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The Effect of Cash Conditional Transfer Programs on Teenage Pregnancy:

The Case of Juntos

Dissertation submitted by

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Abstract

Over the last two decades, the Peruvian rate of teenage pregnancy has remained around 10%. Despite well-established evidence about the negative effects of early childbearing on several dimensions of women's lives, Peruvian social policies lack a multidisciplinary approach to address this matter. Furthermore, the few improvements in health and education strategies (family planning services, sex education programmes and awareness of domestic and sexual violence) are being dismantled by congress representatives in an attempt to impose personal beliefs on public affairs. With the rise of evidence-based policy, many scholars have found unintended effects on social programs. For instance, evidence suggests that Conditional Cash Transfer (CCT) programs have affected women's empowerment, intimate partner violence, and changes in sexual and reproductive behaviour. This evidence encourages the present research to examine the effects of Peruvian CCT, Juntos, on teenage pregnancy. It is believed that educational conditions create incentives to change the behaviour of the family members, which increases parental supervision to avoid risky sexual behaviours and increases educational aspirations for both female and male students. This paper exploits the staggered implementation of Juntos, and combining both difference-in-differences framework and Demographic and Health Surveys (DHS) from 2005 to 2019, I find that Juntos reduced teenage pregnancy by 4% in the Andes region. Further analysis suggests that this reduction might be driven by the increase in abstinence from sexual relations.

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Introduction

In Peru, in 2022, 9.2% of female teenagers aged 15 to 19 were mothers or were pregnant (INEI 2023). This rate has remained around 10% for nearly two decades¹. Throughout the years, this rate has been significantly higher for adolescents in rural areas, especially in regions of the Peruvian Amazonia and low-income backgrounds.

Several organisations have tried to set this topic on the policy agenda without success. So far, there is no integrated policy addressing this situation, despite the well-established evidence about the adverse effects of early childbearing on several dimensions of women's lives. Apart from the fact that the consequences of teenage pregnancy are costly for the government (mothers rely heavily on social programmes), adolescent pregnancy presents high rates of maternal mortality or risk factors like anaemia and is related to dropping out of school, restraining their labour opportunities and ultimately, reproducing inequality and poverty (Azevedo et al. 2012).

Moreover, it is unsettling the current pressure of conservative groups to discontinue government actions aiming to inform about family planning and raise awareness about discrimination and domestic and sexual violence. For instance, the Ombudsman Office has issued several warnings about weakening public programmes to secure access to comprehensive healthcare services for adolescents and young people (Ombudsman Office and UNFPA 2021).

Furthermore, Peru continues through a political and social crisis, where instability (six presidents since 2016²) does not allow for the development or improvement of social programmes. In this context, it is impossible to imagine the political will to move forward with issues of sexual education or gender focus, policies that have proven to be successful in reducing teenage pregnancy.

¹ To be precise, from 2004 to 2021. The information is available at: <u>https://proyectos.inei.gob.pe/endes/resultados.asp</u>

² More information available at: <u>https://www.bbc.com/mundo/noticias-america-latina-63898035</u>

In this context, exploring the indirect impacts of social programs focusing on human capital accumulation could set a first step in finding practical solutions. Access to education and health services has proved to delay the decision to childbearing and reduce risky sexual behaviours. In Peru, the National Program of Direct Support to the Poorest (Juntos) is one of the few institutionalised programs due to its effectiveness on human capital development. Also, it is often a source to impact evaluation analysis for being a Conditional Cash Transfer program.

Examining the impacts of these programs in developing countries is part of the growing literature on impact evaluation. Although Junto's effects have focused on enrolment, the changes made in 2013 in the program's structure could become good conditions to reduce teenage pregnancy. In this sense, several studies examine the effects of world-known Conditional Cash Transfer (CCT) programs on adolescent pregnancy: *PROGRESA* in Mexico, *Bolsa Familia* in Brazil and *Familias en Accion* in Colombia.

I examine whether Juntos affects teenage pregnancy using public data (Demographic and Health Survey) and administrative information on the program from 2005 to 2019. I use a quasiexperimental difference and difference approach and exploit the program's progressive implementation across districts. According to the literature, the effects are mixed. Some found that CCT reduced early childbearing, while others found no effect.

I found that Juntos reduces teenage pregnancy by 4%, but only for adolescents in the Andes. There is no significant effect at the national level or on Amazonia or the Coast. It is essential to recognise that I might not find significant effects at a national level due to the stable tendency over the last two decades. These heterogeneous effects are explained by the regions' socio, cultural and economic differences. Additionally, I explore the mechanism through Juntos impacts teenage pregnancy and find that female adolescents decided to abstain from sexual activities.

Although important, the reduction of this rate is concentrated in the short term, which raises the need to further explore these results with qualitative studies to understand how the mechanism works and how it can be prolonged over time.

Literature Review

Fertility in adolescents³

It is often stated that adolescent pregnancy causes are difficult to discern (Favara, Lavado, and Sánchez 2020; Sánchez and Favara 2019; Alcázar and Espinoza 2014; Azevedo et al. 2012). In Peru, as well as in many Latin American countries, pregnancy does not usually involve someone's own decision; it is the result of collective influence, social inequality, and cultural norms, among others. Nonetheless, the mother bears direct consequences: restricted economic and social opportunities, risk of maternal mortality or mental health illness, to name a few.

