order to improve the national response to the problem.

After reading this document, you, the reader, are invited to reflect on which side of the scale should Salvadorian society as a whole place its efforts, acknowledging the fact that the global agreement that revolves around the 2030 agenda is that no one will be left behind.

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