

**U.S. Department of Labor
Bureau of International Labor Affairs**

**Closing the Child Labor and Forced Labor
Evidence Gaps: Impact Evaluations**

Draft Evaluation Design Plan

**Ecuador
Young Potential Development (YPD) Program**

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1. Introduction

The United States Department of Labor, International Labor Affairs Bureau (USDOL/ILAB), Office of Child Labor, Forced Labor and Human Trafficking (OCFT) funds international technical cooperation programs to eliminate forced labor, human trafficking, and the worst forms of child labor. To rigorously assess the effectiveness of programs designed to eliminate forced labor, human trafficking, and the worst forms of child labor, OCFT has funded the *Closing the Child Labor and Forced Labor Evidence Gaps: Impact Evaluations*. The goal of this project is to provide causal estimates from experimental evaluations of the effects of diverse programs on child labor reduction.

In fiscal year 2014, USDOL/ILAB issued Solicitation for Cooperative Agreement Applications SCA-14-22 to identify research organizations with the skills and experience to design and implement impact evaluations globally. The goal of the evaluations is to document and generate evidence of the effectiveness of interventions to reduce the incidence of child labor and forced labor. In this context, IMPAQ International (IMPAQ) is currently conducting a series of randomized controlled trials (RCTs) to evaluate the effectiveness of child labor interventions in five countries—India, Malawi, Rwanda, Costa Rica, and Ecuador.

In this report, we describe the evaluation design plan for the Young Potential Development (YPD) program in Ecuador using a RCT methodology. The YPD program is an add-on curriculum and teacher professional development initiative implemented in several municipal schools in Quito, Ecuador. YPD is part of the *Ciclo Básico Acelerado* (CBA), a municipal initiative of the Quito Secretariat of Education that targets at-risk youths between 15 and 24 years old who had dropped out of middle-school to allow them to complete middle school and catch up with the goal to continue later on with their high-school studies. What distinguishes the YPD program from the rest of the curriculum of the CBA is its focus on strengthening the socioemotional (also known as social–cognitive or, more broadly, as noncognitive) skills of these at-risk youth.

There is a vast literature in economics and psychology on the role of socioemotional skills in determining children and young adults' educational attainment and outcomes in later life. YPD's goal is to help CBA teachers innovate in their daily classroom practices by fostering a dynamic learning environment and student interaction. The YPD program trains and supports teachers to adopt interactive teaching methods that foster students' socioemotional skills. In alignment with this literature, we believe that socioemotional skills like the ones reinforced by the YPD intervention have the potential to generate important changes in both school and labor outcomes. The underlying program theory is that strengthening such noncognitive skills among teenagers will make a difference in their labor outcomes such as participation in hazardous work and irregular employment.

In the following sections, we describe the motivation for this study, the intervention in its country context, the child labor terminology applied to Ecuador, the program theory of change, the

experimental impact evaluation plan, and the qualitative study that will complement it. The report concludes with an evaluation timeline and a schedule of deliverables.

2. Motivation for the Study

2.1 The Role of Socioemotional Skills

Socioemotional skills are described as “those attitudes, behaviors, and strategies which facilitate success in school and workplace, such as motivation, perseverance, and self-control.” They are termed “socioemotional skills,” or social, emotional, and affective skills, to differentiate them from cognitive or academic skills.¹

Pioneering work in social cognitive theory has been conducted by Albert Bandura for the past four decades. According to Bandura, individuals operate as part of a triadic causation model that includes three main factors: (1) behavior, (2) internal personal factors (cognitive, affective, and biological), and (3) the external environment. He states that reciprocal interaction among these three factors does not mean that all three will operate equally. Based on the situation and the individual’s personal circumstances, reciprocal interaction will vary.² In presenting the importance of social cognitive theory, Bandura states that “human adaptation and change are rooted in social systems.”³ Therefore, a person’s behavior operates within a broad network of sociocultural influences.

For this study, we focus on one such factor among the personal factors—personality. Personality research is well documented in the field of psychology. Moreover, considering the labor context of this evaluation, we will use the “Big Five” personality factors that have been extensively researched by industrial–organizational psychologists since 1990. Barrick and Mount’s 1991 meta-analysis showed that across occupational groups (professionals, managers, skilled, semiskilled workers), the personality factor that predicts job performance success the best is conscientiousness.⁴ The meta-analysis helped researchers understand the importance of social–cognitive factors (in this case, conscientiousness) that complement traditional cognitive factors (e.g., intelligence), and advanced the understanding of social–cognitive factors in economics.^{5,6}

¹ Gutman, L.M. & Schoon, I. (2013). *The impact of noncognitive skills on outcomes for young people: Literature review*. Education Endowment Foundation.

² Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

³ Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

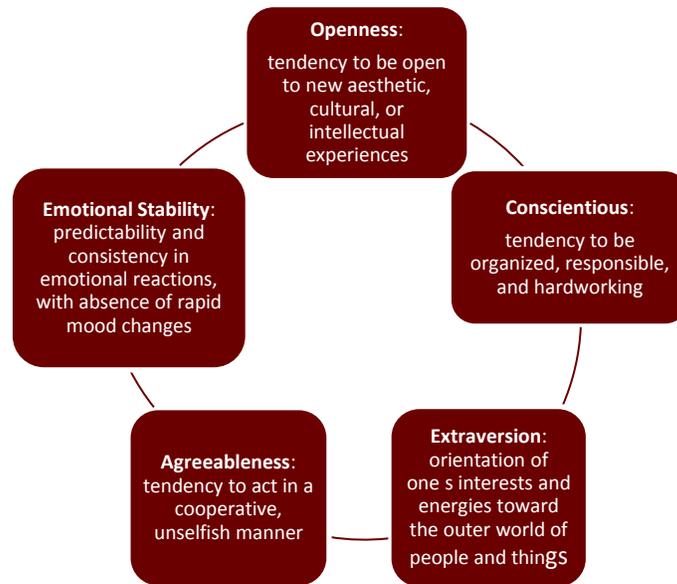
⁴ Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1-26.

⁵ Kautz, T., Heckman, J.J., Diris, R., ter Weel, B., & Borghans. L. (2014, December). Fostering and measuring skills: Improving cognitive and noncognitive skills to promote lifetime success. NBER Working Paper No. 20749. Cambridge, MA: National Bureau of Economic Research.

⁶ Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). *Teaching adolescents to become learners. The role of non-cognitive factors in shaping school performance: A critical literature review*. Chicago: University of Chicago Consortium on Chicago School Research.

The Big Five personality factors are openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism/emotional stability. Exhibit 1 presents the Big Five and their dictionary definitions according to the American Psychological Association. Within this broad framework, we are able to map the socioemotional skills targeted by the YPD program— self-efficacy, conflict resolution, communication, and assertiveness.

Exhibit 1: Big Five Personality Factors



Self-efficacy serves as a mediator for openness and conscientiousness which are complementary constructs for learning and achievement. Within the educational literature, self-efficacy has emerged as complementary to the Big Five personality factors because it predicts academic performance, but also because its operational content identifies pathways that lead to improved performance and successful outcomes, in that it pinpoints specific goal setting, regulated behaviors, investment of effort, persistence and resilience in effort and processing previous mastery experiences within the academic setting.⁷ Among the Big Five, agreeableness is most closely associated with processes and outcomes during interpersonal conflict and conflict resolution skills.⁸ Assertiveness abilities are associated with agreeableness and extraversion.⁹ Finally, communication traits such as aggressiveness, argumentativeness, and communication apprehension can be related directly to the Big Five through extraversion (associated with

⁷ McIlroy, D., K. Poole, O.F. Ursavas, & A. Moriarty. (2015). *Distal and proximal associates of academic performance at secondary level: A mediation model of personality and self-efficacy*. Learning and Individual Differences, 38. pp. 1-9. ISSN 1041-6080

⁸ Jensen-Campbell, L. & W. Graziano. (2001). Agreeableness as a Moderator of Interpersonal Conflict. *Journal of Personality*, 69. Pp. 323-362

⁹ Kamrath, L. K., McCarthy, M. H., Cortes, K., & Friesen, C. (2015). Picking one's battles: How assertiveness and unassertiveness abilities are associated with extraversion and agreeableness. *Social Psychological and Personality Science*, 6(6), pp. 622-629.

expressiveness), agreeableness (associated with aggressiveness) and emotional stability (associated with communication apprehension).¹⁰

In alignment with this literature, we hypothesize that socioemotional skills like the ones reinforced by the YPD intervention have the potential to generate important changes in both school and labor outcomes. To look into these mechanisms of change, we plan to collect, in addition to labor outcomes, proxy measures of socioemotional skills and education and career aspirations through surveys, measures of student learning through test scores, and school attendance, disciplinary infractions, and program completion through administrative records.

2.2 Prior Research

Even though socioemotional skills have largely been overlooked in international development programming until recently, there is research evidence that these socioemotional skills often predict meaningful life outcomes with the same or greater power as cognitive skills do. In fact, socioemotional skills may not only have strong positive effects on improving academic learning, but can also be associated with positive effects in later life, such as improving health and labor outcomes and reducing crime rates.^{11,12}

Cognitive and socioemotional skills are complementary and mutually reinforcing. The various skills cross-fertilize each other to enable human development and performance improvements.^{13,14} Effective programs to promote learning and develop human potential require a holistic conceptualization of human development and a recognition that both sets of skills—cognitive and socioemotional—are critical factors to a successful education and career and are malleable to different degrees at various stages over the life cycle.

Socioemotional skills are not set in stone at birth, as indicated by Bandura’s research on social cognitive theory. As presented earlier, the three main classes of determinants in Bandura’s social cognitive model include factors (behavior, personal, and environmental) that are not present at birth. Although socioemotional skills may partly be determined by genetics, they are also greatly influenced by social environments, including families, schools, and peers. Investment in socioemotional skills in the early years generally has a higher economic return than investment in the later years because such investment builds the base for subsequent investment. In effect,

¹⁰ Jensen, M. (2016). Personality Traits and Nonverbal Communication Patterns. *International Journal of Social Science Studies*. 4(5) pp. 57-70.

¹¹ Kautz, T., et al. (2014). Fostering and measuring skills: improving cognitive and non-cognitive skills to promote lifetime success. NBER Working Paper No. 20749. Cambridge, MA: National Bureau of Economic Research

¹² Farrington, C.A., et al. (2012). *Teaching adolescents to become learners. The role of non-cognitive factors in shaping school performance: A critical literature review*. Chicago: University of Chicago Consortium on Chicago School Research.