Despite the overwhelming quantitative evidence of adolescent pregnancy, there is still much to explore about the determinants of the occurrence of teenage pregnancy (WHO 2004; UNFPA 2022; Save The Children 2016). Nevertheless, it is well-documented that, in developing countries, early childbearing has clear associations with socioeconomic background, cultural factors, social norms and fertility expectations (Azevedo et al. 2012; Baird et al. 2010; Favara, Lavado, and Sánchez 2020; Sánchez and Favara 2019; Magadi 2017).

Kassa et al. (2018) conducted a systematic review of studies conducted between 2003 and 2018 and performed a meta-analysis of the determinants of teenage pregnancy in Africa. They identified that adolescents with low or non-educational levels living in rural areas and with parents with low education levels are two times more likely to be pregnant than their peers, on average. Moreover, the authors showed variations among sub-regions, where East Africa's prevalence of teenage pregnancy is 21.5% in contrast to Northern Africa's 9.2%. These disparities are related to employment opportunities or communities' educational levels.

Similarly, studies in South Asia (Scott et al. 2021; Poudel et al. 2022) observed that low socioeconomic status and the absence of thorough sex education programmes increase the likelihood of childbearing. Furthermore, social or family beliefs might become barriers for teenagers to access contraceptives or may endorse early marriage commitments, diminishing even more their overall autonomy and future family planning.

³ For this research, adolescents will be aged 12 to 19.

Meanwhile, in Latin America and the Caribbean (LAC), Azevedo et al. (2012) highlighted that childbearing is positively correlated with poverty, inequality, and female labour opportunities while negatively correlated to the proportion of the rural population and unemployment. Across countries, wealth and education showed a negative association. Certainly, for women, the opportunity cost of pregnancy increases as the educational level is higher; therefore, in poor-quality education contexts, aspirations and expectations seem to have short-term goals, affecting their decisions on early sexual initiation and childbearing. In Bolivia, Peru, Colombia and the Dominican Republic, the authors found that higher dropout rates are positively associated with the likelihood of getting pregnant.

Within South America, Peru is among the countries with the highest adolescent fertility rates; for instance, in 2019, 55 births occurred out of 1000 adolescents ages 10 to 19 (Tobar et al. 2023). As in similar cases, teenage pregnancy has affected the women of the poorest households, with the lowest education levels, who live in rural areas and are from indigenous communities. For instance, Favara, Lavado and Sanchez (2020), using Young Lives data for Peru, found that early pregnancy is related to household wealth; specifically, an increase in one standard deviation of the wealth index reduces the probability of early childbearing by 23 percentage points. Furthermore, they explained that family structure- single-parent household- also increases the likelihood of early pregnancy by ten percentage points.

At the individual level, childbearing is highly associated with cultural factors and fertility indicators: the start of the first period (menarche), sexual activity initiation, use of contraceptives, and cohabitation and early marriage. In this sense, UNFPA (2021) and Save the Children (2016), through qualitative studies, showed the inverse relation between income and teenage pregnancy seemed to be a result of a lack of sexual health education in schools or access to contraceptive methods. Save the Children (2016) identified that in the Peruvian Amazon regions, early sexual activity is a conventional practice, which has not changed despite the rise in education levels and modernisation. Finally, personal perceptions and beliefs are suggested as key factors to reduce teenage pregnancy. Sánchez and Favara (2016) found that the Peruvian extended-school-hour program reduced teen pregnancy by improving socioemotional competencies and educational aspirations (self-efficacy and self-esteem) in both female and male students.

So far, evidence suggests that Peruvian adolescents present correlations at individual and household levels with variables found in other developing countries (early sexual activity, use of contraceptives, area of residence, belonging to indigenous communities, income level, parents' education level, among others). Nevertheless, unlike in neighbourhood countries, topics such as abortion and comprehensive sexuality education are not at the centre of public debate because many groups of power are characterised by conservative thinking. This is reflected in the lack of implementation of public policies in education and health.

For instance, abortion is punishable by criminal law, except for therapeutic abortion, which only applies when the woman's life is in danger. Despite the fact that a protocol for its implementation was approved in 2014, its actual implementation is questioned⁴. The Ombudsman's Office (2021) reported that more than 60% of the medical personnel surveyed did not know about the protocol for the implementation of therapeutic abortion, and almost 40% indicated that they did not apply this procedure. This is particularly worrying given that the same report states that 1 in 5 adolescents under the age of 15 have been raped.

On the other hand, in 2016, the Ministry of Education published a new curriculum for basic education (pre-primary, primary and secondary)⁵. Within this curriculum, the Ministry introduced the gender approach and comprehensive sexuality education in all educational resources. However, in 2017, the collective "Padres en Acción" sued the Ministry of Education due to the gender approach (PROMSEX 2017). Although the Supreme Court denied this lawsuit in 2019, Congress, elected in 2021, has proposed several measures to restrict the implementation of this approach in schools. Simultaneously, these measures also attempt to forbid sex education content in school resources⁶. To date, there is no policy to address the increasing rates of teenage pregnancy nor to prevent or reduce it.

⁵ The conclusion of these three levels (pre-primary, primary and secondary) are compulsory in Peru. ⁶According to press release of the Peruvian Congress available at:

⁴ According to Ramos and Lovón (2022) at: <u>https://idehpucp.pucp.edu.pe/boletin-eventos/causa-justa-la-agenda-pendiente-sobre-aborto-en-peru-a-proposito-del-caso-colombiano-26115/</u>

https://comunicaciones.congreso.gob.pe/damos-cuenta/propuesta-de-ley-para-el-reconocimiento-delderecho-de-los-padres-en-la-educacion-sexual-de-sus-hijos/. Also see newspaper article at: https://data.larepublica.pe/congreso-atenta-contra-la-educacion-sexual-pese-al-aumento-de-violaciones-aninas-ninos-y-adolescentes/

Figure 1 shows teenage pregnancy rates by region in 2005, 2013, and 2019. In 2005, most areas of the Amazonia presented rates over 50%. Meanwhile, in the Andes, most regions had rates between 30 and 50%. The coast presented heterogeneous results. By 2013, 13 out of the 25 regions had a high prevalence of adolescent pregnancy (between 20% and 50%). Most of these rates remained in the areas of the Amazonia and Andes. Finally, in 2019, there was a slight decrease in the national rate (from 25% to 20%). Still, it is surprising that the prevalence of teenage pregnancy has only decreased by five percentual points in the last six years. The desegregation by regions shows that 11 out of the 25 still presented rates over 20%. As in the previous years, most of these regions are in the Peruvian Andes and Amazonia.



Figure 1: Teenage pregnancy rates by region in 2005, 2013 and 2019

Note: These maps considered teenagers from 12 to 19 years old. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS).

Conditional Cash Transfer programs

Conditional Cash Transfer (CCT) programs have become a well-known policy tool for addressing poverty in developing countries. Often low-cost and high-coverage, CCT programs are designed as human capital investments for the medium and long term, in addition to the poverty alleviation components. Regarding the latter, poverty alleviation consists of a monetary transfer, which could be established as a fixed amount per household or based on the family size or structure, focusing on school-age children, for example (Handa and Davis 2006, 519). Additionally, these authors pointed out that as a general guideline, the transfer should vary between 20% and 40% of the total poverty line per person to be considered significant to the recipient. This is vital to create a behaviour change; that is, the income would reduce the cost of human capital investment, allowing families to reallocate their resources and align their decisions to the program objectives (Kabeer and Waddington 2015).

Most programs' long-term objectives focus on improving education and health outcomes, particularly school enrolment and prenatal and preventive care. For instance, *Prospera*⁷, the Mexican CCT and one of the first to be implemented worldwide, started in 1997 to address the persistent increase in poverty rates. This national program comprises three elements: nutrition, health promotion and prevention, and education (Dávila 2016). In the early stages, the evaluation of the program (by this moment, Progresa) (Behrman, Sengupta, and Todd 2005; Todd and Wolpin 2006; Schultz 2004) showed an increase in school enrolment, higher transition rates between primary and secondary school, and a significant reduction in repetition rates. Later studies (Parker and Todd 2017) demonstrated more medium-term results as the dropout rates in lower-secondary schools reduced while the improvement in secondary completion rates kept increasing. Evaluation of health and nutrition has examined child mortality rates, nutrition, and overall cognitive and growth variables. The experimental studies (Barber and Gertler 2010; Barham 2011) indicated that the program positively impacts the health of children and adolescents. Also, for women, access to health services has raised the probability of being attended by a doctor throughout the pregnancy and changed perceptions about family planning.

Alongside this, the Brazilian program Bolsa Familia began as the unification of several social programmes deployed around 1995 at the subnational level. It grouped cash transfer programs, promotion of food and nutritional security, access to public services, and fighting poverty by developing families' autonomy initiatives. Contrary to *Prospera*, *Bolsa Familia* rapidly

⁷ Before, it was known as *Progresa* until 2002 and then *Oportunidades* until 2014.

became a national program and reached universal coverage for poor families, restricting the use of experimental data to assess its effect (Soares 2011). However, investigations reported positive results, establishing correlations between the program and reducing child and infant mortality, access to health services and preventive care, and improvements in nutritional status and psychological health (Lignani et al. 2011; Rasella et al. 2013; Shei et al. 2014). Particularly, Shei *et al.* (2014) noted that these results are also substantial with age cohorts beyond that are not part of the conditionalities.

Table 1 resumes the principal CCT programs in Latin America. Most started in the early 2000s and had similar objectives regarding health and education. They targeted poor or extremely poor families. Currently, several are part of a social protection system aiming to benefit poor families in several areas, such as labour, adult training and education, and mental health. In theory, these systems are designed to be more efficient because they reduce duplication of functions and ensure the inclusion of the most vulnerable people. As a result, the government provides a social support network, increasing the likelihood of ending the intergenerational transmission of poverty (Ramírez 2021; Martínez et al. 2017). Similar to *Prospera* and *Bolsa Familia*, these programs have substantially improved several education and health indicators: enrolment and school attendance, participation in nutritional programs, mental and physical health of pregnant women, participation in vaccination programmes, and early childhood development, among others.

Country	Program Name	Year of start	Type of transfer	Number of beneficiaries	Conditionalities	
Brazil	Bolsa Familia	2004 (Merged with several social programs)	Differentiated	21'180,000 ⁸ families in 2023	Health: guarantee that children under seven years old atter regular medical check-ups, including vaccination and grov Education: enrolment of children and adolescents aged 6 t in school and a minimum attendance of 85%.	
Chile	Chile Crece contigo	2002	Differentiated	118,000 families in 2022 ⁹	 Health: access to health services for children and nutritional program for the family members. Education: enrolment of children and adolescents, reduction of school dropout and academic performance. 	
Colombia	Familias en Acción	2002	Differentiated	3'000,000 ¹⁰ families in 2022	Health: nutrition allowance for families with children with six years old or under and participation to regular medical check- ups, including vaccination and growth. Education: enrolment and permanence in the school system for all children and adolescents	
Ecuador	Bono de Desarrollo Humano	2003	Differentiated	1'400,000 ¹¹ families in 2022	Health: access to health services for children and nutritional program for the family members.	