¹³ Ibid.

¹⁴ Borghans, L., Meijers, H., & ter Weel, B. (2008). The role of non-cognitive skills in explaining cognitive test scores. *Economic Inquiry*, 46 (1), 2-12.

investment today increases the stock of future skills, which, in turn, boosts further the return on investment. That is *dynamic complementarity*, in economics terminology.¹⁵

However, although there is evidence that investment in early childhood programs tends to have higher rates of return than investment in adolescent programs, there are advantages to remediation in later years as well. In fact, during the adolescent years, socioemotional skills tend to be more malleable than cognitive skills because new aspects of socioemotional skills tend to emerge with maturity.¹⁶ As a result, if the early years have been compromised, it is generally more effective during the adolescent years to focus on developing socioemotional skills to remediate early-life skill deficits rather than trying to boost cognitive skills.¹⁷

The evidence on the effectiveness of remediation interventions for adolescents is scarcer than the evidence on early-childhood interventions. Adolescent remediation interventions fall into four categories: (1) mentoring programs for at-risk youth such as Big Brothers Big Sisters in the United States¹⁸; (2) residential-based education programs for school dropouts such as Job Corps¹⁹ and National Guard ChalleNGe²⁰; (3) in-school professional training such as Empres_arios Pela Inclusão Social in Portugal²¹ and Self-Sufficiency Project in Canada²²; and (4) incentives for student performance²³. Most of the studies indicate large short-term benefits; however, very few adolescent interventions have had long-term follow-up to assess whether these effects persist. Additionally, such interventions measure fewer outcomes than the present evaluation.²⁴

Nevertheless, adolescent remediation is feasible, and there are a few well-documented and promising interventions. The evidence from the small number of long-term evaluations such as

¹⁵ Kautz, T., et al. (2014). Fostering and measuring skills: improving cognitive and non-cognitive skills to promote lifetime success. NBER Working Paper No. 20749. Cambridge, MA: National Bureau of Economic Research.

¹⁶ Farrington, C.A., et al. (2012). *Teaching adolescents to become learners. The role of non-cognitive factors in shaping school performance: A critical literature review*. Chicago: University of Chicago Consortium on Chicago School Research.

¹⁷ Kautz, T. et al. (2014). Fostering and measuring skills: improving cognitive and non-cognitive skills to promote lifetime success. NBER Working Paper No. 20749. Cambridge, MA: National Bureau of Economic Research.

¹⁸ Tierney, J. P., J. Baldwin-Grossman, & N.L. Resch. (1995). Making a difference: An impact study of Big Brothers Big Sisters. Report, Public/Private Ventures.

¹⁹ Schochet, P. Z., J. Burghardt, & S. McConnell. (2008). Does Job Corps work? Impact findings from the National Job Corps Study. *American Economic Review* 98 (5), 1864-1886.

²⁰ Millenky, M., et al. (2011). Staying on course: Three-year results of the National Guard Youth ChalleNGe evaluation. Report 06/2011, MDRC.

²¹ Martins, P. S. (2010). Can targeted noncognitive skills programs improve achievement? Discussion Paper 5266, IZA.

²² Gottschalk, P. (2005). Can work alter welfare recipients' beliefs? *Journal of Policy Analysis and Management* 24 (3), 485-498.

²³ Fryer, R. (2010). Financial incentives and student achievement: evidence from randomized trials. NBER Working Paper No. 15898. Cambridge, MA: National Bureau of Economic Research.

²⁴ Kautz, T., et al. (2014). Fostering and measuring skills: improving cognitive and non-cognitive skills to promote lifetime success. NBER Working Paper No. 20749. Cambridge, MA: National Bureau of Economic Research.

those of the Career Academies²⁵ and Quantum Opportunity Program²⁶ suggests that interventions that target socioemotional skills over cognition and academic learning tend to be more beneficial for adolescents.²⁷ The follow-up period of the majority of remediation programs is too short to determine whether the programs have had lasting effects on meaningful outcomes, but the evidence points to specific features that may make some interventions more successful than others. These interventions include:

- Workplace-based interventions that teach socioemotional skills have tended to be the most effective remediation interventions, especially in helping youth develop an occupational identity, a professional ethic, and self-esteem based on accomplishments. In effect, such interventions motivate acquisition of work-relevant skills among disadvantaged youth while providing them with discipline and guidance. Many youth come from families in which such guidance is missing.
- Interventions that provide tutoring in very small groups or one-on-one mentorship allow students and mentors to form strong attachments, similar to the mentoring and attachments that successful families give their children. Evidence from evaluations of adolescent remediation suggest that interventions with large group activities or interventions that group only high-risk students together may induce negative peer effects.²⁸
- Interventions that provide very specific types of information or assistance to targeted groups, such as assisting parents with completing financial aid forms for college, can significantly affect targeted outcomes (e.g., college enrollment).^{29,30} If monetary incentives are included as part of an intervention, it is important that they can be used only for specific purposes, such as bus fares or college tuition, to mitigate the possibility of beneficiaries using the stipend to purchase drugs or alcohol (a concern that arose in the evaluation of the Quantum Opportunity Program).³¹

The impact evaluation of the YPD program will contribute to the research literature in several ways. First, the YPD program replicates several of the “successful” features mentioned earlier, such as one-on-one mentoring and work-relevant skills in a program-based setting. Second, because YPD targets adolescents, our study will help expand the evidence base on effective adolescent remediation. In addition, the evaluation design will provide causal evidence of

²⁵ Kemple, J. & C. Willner. (2008). Career Academies: long-term impacts on labour market outcomes, educational attainment, and transitions to adulthood. Report 06/2008, MDRC.

²⁶ Rodriguez-Planas, N. (2012). Longer-term impacts of mentoring, educational services, and learning incentives: Evidence from a randomized trial in the United States. *American Economic Journal: Applied Economics* 4, (4), 121-139.

²⁷ Kautz, T., et al. (2014). Fostering and measuring skills: improving cognitive and non-cognitive skills to promote lifetime success. NBER Working Paper No. 20749. Cambridge, MA: National Bureau of Economic Research.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Bettinger, E.P., et al. (2012). The role of application assistance and information in college decisions: Results from the H&R Block FAFSA experiment. *Quarterly Journal of Economics*, 127 (3), 1205–1242.

³¹ Kautz, T., et al. (2014). Fostering and measuring skills: improving cognitive and non-cognitive skills to promote lifetime success. NBER Working Paper No. 20749. Cambridge, MA: National Bureau of Economic Research.

program impacts on youth outcomes. Furthermore, we will investigate a much more comprehensive set of outcomes compared to previous research. We will include cognitive skills measured by test scores, self-reported measures of socioemotional skills and behavioral indicators that can be considered proxies for socioemotional development (e.g., school attendance, disciplinary infractions), and labor market outcomes such as likelihood of working or not, likelihood of participating in hazardous work, number of hours worked, likelihood of participating in irregular employment, and likelihood of participating in other risky activities (see Section 6.1 for a detailed list of research questions and outcome specifications). Finally, we will test the hypotheses of lasting causal effects over time and we will measure both short-term impacts at the end of the program and medium-term impacts one year after completion of the program.

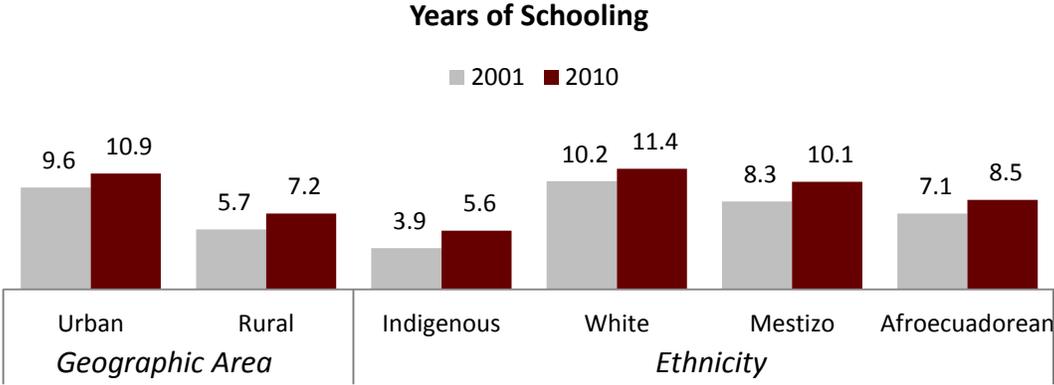
3. The Young Potential Development Program

In this section, we provide background on education in Ecuador, an overview of the CBA program in Quito, and a more detailed description of the YPD intervention.

3.1 Background

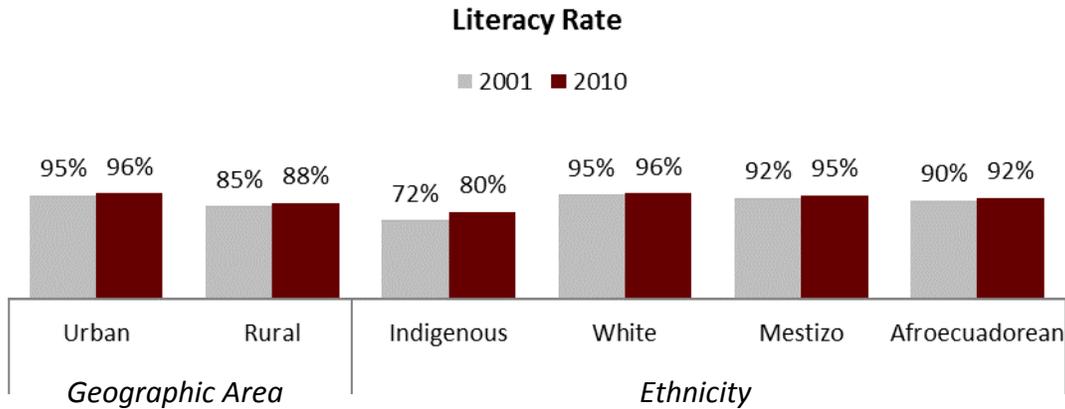
According to the World Bank, Ecuador is an upper-middle-income country with a population close to 16 million people. Between 2006 and 2014, the country moved towards inclusive economic growth, which reduced extreme poverty from 17 to 8 percent. Educational outcomes such as literacy and number of years of completed schooling also improved during that period, although gaps across geographical areas and ethnicities remain (see Exhibit 2 and Exhibit 3). This suggests that certain subgroups of the population, such as indigenous groups and rural populations, remain more vulnerable than others despite economic progress.