Table 1: Conditional Cash Transfer programs in Latin America

⁸Information extracted from press release of the Brazilian government available at: <u>https://www.gov.br/secom/pt-</u>br/assuntos/noticias/2023/11/bolsa-familia-chega-a-21-18-milhoes-de-familias-a-partir-desta-sexta-17

⁹ Information extracted from follow-up report of the Ministry of Social development and family available at: <u>https://www.dipres.gob@l/597/articles-310370_doc_pdf.pdf</u>

¹⁰ Information extracted from the open data website of the Department of Social Prosperity of the Colombian government available at: https://prosperidadsocial.gov.co/la-entidad/informacion-estadistica/#

¹¹ Information extracted from press release of the newspaper El Universo available at: <u>https://www.eluniverso.com/noticias/politica/cuantas-personas-en-ecuador-reciben-bonos-y-pensiones-sociales-nota/</u>

					Education: enrolment and permanence in the school system for all children and adolescents.
Mexico	Prospera (closed in 2018)	1997	Differentiated	6'500,000 ¹² families in 2018	Health: guarantee that children attend regular medical check- ups, including vaccination and growth, and nutritional programmes for children and pregnant women. Education: enrolment of children and adolescents in school
Peru	Juntos	2005	Fixed	700,000 ¹³ families in 2022	Health: guarantee that children and pregnant women attendregular medical check-ups, including vaccination and growth,and nutritional programmes.Education: enrolment of children and adolescents aged 3 to 19in school and a minimum absenteeism of three classes.

Source: Information based on Handa and Davis (2006), Sánchez and Rodríguez (2016), Contreras and Larragaña (2015), Martínez, Borja, Medellín and Cueva (2017), and Ramírez (2021).

¹² Information extracted from a press release of the Mexican government available at: <u>https://www.gob.mx/bienestar/articulos/prospera-es-el-</u> programa-de-transformacion-e-inclusion-social-que-atiende-a-28-millones-de-personas-enmexico#:~:text=Uno%20de%20cada%20cuatro%20mexicanos,de%206.8%20millones%20de%20familias. ¹³ According to the administrative records shared by the Ministry of Inclusion and Social Development of Peru.

Indirect effects of Conditional Cash Transfer Program and teenage pregnancy

The quantitative and qualitative evaluations have focused on more than just this program's direct or expected effects. CCTs were planned to change household behaviour and preferences through monetary incentives, ultimately impacting family, community or local dynamics. Therefore, studies have also examined the unintended or indirect effects of CCT, and considering the spread of CCTs across countries, compelling evidence shows impacts on child labour (Meza-Cordero 2023; Ferro, Lúcia, and Levison 2010; de Hoop and Rosati 2014), inter-partner intimate violence (Díaz and Saldarriaga 2022; Huber et al. 2009; Buller et al. 2018), women empowerment (Baird et al. 2010; Alcázar and Espinoza 2014; Barber and Gertler 2010; Zaky 2014), labour (Del Boca, Pronzato, and Sorrenti 2021; Baird, McKenzie, and Özler 2018) and time use (Urbina 2020; Canavire-Bacarreza and Ospina 2015), to name a few.

Regarding sexual behaviour in women, studies found mixed effects of CCT on fertility. For example, Ferreira Soares and Campos de Lima (2021) showed that the Brazilian CCT, Bolsa Familia, positively correlates with beneficiaries' fertility: the program increases fertility up to the third child. They suggest that this might be related to the design of the program, as women received an additional amount for each extra child, up to three children; also, the authors argued that the financial certainty provided by the programme to low-income families acts as an incentive them to have more children. On the contrary, Olson Clark and Reynolds (2019) found that Bolsa Familia reduce fertility in adolescents ages 16 to 17. The authors found that attendance conditions were sufficient to reduce pregnancy, considering that in Bolsa Familia, households received more money for each teenager in schools rather than not attending one. These results are restricted to urban areas.

For the case of Familias en Accion, the Colombian CCT, Cortes, Gallego and Maldonado (2016) compared this CCT to Subsidio Escuela, an educational program for poor families. They found that Familias en Accion did not reduce teenage pregnancy, while Subdidio Escuela did for girls under 18 years old. The authors argued that this might have happened because Subdidio Escuela included a condition related to school performance, which increases educational aspirations and the cost of getting married due to the subsidy is conditional to a good performance.

They concluded that for the Colombian case, the enrolment or attendance conditionality might not be enough to decrease teenage pregnancy.

On the other hand, Parker and Ryu (2023) estimated the effect of Progresa, Mexican CCT, on fertility by age group. Their results suggest a substantial reduction of the programme on teenagers' fertility and lower effects in other age groups. Specifically, they explained that the conditionalities regarding school enrolment would reduce early fertility or postpone pregnancy in teenagers. Although they mentioned that these results are similar to previous studies (Darney et al. 2013; Baird et al. 2010), they could not isolate the mechanisms of this reduction.

In Peru, two studies¹⁴ have examined teenage pregnancy and CCT. First, Azevedo, Favara, and Lopez (2012) found that Junto's continuous exposure reduced adolescent pregnancy by 7 to 10 percentage points. They explored heterogeneous effects by age or ethnicity but found no significance. Also, they could not examine the mechanisms of this effect. Second, Lazslo, Farhan, and Renée (2024) analysed the impact of Juntos on women's reproductive choice; although their study is not just for teenagers, they are part of the age group examined. The authors found that Juntos decreased the number of children by increasing the use of mother contraceptives.