Exhibit 2: Geographical Disparities in Years of Schooling



Source: Contrato Social por la Educación en el Ecuador. Educational indicators available at <http://www.educacionencifras.ec/>.

Exhibit 3: Geographical Disparities in Literacy Rate



Source: Contrato Social por la Educación en el Ecuador. Educational indicators available at <http://www.educacionencifras.ec/>.

In Ecuador, the *Educación General Básica* consists of the *preparatoria*, *básica elemental*, *básica media*, and *básica superior* (encompassing the equivalent of kindergarten, elementary and middle school in the U.S. educational system), covering children from ages 5 to 14 (see Exhibit 4 for schooling levels).

Exhibit 4: Ecuador’s Education System

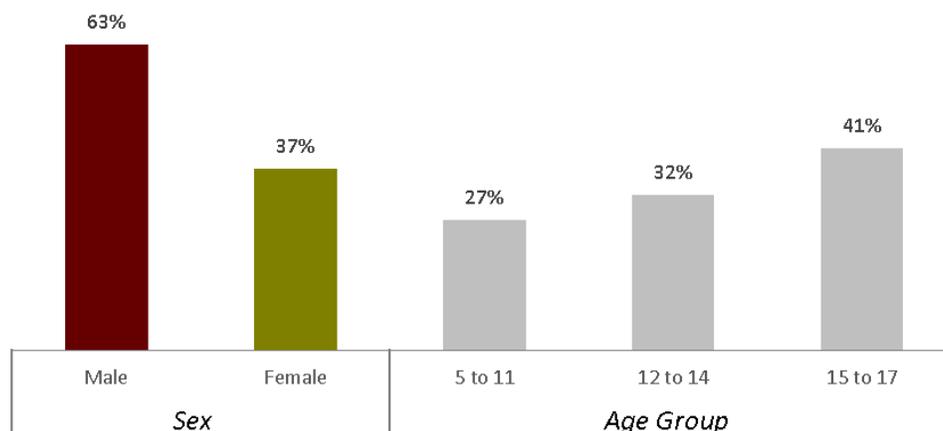
Age	Grade	Institutional Level in Ecuador		Proxy U.S. Equivalent
5	1	Educación General Básica	Preparatoria	Kindergarten
6	2		Básica elemental	Elementary school
7	3			
8	4			
9	5		Básica media	Elementary school
10	6			
11	7		Básica superior	Middle school
12	8			
13	9			
14	10	Bachillerato General Unificado	High school	
15	1			
16	2			
17	3	Universidad/Educación Profesional	University/Technical	
18				
19				
20				
21				
22				

The enrollment rate for students between 6 and 11 years of age reaches 98 percent, but declines in the *básica superior* to 97 percent and 93 percent, for 12- and 14-year-olds, respectively.³² Enrollment rates have not been this high in the past. In fact, approximately half of all adults³³ have not completed the *Educación General Básica*. The main reasons for dropping out of school are lack of resources (36 percent), need to work (23 percent), lack of interest (13 percent), and domestic chores (7 percent), the last affecting mainly women.³⁴

Children who drop out of school to work at an early age are a concern, which is one of the reasons the government increased the years of free and compulsory education through tenth grade. The National Plan for Good Living includes an objective to eliminate child labor for children between 5 and 14 years of age by 2017.³⁵ In addition, the government launched several campaigns in the past targeting certain kinds of hazardous labor.³⁶ For example, Ecuador was the first country in Latin America to eliminate child labor in landfills in 2011, and the following year, child labor in municipal slaughterhouses was eliminated.³⁷

Despite these advances, approximately 360,000 minors between 5 and 17 years of age (9 percent) reported being engaged in child labor during the latest national household survey in 2012. This number is higher, at 16 percent, among children living in rural areas and, at 29 percent, for children of indigenous descent. Exhibit 5 summarizes the overall characteristics for children engaged in child labor. Of the 9% nationwide, almost two-thirds of children in child labor were male (63 percent) and the majority (41 percent) were between 15 and 17 years old.

Exhibit 5: Children Engaged in Child Labor by Age and Sex



Source: ENTI 2012. National Survey for Child Labor available at <http://www.ecuadorencifras.gob.ec/trabajo-infantil/>.

³² The Ecuadorian Constitution requires that all children attend school until they achieve a “basic level of education,” which is free of charge. However, families still need to cover expenses such as fees and transportation costs.

³³ Over the age of 14.

³⁴ Contrato Social por la Educación. Educational indicators available at <http://www.educacionencifras.ec/>.

³⁵ Objective 9.5 at <http://www.buenvivir.gob.ec/objetivo-9.-garantizar-el-trabajo-digno-en-todas-sus-formas#tabs3>

³⁶ Child labor definitions are presented in Section 2.7.

³⁷ ILAB Report 2012. Findings on the worst forms of child labor are available at <https://www.dol.gov/ilab/reports/child-labor/findings/2012TDA/ecuador.pdf>.

According to the Quito Secretariat of Education, the main local government office that administers and oversees education programs in municipal schools in the capital city of Ecuador, about 20,000 children and youths are not attending school in Quito.³⁸ To address this concern, the Secretariat designed the *Ciclo Básico Acelerado* (CBA)—an intensive program in which students complete the eighth, ninth, and tenth grades in 10 months and obtain a certification allowing them to continue their education in the *Bachillerato General Unificado*. The CBA program recruits students through outreach campaigns that target at-risk youth between 15 and 24 years of age who dropped out of school and have missed one to three years of schooling. These youths often face substantial challenges such as teen pregnancy, violence in the home, gang activities, migration, and substance abuse. According to the Secretariat, about 7,000 students have graduated from the CBA program since its inception in 2009.

The CBA is free of charge, including educational materials, school supplies, and uniforms. During the first six weeks of classes, the CBA program coordinator and teachers meet with parents or guardians, when feasible, to explain the CBA's expectations and collect administrative information. At the same time, students are given a series of diagnostic evaluations to assess their educational levels and psychological profiles. Depending on the initial diagnostics, students may be offered additional in-depth evaluations.

Regular CBA classes are held five days a week in selected municipal schools during the afternoon, usually from 2:00 p.m. to 6:45 p.m. There are no official data on this issue, but from conversations with students it is known that the most common activities they engage in before classes at 2pm are: staying at home, homework, taking care of children and doing household chores, helping adults out on their jobs (shoe cleaners, informal sellers on buses), working formal jobs - like security guards or cleaning maids, among others. At the end of the school year, students take standardized final exams for each core subject. The CBA curriculum includes nine subjects: math, language, natural sciences, social sciences, English, computer science, arts, physical education, and Cultural and Artistic Education. To complete the CBA and graduate, students need at least 7 out of 10 points to pass each subject, and no more than 20 unjustified absences.

During the 2014–2015 school year, to implement the CBA in 15 municipal schools in Quito and surrounding areas, the CBA program recruited 75 teachers and enrolled approximately 1,600 students (see Exhibit 6). These teachers were hired to teach exclusively in the CBA program based on their pedagogical as well as their counseling skills.³⁹ Teachers are assigned to one, two, or

³⁸ Secretaria de Educación de Quito. Inclusión Educativa. Available at http://www.educacion.quito.gob.ec/index.php?option=com_content&view=article&id=110&Itemid=173.

³⁹ The Secretariat organizes activities called “oxygenation activities” to help CBA teachers manage work-related stress. Unlike regular primary education teachers, who are government appointees, CBA teachers are hired as consultants. This poses a problem for teacher retention because many teachers leave the CBA program after being offered appointments as regular primary education teachers. However, the Secretariat staff expect most teachers to continue in the CBA program for the upcoming school year, explaining that teachers often find the experience personally rewarding, albeit challenging.

more subjects, depending on the school size. The number of classrooms in each school ranges from two classrooms for the smaller schools such as Cotocollao, to up to eight classrooms for the largest schools such as Fernández Madrid. There are approximately 25 to 35 students in each classroom, divided by age groups.⁴⁰

Exhibit 6: Schools, Teachers, and Students in Target Areas

School Name	Number of Teachers	Number of Students	Number of Classrooms
Bicentenario	5	133	4
Calderón	4	103	3
Cotocollao	5	140	4
Eugenio Espejo	5	124	4
Fernández Madrid	10	210	8
Humberto Mata Martínez	4	82	3
José Ricardo Chiriboga	5	121	4
Juan Wisneth	4	88	3
Manuel Cabeza de Vaca	3	73	2
Nueve de Octubre	3	48	2
Oswaldo Lombeyda	3	53	2
Rafael Alvarado	4	101	3
San Francisco de Quito	3	74	2
Sebastián Benalcázar	5	136	4
Sucre	6	159	5

Source: Quito Secretariat of Education (2014).

Over the years, the objectives of the CBA program have expanded beyond the initial goal of reinserting students into the school system. The program staff at the Secretariat of Education believe that completing the CBA benefits its graduates even if they choose not to continue to *Bachillerato* (high school), because students learn life skills in the program.

During the 2014–2015 school year, the Secretariat of Education partnered with a local non-governmental organization (NGO) called Young Potential Development Ecuador (YPDE)⁴¹ to pilot a training program for some of its CBA teachers as part of ongoing efforts to improve the effectiveness of the CBA program. Although 15 municipal schools in Quito were participating in the CBA program, only four had YPD-trained teachers. From these four schools, the teachers who teach *educación para la ciudadanía* (citizenship education) were chosen to receive the YPD training. The citizenship education class covered diverse topics at the discretion of teachers, and to some extent in an ad-hoc fashion, including sexuality, intra-family violence, ethics and values, human rights and democracy, political participation, and civic engagement. During the 2016-2017

⁴⁰ Because students 18 to 21 years of age are legally adults, they cannot be combined in classes with younger students.

⁴¹ To avoid confusion, we refer to the program as YPD and to the implementing organization as YPDE.

school year, citizenship education will be replaced by the Cultural and Artistic Education class. Similarly, the Cultural and Artistic Education class will cover a range of topics in a lecture style (e.g. music history, theater and cultural visits, etc.). The YPD intervention, described in more detail in the following section, complements the Cultural and Artistic Education curriculum with team-building exercises, self-efficacy activities, and communication challenges, allowing teachers to practice experiential learning in their day-to-day classroom routines.

3.2 Program Description

The Young Potential Development (YPD) program is an independent initiative that seeks to develop youths' interpersonal, career-oriented, and socioemotional skills to prepare them for higher education, productive work, and/or entrepreneurship. It is implemented by "YPD captains," young adults with background in education, psychology, and sociology, who are in charge of training and supporting CBA teachers to deliver content in innovative ways and engage students interactively in exercises aimed at developing competencies for the 21st century. The focus is on building and sustaining productive relationships between students and teachers to help teachers integrate the development of socioemotional skills into their daily classroom activities and subject matter.

The YPD program is implemented during the Cultural and Artistic Education class for two consecutive class periods each week. The intervention consists of several components. An important classroom preparation instrument is the YPD Box, a series of 50 DVDs with more than 80 hours of content that present the basis for experiential learning. This professional development material is designed for the use by individual teachers. The DVDs contain a set of video sessions targeted at different teacher and student learning styles. Each session is guided through interactive formats, allowing the teacher to use it as introduction to a classroom activity or to guide conclusion exercises with their students. The DVDs are supplemented with a handbook that clearly defines the objectives and methodology for each lesson (also called "challenge"), including recommendations on how to set up the classroom for better student-teacher interaction, how to address students' questions, and how to offer constructive feedback. Through the school-year-long curriculum and coaching, the YPD's main objective is to enable teachers to sustain these practices during their teaching careers, so that they can replicate the YPD effect in the future and even apply the learned skills in their personal lives.

In addition the DVD-based training materials, the YPD program hires, trains, and provide YPD captains. YPD captains are professionals with university degrees in education, psychology or sociology who are selected after an individual interview and a group exercise in which they demonstrate their problem-solving and team-work capacities. After selection into the program, they undergo a week-long training with the local YPD Team and 50 hours of online training and Skype sessions with the YPD Spain team.

On a typical day in the program, the teacher and the YPD captain use the videos to introduce the challenge that students will work on for that day (these introductions include virtual visits to numerous industry events, companies, career fairs, and the like). Next, the teacher and the YPD

captain model what teamwork will look like for the specific challenge and plan enough time for students to work on their projects freely. Last, the teacher uses the DVD as a teaching aid to promote discussion in the classroom about developed skills, discovered talents, and obstacles faced in the process.

Teachers implement 25 experiential learning topics throughout the school year, such as development of business plans, social issue debates, toy construction, stress management, dance and yoga routines, social responsibility, and community service (see Exhibit 7 for students presenting their business plan). Before each class, the YPD captain meets with the teacher to go over the DVD material and its adaptation to each specific student group's interest and background, and explains the classroom activity (e.g., building a toy with a team) and the goal of the lesson (e.g., effective verbal and nonverbal communication, how to manage uncomfortable situations, and empathic communication skills). During the lesson, the teacher implements the activity with the support of the YPD captain as needed (see Exhibit 8 for students showing their completion diplomas with their YPD captain and their teacher).

Specifically, the YPD intervention consists of the following activities:

1. An introductory seminar with teachers selected for the program is held prior to the beginning of the school year, when they receive the YPD Box and guidance on how to use it.
2. One YPD captain is assigned to each teacher. The YPD captain and the teacher meet one day a week to review the DVD material and prepare lesson plans.⁴²
3. The YPD captain attends the class, collaborates with the teacher during class, and provides live feedback and practical advice regarding the implementation of the methodology. Specifically, the captain observes and guides the levels of energy, question asking, and direct student interaction that the teacher must transmit while implementing the lessons. The captain also develop teachers' and students' capacity to give each other constructive feedback, communicate efficiently in the classroom, and voice their concerns in their schools. The relationship between teacher and YPD captain reflects a co-teaching model in the classroom, producing more individualized learning experiences for each student along the way.
4. The YPD captain interacts directly with the students, serving as a role model and acting as a close peer. The captain helps the teacher in the development of diverse activities as "extra hands" to identify students' individual talents and needs.
5. All YPD captains and teachers from different schools meet three times during the school year to exchange experiences and discuss difficulties, best practices, and achievements.

⁴² Each YPD captain supports no more than four teachers so that he or she can devote one day per week to each teacher.

Exhibit 7: Students Showing Their Business Plan to Start a Bakery



The following are the main YPD program goals:

- Introduce project-based learning strategies and innovative activities that are career focused and serve as relevant introductions to higher education and work through training of teachers, so these elements become fully integrated into their classroom routines. These activities are designed for youths and incorporated into daily school lessons, teaching plans, and classroom activities, thus making it interesting and valuable for students to stay in school, preventing dropout and child labor, and improving school climate through improved teacher–student interactions.
- Promote a better self-perception among low-income youths and positive and pro-active attitudes, so they become empowered to contribute to society through higher education, entrepreneurship, and citizenship.
- Foster a generation of youths who are empathetic and well-equipped problem solvers.
- Promote the interaction among trained teachers who are empowered to affect change in the interactions of their schools, to improve school climate, and to improve teaching practices in both the short- and medium-term.

Exhibit 8: Students Showing Their Completion Diplomas with Their YPD Teacher and Mentor



3.3 Program Implementation and Expansion

During the 2014–2015 school year, the YPD program was implemented in four schools, reaching approximately 400 students. Informal interviews with teachers suggest that students receiving YPD are more engaged in school and develop trusting relationships with their teachers and YPD captains. Initial discussions with CBA staff at the Secretariat of Education confirmed their positive perception of the YPD program. Furthermore, YPD staff collected students’ surveys and recorded testimonials, which suggest favorable opinions on the program effects on self-efficacy, communication skills, and school climate. The Secretariat expanded the YPD training during the 2015–2016 school year to seven schools, including the ones that have already participated in 2014–2015, reaching approximately 600 students. The program is set to expand to 7 schools during the 2016-2017 school year reaching over 1,000 students.

4. Child Labor Terminology: Common Definitions

The International Labor Organization (ILO) defines child labor as any type of “work that is mentally, physically, socially or morally dangerous and harmful to children, and interferes with

children's education by: (i) denying them an opportunity to attend school, (ii) obliging them to leave school prematurely, or (iii) requiring them to attempt to combine school attendance with excessively long and heavy work."⁴³

In addition, ILO outlines a specific criteria for the statistical measurement of child labor across countries. The 18th International Conference of Labor Statisticians (ICLS) states that

"[c]hildren engaged in child labor include all persons aged 5 to 17 years who are engaged in any of the following:

- 1) worst forms of child labor*
- 2) employment below the minimum age*
- 3) hazardous unpaid household services, applicable where the general production boundary is used as the measurement framework*⁴⁴

A child may be considered in child labor when the total number of hours worked in employment and unpaid household services exceeds the thresholds that may be set for national statistics purposes" (ICLS 18, par. 15 and 16).

Ecuador has ratified ILO's major conventions on minimum working age and worst forms of child labor (138 and 182, respectively) as well as the United Nation's Convention on the Rights of the Child. The relevant national legislation regulating work prohibited to minors are the Ecuador's Labor Code (LC, 2005), the Childhood and Adolescence Code (C&A, 2003) and Resolution 16 of the National Council for Childhood and Adolescence (CNNA16, 2008).

National legislation does not include detailed terminology to define the different categories of children in employment or in child labor, like *light work* or *hazardous household services*. However, it codifies in its labor laws the obligatory components set forth in the relevant international treaties, such as defining the basic minimum working age and minimum age for hazardous work, limits on hours and conditions for working adolescents and the abolition of the worst forms of child labor. More details on each of these elements are provided below.

Worst Forms of Child Labor

Ecuador's Labor Code (art. 138) provides a framework for the types of work that is prohibited to minors by incorporating ILO's description of what constitutes the worst forms of child labor. It includes a brief list of work that "by its nature or conditions" may be harmful to the health, security or morality of minors, which is further defined in ILO's Recommendation 190 as hazardous child labor (HCL). The C&A Code also provides a list of prohibited work closely related to the HCL list in the Ecuador's LC that outlines the broad types of work that are prohibited for adolescents (see Appendix 1 for more details). The National Council for Childhood and Adolescence is the government body in charge of maintaining the detailed list of work activities

⁴³ ILO What is child labor, defining child labor at <http://www.ilo.org/ipec/facts/lang--en/index.htm>

⁴⁴ ILO. *Resolution II: Resolution Concerning Statistics of Child Labor*. ICLS 18th Conference, 2008. pg. 58-66. http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_101467.pdf

prohibited to minors that expands on the C&A Code list (CNNA16, see Appendix 1 and Appendix 2 for details).⁴⁵

Minimum Legal Age

The Ecuadorean Constitution sets the minimum working age for adolescents at 15 years old.^{46,47} According to the C&A Code, adolescents between 15 and 17 years old may work under protected conditions described below.⁴⁸ The required minimum age for hazardous work is 18.⁴⁹

Working Day and Workplace Conditions

The Constitution and the Labor Code designate the number of hours and type of work permitted for working adolescents. Adolescents may not work more than 6 hours a day or 30 hours a week, over a maximum of 5 days a week. Night work between 7 PM and 6 AM is prohibited as well as other hazardous workplace conditions, activities or occupations that may endanger their development or well-being (see Appendix 1 for more details).

Hazardous Unpaid Household Services

Although the number of hours for household chores are not explicitly limited in national laws, Ecuador's National Statistics Office keeps track of children and adolescents aged 5 to 17 who are engaged in household work for more than 14 hours a week. It includes these statistics alongside the reports of children engaged in child labor. The 19th ICLS (Report III, par. 41) notes that children who combine household chores with employment are less likely to be in school. It also indicated that a 20 hours a week threshold could be a useful guide to determine long hours in household chore.⁵⁰ Since there is no agreed upon definition for long hours in household services, we will present the findings using both thresholds (more than 14 hours and more than 20 hours).