Finally, a broader examination of the mechanisms is done by Azevedo, Favara, and Lopez (2012), who reviewed CCT programs in developing countries and concluded that the reduction in teenage pregnancy might result from first, an increase in education levels, strengthening teenagers' self-confidence and agency, which are factors related to early sexual initiation and bargaining power within the couple. Second, school attendance might decrease teenagers' leisure time and the likelihood of engaging in risky sexual behaviour. This is similar to what Sánchez and Favara (2019) found on students participating in extended-school-hour programs. Third, the health conditions of CCT programs would increase the access and knowledge of teenagers regarding contraceptives. Fourth, attendance and student performance conditions increase the incentive for parental supervision and guidance, limiting the likelihood for female teenagers to get pregnant.

CEU eTD Collection

¹⁴ So far, found and read.

The institutional setting of the National Program of Direct Support to the Poorest (Juntos)

The National Program of Direct Support to the Poorest (Juntos) was created in 2005 as a part of national policy to reduce poverty and targeted to support the poorest families nationwide with a monetary incentive that guaranteed the family commitment to access education, health, and identification services¹⁵. In 2012, Juntos was appointed to the recently created Ministry of Development and Social Inclusion (MIDIS¹⁶), which introduced several changes to the program's aim and structure. Framed in a reinvented social protection and development policy, Juntos' purpose shifted to an integrated approach that, in the short run, reduces extreme poverty rates by increasing the income of the beneficiaries' households; in the middle run, develop human capital through the access to education and health; and, in the long run, disrupt the inter-generational transmission of poverty (2019). These changes led to an improvement in the targeting process and beneficiaries' compliance.

Over the years, Peru has reached almost universal access to education and health services; therefore, the challenges of social programs have shifted to ensuring families' use and retention of public services. For example, alongside health and education, Juntos started with a condition for legal registration and identification as the political and social crisis between 1980 and 2000 destroyed civil registry records and omitted registers of births, missing persons and deaths. Although Juntos did not boost the registration of family members outside Juntos beneficiaries, it helped to reinforce and optimise operating protocols for nutrition, health, and education services and other national interventions (MIDIS 2013). By 2019, Juntos evaluations moved away from analysing indicators of access to indicators of progression and completion in education, mortality and child development in health (Reuben and Carbonari 2017).

Table 2 resumes the Juntos components from 2005 to 2019. Throughout these years, the transfer has remained around PEN 200.00 (USD 53.00) and was made to the mother. The conditions involve the enrolment and assistance to school for all children and teenagers up to 19 years old or

¹⁵ Created by Supreme Decree N.° 032-2005-PCM on April 6th. Then, was modified by Supreme Decree N.° 062-2005-PCM on August 8th.

¹⁶ Acronym in Spanish.

until they finish a secondary level, access to preventive care for all children until 59 months, and pre-and post-natal care for pregnant women.

In 2020, Juntos benefited almost 800,000 families in more than 1,300 districts in Peru. The targeting process has two stages: district and household selection. The eligible districts are selected using an index that aggregates variables such as lack of access to public services, income poverty, child malnutrition rates, and exposure to terrorist violence. This index ranks municipalities from those with greater to lower needs. After the districts with a higher index value are selected, the households are ranked using a poverty score made by the National Statistic Institution and the Ministry of Economy and Finance. Finally, the household income is verified by each local office, and families are selected based on whether they have a poor or extremely poor status, have at least one child aged 19 or younger or have at least one pregnant woman.

Area	Until 2011	After 2012	
Frequency of the cash transfer	From 2005 to 2009 PEN S/. 100.00 each month From 2010	PEN S/. 200.00 bimonthly	
Paymont made to	Mother	Mother	
Target	Low-income families with a pregnant member or children/adolescents aged 14 or less.	Low-income families with a pregna member or children/adolescents aged t or less. 2015: Expansion to indigenou communities from the Peruvian Fore identified by the Ministry of Culture.	
Health	 Prenatal and post-natal check-ups Participation of vaccination programs, preventive care and nutritional programs for children pregnant and children from 6 to 36 months. Growth and psychomotor development and care controls for children from 6 to 59 months. 	• Expansion in the age of beneficiaries. All children from 0 to 59 months must participate health nutrition and early childhood development services.	
Education	 School enrolment and attendance for children between 6 and 14 years old Attendance of at least 85% of classes. 	 School enrolment and attendance for children between 6 and 19 years old or people who did not conclude secondary education. Up to 3 unjustified school absences. Enrolment and attendance to preschool education for children to 3 to 6 years old. 	
Identity	• Access to ID for women and children over one-year-old.		

Table 2: Design of the Peruvian Cash Conditional program (Juntos) from 2005 to 2019

Source: Own design based on information from Sánchez and Rodríguez (2016) and MIDIS (2016).

Methodology

Data

I use the Peruvian Demographic and Health Survey (DHS) from 2005 to 2019. This survey has been implemented by the National Bureau of Statistics (INEI¹⁷) since the late 1990s and administered annually since 2004. The module on fertility was introduced in 2000, and as a part of the DHS program¹⁸, it uses questionaries validated with international standards. This dataset is public and representative at a national, regional, and geographical level.

Currently, the fertility module is applied to all women within the household aged 12 to 49; however, before 2018, the module collected information for women between 15 and 49. As a result, the cross-sectional data include all adolescents aged 15 and 19 from 2005 to 2019.

Additionally, I employ Juntos administrative data to establish the month and year when this program reached each district, considering that the program's progressive deployment affected the pre- and post-treatment variables. Specifically, this data contains information on all districts and the month and year when Juntos was implemented from 2005 to 2023.

Variables

The outcome variable is teenage pregnancy, a dummy variable taking the value of one if a woman aged 15 to 19 is a mother or is pregnant with her first child. The treatment variable $Juntos_{dt}$ is a dummy taking the value of one for adolescents who live in a district where Juntos was implemented before the moment they were surveyed and zero otherwise. As for the control variables, I include age, indigenous language, age of household head, years of schooling of the household head, teenage childbearing in the household, household size, sex of household head and wealth index. The construction of these variables considered the recommendations of *Guide to DHS Statistics*¹⁹. Table 3 summarises the descriptive statistics of the covariates. The ENDES 2005

¹⁷ Acronym in Spanish

¹⁸ Additional information is available at: <u>https://dhsprogram.com/</u>

¹⁹ Available at: <u>https://dhsprogram.com/data/Guide-to-DHS-</u>

Statistics/index.htm#t=Guide_to_DHS_Statistics_DHS-8.htm

to 2019 dataset resulted in more than 18,000 observations of teenage girls between 15 and 19 years old.

Characteristics	N° observations	Mean	Standard Deviation	Minimum value	Maximum value
Adolescent age	18,334	16.78	1.40	15	19
Adolescent native language (Indigenous language)	18,243	0.26	0.44	0	1
Age of household head	18,334	44.84	12.58	15	96
Years of schooling of household head	18,253	5.63	3.68	0	16
Size of household	18,334	5.76	2.20	1	18
Teenage childbearing in the household	18,334	0.08	0.27	0	1
Women as household head	18,334	0.16	0.37	0	1
Wealth index	18,334	-143709	263669	-1915303	-0.6472357

Table 3: Summary of descriptive of covariates

Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and the program Juntos administrative data.

An important point to highlight is the inclusion criteria. The sample includes households with the following conditions: poor, rural, and at least one adolescent aged 15 to 19 living in the household. Considering these conditions, I analyse all potentially eligible adolescents for Juntos, and not those who were, in fact, eligible, leading to an intention-to-treat (ITT) effect²⁰ (similar to Laszlo, Majid, and Renée 2024).

This choice lies in the construction of the treatment variable: household eligibility condition to Juntos is based on a poverty score. Within selected districts, the poverty score determines whether a household is eligible for Juntos. Since I use repeated cross-sectional data, some characteristics at the household level are endogenous to Juntos' implementation. Therefore, we only exploit district-level eligibility variation, which leads us to analyse an ITT effect.

²⁰ The Appendix 1 shows that the gap between the affiliated and paid families. Across the years, the differences between the two groups are less than 5 percentage points, on average.

Identification strategy

My baseline estimation follows a difference in difference (DiD) approach. Formally, I use the following equation considering:

$$Y_{idt} = \alpha + \beta Juntos_{dt} + \phi_d + \sigma_t + \delta X_{idt} + \epsilon_{idt} \quad (Eq. 1)$$

Where Y_{idt} is the teenage pregnancy outcome for an adolescent *i* in district *d* at year *t*, Juntos_{dt} is the exposure to Juntos in district *d* at year *t*, ϕ_d and σ_{st} are district and year fixed effects, X_{idt} is a matrix containing time-varying women and household variables and finally, ϵ_{idt} are the standard errors clustered at the district level (Abadie et al. 2023). The parameter of interest β captures the ITT effect of Juntos on teenage pregnancy, for adolescents (potentially eligible) who live in a district with Juntos.

The identification assumption is that, in the absence of Juntos, there would not have been any systematic difference in teenage pregnancy between treatment (adolescent in an eligible district) and control (adolescent in a not eligible district).

Some features need to be discussed when using this estimation method. First, the staggered nature of Juntos implementation may raise some concerns about potential heterogeneous and dynamic effects. Juntos started in 2005 in 70 districts and progressively expanded to more districts year by year. In this context, heterogeneous treatment effects are likely to emerge. There is extensive discussion in the recent DiD literature incorporating these features and proposing fully dynamic versions of such estimators (Callaway and Sant'Anna 2021; Sun and Abraham 2021; de Chaisemartin and D'Haultfœuille 2020; Borusyak, Jaravel, and Spiess 2024). In particular, I follow the proposal of Sun and Abraham (2021) and implement the imputed estimator that allows for the presence of treatment heterogeneity and dynamic effects.

To estimate Juntos's dynamic and long-term effects, I use the Event-Study (ES) approach proposed by Sun and Abraham (2021). Formally, the ES analysis can be written as follows:

$$Y_{idt} = \varphi_0 + \sum_{\tau > -3}^3 Juntos_d * \beta_t I\{\tau = t - Implement_t\} + \phi_d + \sigma_t + \delta X_{idt} + \nu_{idt} \quad (Eq. 2)$$

Where Y_{idt} is the teenage pregnancy outcome, τ is the distance between the interviewed year and Juntos implemented year, ϕ_d and σ_t are district and year fixed effects. The main difference from the first equation is that this specification includes the average effect and estimates year-by-year coefficients. Finally, for the pre-tend hypothesis (parallel trend assumption), the coefficients for the years before the program's implementation are expected to be not significant (year -4 to -1). After year 0, I should find significant coefficients confirming the dynamic and persistent effect hypothesis.