For this evaluation, we apply the child labor measurement framework⁵¹ criteria outlined by the ILO to the CBA minor population, which is the group between 15 to 17 years old, who is currently in employment. Specifically, the CBA working adolescents will be considered to be engaged in child labor if they are working in designated hazardous industries, or hazardous occupations, or under hazardous working conditions (e.g. exposed to dangerous substances, working at heights etc.), including night work and long hours, regardless of the industry or occupation. Thus, in the context of this evaluation, adolescents between ages 15 and 17 will be considered to be in child labor if they are in hazardous child labor. More details on how hazardous industries, occupations, long hours and conditions as defined in the context of Ecuador legislation are presented in

⁴⁵ This is in line with ILO's recommendation that "[t]he types of work referred to under Article 3(d) [hazardous child labor] shall be determined by national laws or regulations or by the competent authority..." (C182, art. 4)

⁴⁶ ILO & Ecuadorean Constitution and Childhood and Adolescence Code 2003

⁴⁷ Any individual under 18 years of age is considered a minor by the Constitution of Ecuador.

⁴⁸ The Childhood and Adolescence Code treats individuals who turn 18 years old as adolescents under certain exceptional circumstances outlined in the Code.

⁴⁹ Childhood and Adolescence Code 2003

⁵⁰ http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_234124.pdf

⁵¹ http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223907.pdf

Appendix 1. While prevalence of household chores are not formally included in the child labor definitions, they will be presented separately.

Because the CBA program accepts individuals aged 15 to 24 years old, the child labor definitions applicable to this evaluation is the age group 15 to 17. The rest of the young adults targeted by the CBA program are ages 18 to 24. Although they are above the legal working age and technically not in child labor, we still will measure whether they are working in hazardous industries, hazardous occupations, at night or under hazardous working conditions since hazardous work is not acceptable for adults either. This is a particularly interesting aspect of this study. We will have the opportunity to look at the differences in exposure levels to hazardous working conditions between teenagers who are still considered legally as children (15-17 year old) and youth who just crossed that threshold (above 18 years old) but who in every other way face similar circumstances.

Implementing partner staff suggest that many of the youths targeted by the YPD program are exposed to hazardous activities such as gang violence, drug trafficking, and prostitution, which constitute the worst forms of child labor (WCL). While the immediate goal of both the CBA and the YPD intervention is not to remove students from both WCL or HCL, we would expect that better socioemotional skills and better school outcomes in turn help students have better economic opportunities and change the types of activities they are involved in, including possibly involvement in WCL, as described in more detail in the logic model in Section 5. Specifically, previous research (see Section 2.2) has shown the importance of noncognitive skills in affecting child development, and that noncognitive skills are especially critical factor for adolescents and young adults in determining school and labor market outcomes. Some examples of the questions we plan to include in the survey to capture aspects like gang violence, drug trafficking and prostitution are presented in Appendix 2.

In addition to measuring outcomes like hazardous work and illicit activities, it is also important to capture more refined aspects of youth employment, specifically involvement in activities that are more stable and conducive to more productive employment opportunities. This can be important for our entire youth population, where a large fraction of youth may be employed in non-formal employment activities characterized by instability and lack of social protection. Specifically, to capture some of these aspects ILO uses the concept of *irregular employment* (Global Employment Trends for Youth, 2015), which is the sum of three components: vulnerable employment, casual wage employment and temporary (non-casual) employment, where each of the components is defined as follows:

1. **Vulnerable employment** includes own-account workers and contributing family workers. These groups are often characterized by inadequate earnings, difficult conditions of work that undermine their fundamental rights, or other characteristics of decent work deficits
2. **Casual wage laborers** mostly include seasonal or occasional jobs or workers in task-based jobs who usually face precarious nature of employment and lack of access to social protection
3. **Temporary workers (non-casual)** are paid employees engaged on a contract with a duration of less than 12 months.

5. The Theory of Change: A Program Logic Model Representation

The main objective of this impact evaluation is to estimate the incremental effect of the YPD program, as a distinct component of the CBA initiative, on several youth outcomes. To better understand the causal pathways through which these effects are generated, we developed a program logic model to guide the evaluation (see Exhibit 9).⁵²

The inputs are defined as the financial, human, and material resources provided by YPDE to support the YPD activities. The activities comprise the actions that are taken by the YPD implementers (YPDE staff and captains) and the YPD trained teachers to convert the inputs into outputs (e.g. number of hours of YPD training, number of hours of YPD captains presence and support in classrooms, number of students exposed to the YPD program). The outputs are then used by the target population to achieve the intended results. Finally, the short- and mid-term outcomes are the expected effects of the programs on the participating students and teachers (e.g. increased self-efficacy, increased school attendance, reduced participation in hazardous work, etc.). The relationships among inputs, activities, and outputs are critical for understanding the mechanism through which the program generates impacts on the outcomes experienced by beneficiaries.

As a first step in building the program logic model, we describe the implementing organization and their inputs. YPDE is the NGO that implements the YPD program, by providing resources to conduct the teacher training, and staffing that includes the YPD captains. YPDE provides each teacher with DVDs and other materials to conduct the YPD activities, as previously described, and supports the teachers throughout the school year. Finally, we consider the weekly presence of the YPD captains in the classroom and their personal interaction with students as a direct input of the program because students would not receive this if they are not program beneficiaries.

The outputs are the things that were “produced” by the YPD program. As a result of the program, YPD trains a number of teachers by delivering 80 hours of training per teachers, by delivering 50 DVDs and a handbook with methodology, by preparing weekly lessons with teachers, and by supporting the teachers directly during each class. Another output of the program is a number of students who are directly exposed to the YPD curriculum and YPD instructional approach.

We next describe the logic behind how the effects of the YPD program materialize (i.e. how the outputs listed above lead to outcomes). As mentioned earlier, the YPD curriculum is an add-on to the Cultural and Artistic Education course and complements the curriculum covered in the Cultural and Artistic Education course. In other words, students who take the citizen education course with YPD trained teachers receive both the Cultural and Artistic Education curriculum as prescribed by the Quito Secretariat of Education as well as the YPD curriculum. Moreover, in addition to the extra content, the participating students benefit from the innovative pedagogy that YPD trained teachers apply in delivering the content. Under the guidance of YPD captains,

⁵² The boxes on the left of the exhibit show the inputs and activities and the boxes on the right show the outputs and outcomes of the activities.

the instructional method of YPD trained teachers is structured and organized with challenges in order to more effectively deliver content (e.g. teachers develop a lesson plan with specific interactive activities). Furthermore, both the YPD content and the YPD instructional method emphasize a different set of skills. While the traditional Cultural and Artistic Education class is designed to build cognitive knowledge (e.g. learn about human rights and democracy), no practical activities and teaching techniques are prescribed to teachers to foster other skills besides build knowledge. By contrast, a YPD trained teacher is expected to incorporate interactive activities to emphasize 21st century skills such as self-efficacy, communication, conflict resolution, and assertiveness in a class on human rights and democracy, for example. Strengthening socioemotional skills is an explicit goal in YPD classes in addition to building cognitive knowledge.

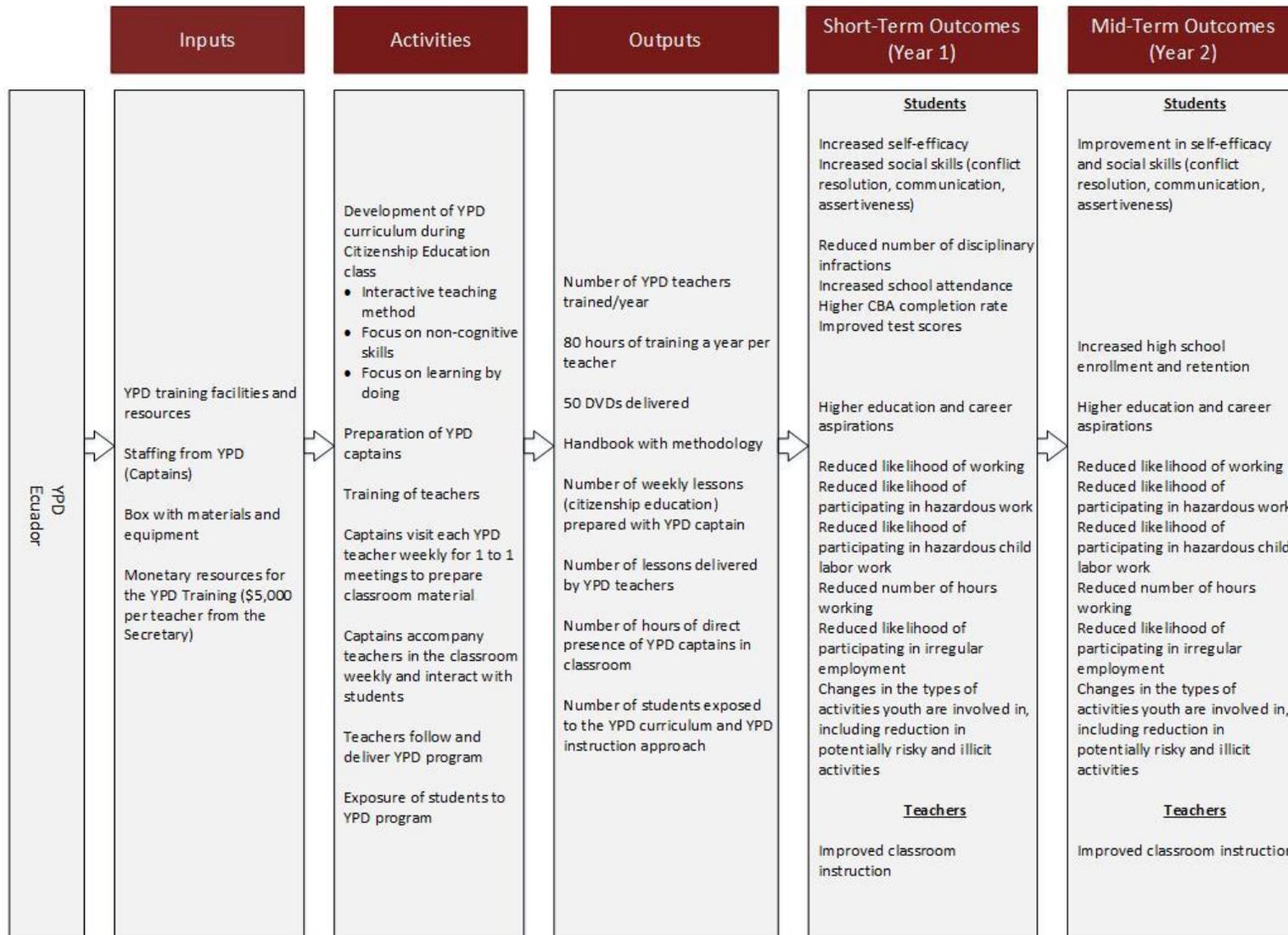
The youth outcomes potentially materialize from the combination of the additional YPD curriculum and the innovative instructional pedagogy applied by the YPD trained teachers. The main purpose of this evaluation is to identify and measure the *incremental effect* that YPD has on youth outcomes. The program logic model thus describes the dimensions along which we might expect the CBA students exposed to YPD to do better relative to the students exposed to CBA alone, with regular CBA students being taught the Cultural and Artistic Education class by teachers who have not received the YPD training.

We next discuss the mechanisms that drive the change in the outcomes that we plan to measure. While YPD students are exposed to direct learning of socioemotional skills during the Cultural and Artistic Education classes taught by YPD-trained teachers, the YPD effect may extend further for two reasons. First, once students improve their socioemotional skills, they are likely to become more engaged in school overall which might improve their engagement and attention in other subjects. In this case, we would expect students to do better in all classes, not only the YPD classes (Cultural and Artistic Education). Second, the YPD teachers, who usually teach Cultural and Artistic Education, are likely to use some of the same YPD teaching methods in the other subjects they teach, even without the direct support of an YPD captain in those classes. The YPD teaching method is focused on a teaching approach that is, at least in part, transferable across teaching subjects, although its direct application might be more evident in classes like Cultural and Artistic Education. Therefore, students would also benefit from improved and more engaging classroom instruction in other classes taught by the YPD trained teachers. Overall, YPD is expected to positively affect other school outcomes such as reduced disciplinary infractions, increased school attendance, higher CBA completion rate, and improved test scores.⁵³

Additionally, the improved self-efficacy coupled with positive school outcomes could lead to higher education and career aspirations which students would have not been able to achieve for themselves in absence of the program. Finally, the increased self-efficacy and enhanced social

⁵³ This spillover poses both a challenge and an opportunity for the evaluation. It is a challenge for the randomization design, described in the next section, because there is the risk that the teacher could “contaminate” the students in non-YPD classes (the control group) if he or she, for example, also teaches math to the control group. This limitation can be overcome by ensuring that the YPD and non-YPD teachers teach separate sets of classes.

Exhibit 9: YPD Logic Model



Contextual Factors: Institutional collaboration, CBA staffing and financial resources, school infrastructure, household/parental support, crime rates, teen pregnancy, distance to school.

skills may enable youth to make different labor market choices leading to a reduced likelihood of working, a reduced likelihood of participating in hazardous (child labor) work, a reduced number of hours working, a reduced likelihood of participating in irregular employment, and changes in the types of activities youth are involved in, including a reduction in potentially risky and illicit activities.

Contextual factors that may affect the functioning of this program include the necessary institutional collaboration between the Quito Secretariat of Education and YPDE and the existing school infrastructure. Other factors that may affect the functioning of YPD can stem directly from the CBA staffing and provided financial resources. It is also important to account for the role played by the household in supporting the adolescent returning to the school system, both motivationally and financially. Finally, neighborhood characteristics such as local crime rates, teen pregnancy rates, and distance to school also play a role in adolescents' access to schools.

Overall, the logic model shows that students are expected to rejoin the school system, receive a high quality education tailored to their needs, and be more likely to further continue their education and find a higher-paying occupation after completion of the program. The expectation is that adolescents who previously dropped out of middle-school and were working (most likely employed in an unsafe and/or underpaid occupation) will have a better chance to successfully reintegrate into the formal education system. These students would not only receive an accelerated curriculum that will allow them to catch up, but also receive complementary education through the YPD program. As a result of YPD program, participants are potentially more likely to improve their self-efficacy, communication, conflict resolution, and assertiveness abilities, to achieve higher school outcomes and improve their labor market outcomes.

6. Experimental Impact Evaluation

Our objective is to produce rigorous quantitative evidence on the effectiveness of the YPD intervention. Our proposed approach is based on a randomized controlled trial (RCT) design to construct a robust estimate of counterfactual outcomes that can be compared against the actual outcomes of program participants. The RCT design will enable us to draw causal inferences of the impacts of the program on a range of school and labor outcomes of at-risk youth.

6.1 Research Questions

We will investigate whether the reinforcement of a particular set of socioemotional skills is successful in removing youths from child labor. Exhibit 10 lists the research questions we will address in the evaluation and the data sources we plan to use. Data for all the research questions will be collected during both the Year 1 and Year 2 follow-ups, which will allow us to measure the short-term and medium-term effects of the program.

Exhibit 10: List of Research Questions

Research Questions	Data Source
<i>NONCOGNITIVE SKILLS</i>	
1. <i>Does YPD improved beneficiaries' self-efficacy?</i>	Primary data collection
2. <i>Does YPD improved beneficiaries' social skills (conflict resolution, communication skills, and assertiveness)?</i>	Primary data collection
<i>SCHOOL OUTCOMES</i>	
3. <i>What is the impact of the YPD program on beneficiaries' disciplinary infractions?</i>	School administrative data
4. <i>What is the impact of the YPD program on beneficiaries' school attendance/absences?</i>	School administrative data
5. <i>Do CBA students exposed to YPD have higher completion rates than regular CBA students?</i>	School administrative data
6. <i>What is the impact of the YPD program on beneficiaries' test scores?</i>	School administrative data
<i>EDUCATION AND CAREER ASPIRATIONS</i>	
7. <i>What is the impact of the YPD program on beneficiaries' education and career aspirations?</i>	Primary data collection
<i>LABOR OUTCOMES</i>	
8. <i>Does the YPD program affect the likelihood of beneficiaries working in HH chores for more than 14 hours a week?</i>	Primary data collection
9. <i>Does the YPD program affect the likelihood of beneficiaries working or not?</i>	Primary data collection
10. <i>Does the YPD program affect the likelihood of beneficiaries participating in hazardous work?</i>	Primary data collection
11. <i>Does the YPD program affect the likelihood of beneficiaries 15 to 17 years of age participating in hazardous child labor?*</i>	Primary data collection
12. <i>Does the YPD program affect the beneficiaries' number of hours worked?</i>	Primary data collection
13. <i>Does the YPD program affect the likelihood of beneficiaries - participating in irregular employment?</i>	Primary data collection
14. <i>Does the YPD program affect the types of activities youths are involved in outside the school, including potentially risky and illicit activities?</i>	Primary data collection

Note: * adolescents between ages 15 and 17 will be considered to be in child labor if they are in hazardous child labor. Refer to Section 4 for details.

All the research questions will be answered using outcome measures collected either by the team with surveys or provided by the schools from existing administrative records. Some outcome measures that rely on administrative data and thus will be available at the Year 1 follow-up, may

not be available at the Year 2 follow-up (e.g. test scores for students who have left the school system).⁵⁴ In particular, data to answer research questions 3, 4, and 6, may not be available for some students in Year 2, given the possible differential attrition from the school system.⁵⁵ This differential attrition will be dealt with, as described in Section 6.10, to ensure unbiased results.

6.2 Evaluation Design

We will conduct an RCT evaluation of the YPD initiative to assess its short-term and medium-term effects on school and labor outcomes. We will randomly assign students within each school into one of two groups:

- *Treatment group*—these students will take Cultural and Artistic Education with an YPD-trained teacher.
- *Control group*—these students will take Cultural and Artistic Education with a teacher not exposed to YPD pedagogical methods.

We will focus our evaluation on the five largest schools that participate in the CBA program in Quito because these schools have each two teachers in charge of teaching Cultural and Artistic Education, whereas smaller schools have only one teacher in charge of that subject. In the schools with two teachers, it will always be the case that one teacher will be trained by the YPD program and the second one will not be trained. Determining which teacher receives the YPD training is a multi-step process. Based on their proximity to the students, their interest in trying out new methodologies and their teaching schedules, the CBA Coordinator in each school will propose teacher's names to the Secretary so that they can be part of the program. The YPDE team then introduces the program with them and explains the commitment it entails. If the teacher voluntarily agrees to be part of the program and commits to doing the work he/she will then become a YPD teacher in their school.

In the randomization design, we will take into account student gender and age group composition within each school to comply with the Secretariat's rules for forming classes. The Secretariat uses two main criteria in dividing students into classes:

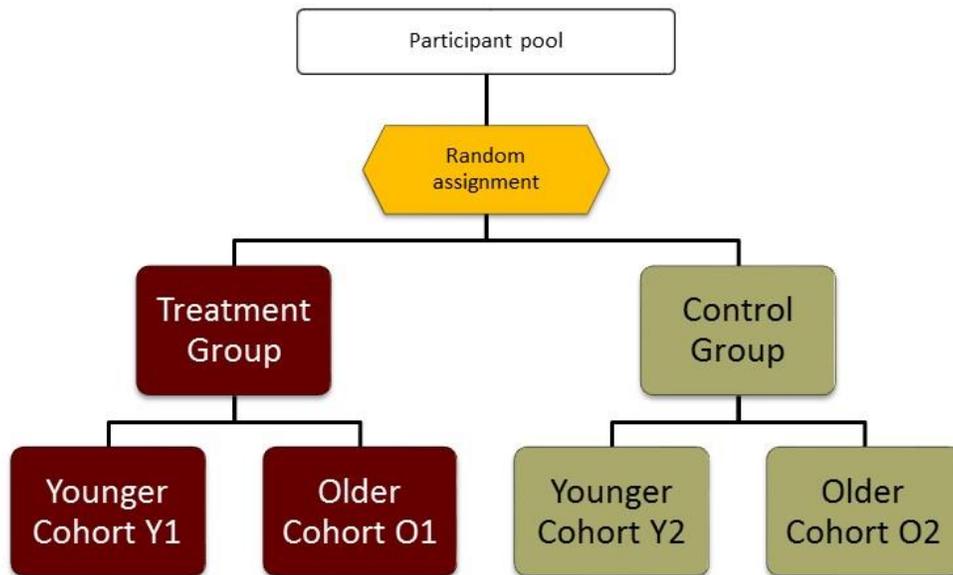
- 1) Age, where students 15 to 17 years of age constitute a younger cohort and students 18 to 24 years of age constitute an older cohort.
- 2) Balanced gender composition, where the boy-to-girl ratio is similar across classes of the same age group.

⁵⁴ We will not have administrative data for children that drop out of the school system, but upon tracking these students we will be able to collect information on the other outcomes.