Finally, it should be noted that this research faces potential challenges that could compromise the causal validity. First, despite gathering 14 years of data, the sample is still too low to look for regional effects that could provide vital information to understand the program's impact better. This is especially important given the heterogeneity of teenage pregnancy rates (See Figure 1, map of 2013 and 2019). Second, the DHS dataset applies a thorough examination of fertility, health and violence characteristics of the women; however, the information about their partners is limited. In this sense, it is not possible to control for variables such as their perceptions, opinions and use of fertility, reproductive behaviour, family planning, and educational aspirations, which can be important variables for male teenagers. Third, there is no information about the academic ambitions of teenagers, which limits the analysis of that mechanism.

Empirical discussion

Table 4 presents the results of the impact of Juntos on teenage pregnancy using the DiD approach. Before and after controlling for covariates, the effect of Juntos is not statistically significant at the national level (Models 1 and 2). However, the likelihood of teenage pregnancy is closely related to socioeconomic, geographical and cultural factors; in this sense, it is essential to examine the effects of Juntos at the subnational level. I tried to explore the impact by region, but the number of observations was too low (the region with the maximum number of observations had 1705); therefore, the second-best option was to exploit a geographical area variable already created by the INEI. This variable divides the 25 regions into three areas: Coast, Andes and Amazonia. I exclude the Coast from this analysis as it represents only 7% of the sample²¹. When disaggregated, Juntos do not present any impact on teenage pregnancy.

These results could be explained by the fact that, on the one hand, the education conditionalities of Juntos are not enough to change Peruvian teenagers' behaviours. As Cortés et al. (2016) concluded with Familias en Acción, the enrolment or attendance requirement needs to be complemented by an academic performance or student achievement condition in order to increase the cost of opportunity of getting pregnant or increase the educational aspirations of both teenagers, therefore delaying their sexual initiation (Azevedo et al. 2012).

On the other hand, these results could be biased because the programme follows a staggered implementation, so applying one of the abovementioned approaches is more accurate. Following Sam and Abraham's (2021) approach I find that Juntos reduces the probability of teenage pregnancy by 4% for the Andes regions (Table 5).

²¹ The results of the Coast are presented in Appendix 2, 3 and 4. It is recommended to take the results with caution due to the reduced sample size.

	(1)	(2)	(3)	(4)
	National level	National level	Andes	Amazonia
Juntos	0.014	0.012	-0.011	0.035
Juntos	(0.017)	(0.015)	(0.014)	(0.033)
Age		0.125***	0.119***	0.140***
Age		(0.003)	(0.004)	(0.005)
Indigenous language		0.022*	0.017	0.067 **
mulgenous language		(0.011)	(0.012)	(0.033)
Age of household head		- 0.006***	- 0.005***	- 0.007***
Age of household head		(0.000)	(0.000)	(0.000)
Years of schooling of		- 0 001	- 0 000	- 0 001***
household head		(0.001)	(0.001)	(0.001)
		(0.001)	(0.001)	(0.002)
Size of household		- 0.008***	- 0.010***	-0.007**
Size of household		(0.002)	(0.002)	(0.003)
Teenage childbearing in the		- 0.084***	- 0.071***	- 0.104***
household		(0.012)	(0.014)	(0.033)
		0.040***	0.062***	0.065***
Women as household head		-0.060^{+++}	-0.002	- 0.063***
		(0.012)	(0.015)	(0.024)
Index wealth		- 0.001	- 0.000	-0.000°
		(0.000)	(0.000)	(0.000)
N° of observations	18,256	18,175	11,321	5,434
R ²	0.16	0.37	0.32	0.365
District and year Fixed Effect	Yes	Yes	Yes	Yes

Table 4: The impact of Juntos in teenage pregnancy

Notes: *, **, and *** represent 10%, 5%, and 1% significance levels, respectively. Standard errors are clustered at the district level. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and the program Juntos administrative data.

Table 5: The impact of Juntos on	teenage pregnancy – Sun and Abraham (20	021)
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	(1) National level	(2) Andes	(3) Amazonia
Juntos x Year	0.007 (0.019)	- 0.040* (0.023)	0.045 (0.034)
N° of observations	18,083	11,320	6,741
R ²	0.36	0.33	0.38
District and year Fixed Effect	Yes	Yes	Yes

Note: Standard errors clustered at the district level are shown in parentheses. Control variables include age, indigenous language, age of household head, years of schooling of the household head, teenage childbearing in the household, household size, sex of household head and wealth index, survey-year fixed effects, and district fixed effects. *, **, and *** represent 10%, 5%, and 1% significance levels, respectively. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and the program Juntos administrative data.

Event-study results

In this section, I explore the dynamic effects of Juntos and the validity of the DiD approach's parallel trend assumption (equation 2). Considering the number of observations, I introduced three

leads and lags, representing three years before and after the program was implemented in a district. Figure 2 plots the coefficient of the interaction between the previous and following years of Juntos implementation.



Figure 2: Pre- and post-Juntos implementation in teenage pregnancy

At the national level, Figure 2a shows that the exposure to Juntos did not affect adolescent pregnancy, even after 36 months of implementation. However, geographical areas present significant results (2b and 2c): in the Andean districts, the likelihood of teenage pregnancy was

Note: Control variables include age, indigenous language, age of household head, years of schooling of the household head, teenage childbearing in the household, household size, sex of household head and wealth index, survey-year fixed effects, and district fixed effects. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and the program Juntos administrative data.

reduced after 12 months of Juntos implementation. Although the average effect is negative, it is concentrated in the first year, which implies that Juntos shows show-term effects (Figure 2b).

As mentioned before, the literature suggests some mechanisms through CCTs affect teenage pregnancy. Given the restriction of the dataset, I examine three possible mechanisms: delayed onset of sexual activity, abstinence, and contraceptive use (Table 6). Only abstinence is significant at 95% of confidence. Overall, the results suggest that the reduction seen in the Andes might be caused by the female adolescent's decision to abstain from sexual activity.

Table 6: Mechanisms of Juntos' impact on teenage pregnancy in the Peruvian Andean area

	(1) Delayed sexual activity	(2) Abstinence	(3) Contraceptive use
Juntos x Year	- 0.108 (0.159)	0.062** (0.025)	- 0.011 (0.018)
N° of observations	11,320	11,320	11,320
R ²	0.44	0.35	0.22
District and year Fixed Effect	Yes	Yes	Yes

Note: Standard errors clustered at the district level are shown in parentheses. Control variables include age, indigenous language, age of household head, years of schooling of the household head, teenage childbearing in the household, household size, sex of household head and wealth index, survey-year fixed effects, and district fixed effects. *, **, and *** represent 10%, 5%, and 1% significance levels, respectively. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and the program Juntos administrative data.

Conclusions

Junto's success in human capital development has made it one of the most relevant programs within the social policy agenda. After almost 20 years of implementation, Juntos has been a popular topic of research and has not only been evaluated for its direct effects but also the unintended effects on violence, child labour, women empowerment and sexual behaviour, among others. Regarding reproductive health in teenagers and conditional cash transfer programs, experiences in other countries show mixed results. Some suggest that enrolment and attendance conditionalities of these programs could reduce teenage pregnancy in the medium-term. Others indicate that student performance must become a requirement to achieve this impact. A third group find no effect.

Despite the worrying rates of early childbearing in Peru, the current government has been unable to address this phenomenon. Furthermore, Congress has stopped the progress on sexual education and gender approach, which aimed to provide children and adolescents with vital information to reduce discrimination and violence against women and vulnerable populations. In this context, traditional policies to reduce teenage pregnancy do not possess the political willingness or attention; therefore, the impact of Juntos in changing family members' behaviours might become a feasible solution to break the increase of these rates. This research aims to assess whether Juntos has an impact on teenage pregnancy. I find that Juntos reduced adolescent pregnancy by 4% in the Andes through the increase in abstinence from sexual activity. Considering that the dataset does not have information about the partners, it is recommended to further examine how the behaviour of male adolescents might contribute to reducing these rates. Also, it is essential to note that the literature indicates that the effect on educational aspirations is strong in changing people's behaviour; hence, further analysis of this mechanism is recommended.

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I dedicate this work to the women in my life. Mariana, Raisa and Almendra, whose words always make me feel strong and capable of everything. Donatila and Lastenia, who, between chocolates and lonches, enlighten my path and remind me to continue. Lastly, Glendy, my wonder woman, who, despite being 19 years old, decided to embark on the journey of motherhood. I work every day to make it worth it.

My mom was not the first nor the last teenager to become a mother in Peru. Over the two years of the master's program, every day on average, 11 girls aged 10 to 14²² became pregnant: many of them by their own decision, and countless were forced by society, families and legal restrictions over their bodies. This research is an effort, sometimes with despair, to shudder the government's apathy and contribute to improving the lives of children, adolescents and those to come.

²² Estimation from the Peruvian Demographic and Health Survey from 2022 to 2023.

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Appendix 1: Number of Affiliated and paid households by Junto from 2005 to 2002

Sources: Own design made with information from MIDIS Annual Reports

	(1) National level	(2) National level	(3) Coast
Juntos	0.014	0.012	0.151**
	(0.017)	(0.015)	(0.066)
Age		(0.003)	(0.123)
Indigenous language		0.022*	-0.098
indigenous language		(0.011)	(0.164)
Age of household head		- 0.006***	- 0.006***
rige of nousenoid nead		(0.000)	(0.001)
Years of schooling of household		- 0.001	-0.004
head		(0.001)	(0.004)
Size of household		- 0.008***	0.004
Size of household		(0.002)	(0.009)
Teenage childbearing in the		- 0.084***	- 0.116*** (0.031)
household		(0.012)	(0.000)
Women as household head		- 0.060***	- 0.019
women as nousenoid nead		(0.012)	(0.064)
Index wealth		- 0.001***	-0.000***
		(0.000)	(0.000)
N° of observations	18,256	18,175	1,396
R ²	0.16	0.37	0.37
District and year Fixed Effect	Yes	Yes	Yes
-			

Appendix 2: The impact of Juntos on teenage pregnancy at the national level and the Coast

Notes: *, **, and *** represent 10%, 5%, and 1% significance levels, respectively. Standard errors are clustered at the district level. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and the program Juntos administrative data.

Appendix 3: The impact of Juntos on teenage pregnancy – Sun and Abraham (2021)

	(1) National level	(2) Coast
Juntos x Year	0.007 (0.019)	0.213** (0.097)
N° of observations	18,083	1396
R ²	0.36	0.37
District and year Fixed Effect	Yes	Yes

Note: Standard errors clustered at the district level are shown in parentheses. Control variables include age, indigenous language, age of household head, years of schooling of the household head, teenage childbearing in the household, household size, sex of household head and wealth index, survey-year fixed effects, and district fixed effects. *, **, and *** represent 10%, 5%, and 1% significance levels, respectively. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and administrative data of the program Juntos.



Appendix 4: Pre- and post-Juntos implementation in teenage pregnancy

Note: Control variables include age, indigenous language, age of household head, years of schooling of the household head, teenage childbearing in the household, household size, sex of household head and wealth index, survey-year fixed effects, and district fixed effects. Source: The data come from the 2005-2019 Peruvian Demographic and Health Surveys (DHS) and the program Juntos administrative data.