⁵⁵ We will track students based on all the contact information we can collect at baseline (in addition to contact information that is available from the school records) and also at Year 1 follow-up, and we will work with the survey firm to track them over time.

We propose to stratify students first by age cohort and second by gender, so that we have balanced representation of gender in each age cohort for both the treatment and control groups. This means we will randomize students into treatment and control classes within gender-age groups to have balanced treatment and control groups in terms of age cohort and gender. This will result in two treatment groups (one with young students and one with older students) and two control groups (one with young students and one with older students) in each school, as illustrated in Exhibit 11. We will preserve the gender proportion across the treatment and control groups.

Exhibit 11: Evaluation Design Diagram



The total number of classes in the treatment and control groups will depend on the final number of students in each school and the established class size. For example, assume that there are 100 students in a given school and that there is an even distribution of younger and older cohorts. Assuming a class size of 25 students,⁵⁶ the school will have a total of 4 classes: two with students belonging to the younger cohort (class Y1 and class Y2) and two with students belonging to the older cohort (class O1 and class O2). The randomization in this case will be performed as follows:

- Step 1: Determine which classes will be treatment and which will be control. For example, class Y1 from the younger cohort and class O1 from the older cohort will be the treatment group; class Y2 from the younger cohort and class O2 from the older cohort will be the control group.
- Step 2: Within each cohort, stratify students into two strata based on gender.

⁵⁶ YPD staff stated that working with class sizes larger than 25 students makes the implementation of their teaching methods difficult.

- Step 3: Use random assignment to assign male students in the younger cohort to classes Y1 or Y2 with equal probability; thus, each class will include one-half of the younger male students.
- Step 4: Use random assignment to assign female students in the younger cohort to classes Y1 and Y2 with equal probability; thus, each class will include one-half of the younger female students.
- Step 5: Use random assignment to assign male students in the older cohort to classes O1 or O2 with equal probability; thus, each class will include one-half of the older male students.
- Step 6: Use random assignment to assign female students in the older cohort to classes O1 or O2 with equal probability; thus, each class will include one-half of the older female students.

Random assignment will be done within each school using a computerized lottery, ensuring that students are assigned to classes without prejudice. In the end, using the preceding example, we will end up with the following:

- 1) Two classes with younger students (Y1 and Y2), with an equal male-to-female ratio, where class Y1 is in the treatment group and class Y2 is in the control group.
- 2) Two classes with older students (O1 and O2), with an equal male-to-female ratio, where class O1 is in the treatment group and class O2 is in the control group.

This design enables us to estimate the effects of the YPD program on CBA students in each age cohort, by comparing the average student outcomes of the treatment and control group classrooms. The estimated effects will be interpreted as the marginal effect, for a representative CBA student, of being exposed to an YPD teacher during the Cultural and Artistic Education class. However, given we have a fixed sample size (determined a priori by the Quito Secretariat of Education) it could be highly possible that we will not have enough power for the estimation of effects in these subgroups (by age). However, we will be able to obtain statistically significant effects for the sample as a whole, as shown in the following section.

6.3 Power Calculations

The RCT design ensures that the average baseline characteristics of students in the treatment and control classrooms are similar. However, although this attenuates classroom effects, it does not remove them completely. This is because classroom effects arise from two sources: (1) potential systematic differences in the types of students who are assigned to different classrooms, and (2) possible differences in the quality of teachers within schools. The random assignment of students to classrooms reduces the first source of clustering, but not the second.

We take this source of clustering into consideration in our power calculations to determine the minimum detectable effects (MDEs) in percentage points.⁵⁷ Following Schochet,⁵⁸ the MDE for this type of design can be expressed as follows:

$$MDE = (z_{\alpha} + z_{\beta}) \sqrt{\left(\frac{2\rho_2(1 - R_{BC}^2)}{s(0.5k)} + \frac{2(1 - \rho_2)(1 - R_W^2)}{s(0.5k)(1 - x)n} \right) \sigma^2}$$

where:

ρ_2 is the intra-class correlation (ICC) at the classroom level

s is the number of schools included in the sample ($s = 7$)

k is the average number of classrooms in the school ($k = 4$)

n is the average number of students per classroom ($n = 35$)

R_{BC}^2 is the proportion of the between-classroom variance within schools that is explained by the regression model

R_W^2 is the proportion of the within-classroom variance that is explained by the regression model

$1 - x$ is the fraction of students that can be identified at follow-up

$(z_{\alpha} + z_{\beta}) = 2.8$ for 80 percent power at the 0.05 level of significance for a two-sided test⁵⁹

$\sigma^2 = P(1 - P)$ for dichotomous outcomes, where P is the prevalence of each outcome

We want to design an evaluation such that we can test the null hypothesis $H_0: P_0 = P_1$ where P_0 and P_1 represent the prevalence of the labor market and academic outcomes of the children that will participate in the program in the comparison and treatment groups, respectively.

Assumptions

Given that the sample size is fixed by program capacity constraints to serve at-risk youth, we have to identify which MDEs can be observed given that sample size under reasonable parameter assumptions:

- The ICC assumptions are at the classroom level.
- For school outcomes, evidence from previous research suggests that the ICC ranges between 0.10 and 0.20 (Schochet, 2005).
- For behavioral outcomes such as pro-social behavior, aggressiveness etc., there is evidence to suggest that the ICC values are lower. We assume that the range for socioemotional skills is between 0.02 and 0.10 (Schochet, 2005).

⁵⁷ Minimum detectable effects represent the smallest program impacts—that is, the average outcome difference between the treatment and control groups, that can be detected with a given probability (i.e., power).

⁵⁸ Schochet, P.Z. (2005). Statistical power for random assignment evaluations of education programs. Mathematica Policy Research (<http://www.mathematica-mpr.com/~media/publications/PDFs/statisticalpower.pdf>).

⁵⁹ Bloom, H.S. (1995). Minimum detectable effects: A simple way to report the statistical power of experimental designs. *Evaluation Review*, 19(5), 547-556.

- For labor market outcomes we used intermediate values between the ICC for school outcomes and those of behavioral outcomes, i.e. we use ICC values between 0.05 and 0.15.
- The inclusion of relevant *baseline* student, classroom, and school-level explanatory variables in the regression models can increase power by explaining some of the variance in mean outcomes across schools and across classrooms within schools. Selecting conservative values, we set R^2 to 0.2 for all outcomes.
- We assume a 16 percent attrition rate based on the 2014–2015 dropout rate among CBA students.
- We assume prevalence rates P for all the negative labor outcomes (such as participating in hazardous labor) which are higher than the national average for children 15 to 17 years old, since we are dealing with a selected sample of at risk youth.
- MDEs of binary outcomes are in percentage points (except for hours of work, social skills, self-efficacy, and test scores).

Exhibit 12 shows the chosen prevalence values for all the key outcomes in this study as well as the corresponding MDEs resulting from the power calculations. Binary outcomes are modeled as linear probability models. All outcomes will be measured using the entire sample, except the likelihood of participating in hazardous child labor, which uses half of the sample (i.e. the younger cohort only).

Based on our parameter assumptions, we determined an interval of possible effects for each outcome. For example, we can detect a change in self-efficacy by 1.22 points on a scale of 10 to 40 points using an ICC level of 0.02, which represents a 4.2 percent effect relative to the assumed mean at baseline. Using an ICC of 0.10 we can detect a change of 1.91 points (a 6.54 percent effect relative to the mean). In general, we can detect relatively small effects for socioemotional skills. For school outcomes, for example school attendance, the MDE indicates that school attendance is assumed to change by 13.93 percentage points using an intra-cluster correlation level of 0.10. This represents a 17.6 % effect relative to the assumed mean at baseline.

Regarding labor market outcomes, for example, we can detect a change in the likelihood of working by 13.33 percentage points using an intra-cluster correlation level of 0.05. This represents a 33.26 percent effect relative to the assumed mean at baseline. We can detect a 19.61 percentage points effect using an ICC equal to 0.15. Likewise, these calculations show that using an ICC equal to 0.05 we could detect a change in the number of hours worked per week equivalent to 5.43 hours, which represents 12.63 percent of the mean. For hazardous child labor we can only detect larger effects given that we will only use half of the sample (i.e. for hazardous child labor effects range between 17.60 pp and 25.95 percentage points depending on the assumed ICC values).⁶⁰

⁶⁰ There is no agreed upon definition of what constitutes a large or small effect. Cohen (1988) suggests that MDE's that are around 0.2, 0.5, and 0.8 of the S.D. (i.e. measured in effect size units) could be considered small,

Exhibit 12: Effect Sizes for Key Outcomes for Different Intra-Cluster Correlations

Outcomes	R ²	Average Outcome	Variance	MDE		
				Intra Cluster Correlation		
Noncognitive skills for beneficiaries				0.02	0.04	0.10
Self-efficacy scale ^(a)	0.2	29.2	31.19	1.22	1.42	1.91
Social skills scale ^(a)	0.2	19.06	47.34	1.50	1.76	2.35
School outcomes for beneficiaries				0.10	0.15	0.20
School attendance ^(b)	0.2	79%	17%	13.93 pp	16.31 pp	18.38 pp
Likelihood of completing CBA program ^(c)	0.2	70%	21%	15.68 pp	18.35 pp	20.68 pp
CBA test scores ^(c)	0.2	5	9	1.03	1.20	1.35
Labor outcomes for beneficiaries				0.05	0.10	0.15
Likelihood of working in HH chores for more than 14 hrs. a week ^(d)	0.2	28.5%	20%	12.26 pp	15.44 pp	18.07 pp
Likelihood of working ^(d)	0.2	40%	24%	13.30 pp	16.76 pp	19.61 pp
Likelihood of participating in hazardous work ^(d)	0.2	20%	16%	10.86 pp	13.68 pp	16.02 pp
Likelihood of participating in hazardous child labor ^(d)	0.2	30%	21%	17.60 pp	22.17 pp	25.95 pp
Number of hours worked per week ^(d)	0.2	43	400	5.43 hrs.	6.84 hrs.	8.01 hrs.
Likelihood of participating in irregular employment ^(e)	0.2	50%	25%	13.58 pp	17.10 pp	20.02 pp
Likelihood of participating in risky activities ^(f)	0.2	50%	25%	13.58 pp	17.10 pp	20.02 pp

Note: all MDEs are expressed in percentage points (pp) except for hours of work, test scores, social skills, and self-efficacy.

(a) YPD program information (May 2015).

(b) Source: http://www.unicef.org/infobycountry/ecuador_statistics.html.

(c) Assumed values based on program characteristics. Test scores in Ecuador are on a 1 to 10 points scale.

medium/moderate, and large. We also computed MDEs in effect size units (i.e. as percentage of the S.D., not shown here) to have a broad indication of their magnitude. The effects relative to the SD (i.e. in effect size units, not shown) suggest that we can detect small effects for socioemotional skills, and medium effects for all other outcomes, except for hazardous child labor where only larger effects can be detected.

- (d) Assumed based on program properties, eligible population characteristics and data available from the following sources: Trabajo Infantil en Ecuador, OIT 2006; and ENTI 2012. National Survey of Child Labor;
- (e) Source: *Global Employment Trends For Youth 2015*, p43.
- (f) For the outcomes where prevalence was not available we used 0.5 since that is the most conservative estimate to calculate MDE.

One important aspect of power calculations is sub-group analysis. The approach selected for the calculation of MDEs was chosen given the fact that the sample size is fixed by the program capacity constraints to serve beneficiaries. Hence, we have to identify which MDEs can be detected with the sample size that bounds the membership of treatment and control groups. As described above, the MDEs estimated in this section are identified under the assumptions that the entire sample is used, except for the hazardous child labor. By restricting the sample to specific sub-groups, defined for example by gender or age, we may well not have enough power to detect those MDEs. Nevertheless, we will stratify our analysis by key students' characteristics like gender to improve the precision of the estimates. At baseline, we will also collect other student characteristics that will also help to improve precision of the estimates, and we will conduct exploratory analyses for those sub-groups.

Finally, we want to highlight that we will complement the quantitative findings in this study with the companion qualitative analyses that are part of this project. This will allow us not only to shed some light on the mechanisms underlying program impacts but also on potential differential effects across sub-groups and to confirm if the results for sub-groups (even when not statistically significant) are actually indicative of heterogeneous causal effects.

6.4 Troubleshooting Plans for Intervention Implementation

Evaluations of this scope and duration pose various challenges. In order to manage the risks associated with possible implementation issues, the IMPAQ team has planned a number of strategies that will facilitate the successful completion of IMPAQ's RCT evaluation of the YPD program.

Reliability and Good Relationship with the Implementers. IMPAQ has been in constant contact over the last year and has built a very good relationship with YPDE. The implementer has offered its full support to ensure the success of the evaluation including helping in the revision of the survey instruments and serving as a link with the Secretariat of Education. It is a priority for IMPAQ to continue to build this rapport through consistent communication with the implementers.

Memorandum of Understanding. As a step to build further local support for this ILAB funded evaluation and to protect against changes in administration, we are pursuing a Memorandum of Understanding (MOU) signed between YPDE, IMPAQ, and the Mayor of Quito. The MOU will be reviewed and approved prior to signature by each party. The MOU is a key instrument as it will clearly detail the objectives of the project, the responsibilities of each institution in the evaluation as well as a timeline agreed upon for the conduction of the evaluation activities. As mentioned,

previously, this document is crucial as it will afford continuity in IMPAQ's evaluation activities, through institutional commitment, even in the contingency of personnel change among implementing partners.

Recruitment Support. We have laid out an evaluation design plan based on our assumption that Secretariat of Education of the Municipality of Quito will recruit a sufficiently high number of students for the CBA program to fill their classroom and teacher capacity and will provide us with continuous support to work with the five largest schools to ensure the adequate sample size for the evaluation. However, we need to be prepared in case any implementation issues arise. Hence, IMPAQ will be actively supporting Secretary of Education and her staff during the recruitment process in the summer by providing technical assistance during the student registration campaign and by sharing best practices in study participant recruitment.

Additionally, to prevent against any unexpected non-compliance or refusal to participate in the program, IMPAQ will collaborate with our implementing partners during the recruitment phase to actively engage and involve parents and students with a twofold purpose – to lower likely program dropout and study attrition by strengthening parent and student interest and commitment in the program and to support collection of background characteristics by leveraging the current student registration infrastructure. As it has been in the past, the Secretariat of Education staff will implement an additional recruitment campaign during September and October months to ensure that full program capacity has been reached. We are prepared to support that second recruitment campaign as well and to integrate into our design all students who enroll and start the program at a later day. Enumerators will collect the surveys in October to allow for any students who enrolled at a later date (after beginning of the program in September) to complete their surveys. Moreover, our randomization protocol addresses the cases of stratification and classroom assignment for any late arrivals.

Absences during data collection day. In this kind of study with a highly mobile population, such as at-risk youth, there is a high probability that during data collection some of the students in the study could not be present (e.g. transfers, sickness, students that were absent for other reasons). To address these type of events, we have put in place contingency plans to ensure we have an adequate sample size to satisfy our MDE assumptions. We plan for additional data collection days. As such, proctors would return to the schools within the same week to administer the baseline survey to any students that were not present during the first data collection visit.

Conservative attrition assumptions. We have taken into account in our sampling the often high attrition levels given the mobility of our target population. While CBA dropout rates were close to 1 in 3 students in earlier years, it has been lowered to 10-14% during the most recent year according to Secretariat of Education. We are assuming a 16% attrition rate which is a conservative number given that we expect that CBA and YPD will generate a greater engagement with students and parents. We describe in detail how we will deal with missing data observations due to attrition below, in Section 6.10.

Tracking students after baseline. To track students during follow up, we will implement the following strategies: (i) collect contact information not only of parents or current household members, but also of extended family and friends that could still be in contact with the youth in the coming years; (ii) create with the support of CBA and YPDE social media sites for all participants in the program with exciting project updates, as a way to keep in touch with them; and (iii) provide incentives for participation in follow-up surveys such as offering movie tickets or pizza coupons.

6.5 Data Collection

The data for this impact evaluation will come from two sources: school administrative records and data collected in the field through a survey instrument. As indicated in Exhibit 13, the data will be collected over a period of three years, beginning with student registration forms and a baseline survey gathered at the beginning of the school year, in October 2016. The second round of data will then be complemented with a follow-up of the individual surveys and complete school records on individual students’ final test scores, attendance, disciplinary incidences, program dropout, and completion records at the end of the school year, in June 2017. The final phase of the data collection will occur in June 2018 with the third round of individual surveys.

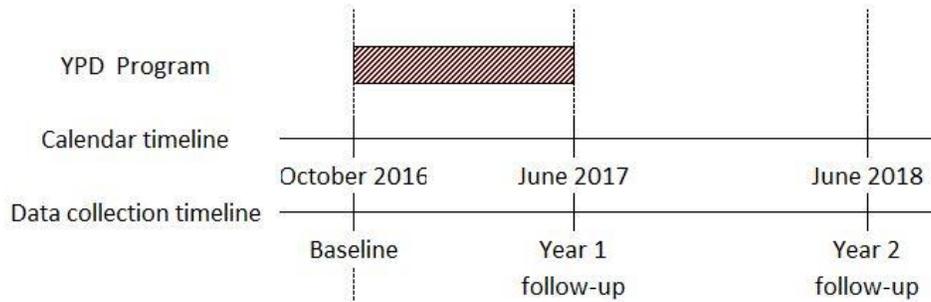
Exhibit 13: Timeline of Quantitative Data Collection

Timeline	Phase	Quantitative Data Collection
October 2016	Baseline	Survey, administrative data
June 2017	Year 1 follow-up	Survey, administrative data
June 2018	Year 2 follow-up	Survey

Note: Survey items will include validated noncognitive scale constructs, education and career aspiration items, and questions related to labor outcomes.

Exhibit 14 presents a visualization of the YPD intervention and the RCT evaluation timeline over the continuum of time. The YPD intervention lasts from October to June the following year. The data collection timeline is set to correspond to the beginning of the school year (baseline), the end of the school year (Year 1 follow-up) and one year after program completion (Year 2 follow-up). Technically speaking, Year 1 follow-up will occur after 9 months and Year 2 follow-up will take place 12 months later.

Exhibit 14: Visual Representation of the Intervention and the Evaluation Timeline



School Administrative Records

School administrative records are collected by the Secretariat of Education and will be shared with the IMPAQ team for analysis. The data will contain students' registration information for the upcoming 2016–2017 CBA program, including age, gender, immigration status, parental education, and parental contact information. These variables will be used as control variables in the impact estimation.

Using the registration data, we will assign each student a unique ID number at the beginning of the school year. This ID number will remain constant throughout the study and will allow for the various rounds of data to be consistently merged. Furthermore, to ensure transparency of the process, we will use these ID numbers to conduct a lottery at the beginning of the school year to randomly assign students to treatment and control classes.

At the end of the school year, administrative data will be gathered, including information on school attendance as measured by the number of days attended; indicators for student behavior in class; and final test scores in all testable subjects needed for graduation. These variables will serve as outcomes for the impact evaluation.

Survey Instrument

The second source of data will be collected in the field through a survey instrument. This survey will be self-administered individually by students in the treatment group and the control group, and each will have a label with the student's unique ID number. The first survey (i.e., the baseline survey) will take place at the beginning of the school year during the orientation period, before students start classes. The second survey will be self-administered at the end of the same school year, also during class. In both of these rounds, we will use paper instruments in the regular classroom setting. The responses will be then entered into electronic format by a local data collection company. The final round of surveys will be conducted after tracking both YPD and non-YPD students two years after the inception of the CBA and will also be self-administered using a paper instrument.

A part of the survey instrument will collect detailed information about the names, national identification numbers of the student and the parents, exact household address, and residential and mobile telephone numbers. We will also ask for the contact information of close friends and

relatives. This information is essential to enable us to track these individuals for the final round of data collection.

The survey will also include questions about current labor participation and the number of labor hours worked (for domestic work as well as for remunerated work), earned income, and type of occupation (if any). Another section of the survey will focus on the student's education and career aspirations. Finally, the survey will include modules about noncognitive skills. We will borrow from measures validated in the literature measures of noncognitive skills, such as the following:

- Self-efficacy scale⁶¹
- Perception of the school climate: a measure adapted from the *Comprehensive School Climate Inventory* (National School Climate Center)⁶²
- Social skills: conflict resolution, communication skills, and assertiveness⁶³

To ensure the highest response rates, the first two surveys will be administered in a classroom setting during a school day when attendance is mandatory. All participating students will complete a survey at the same time in all schools. The final round of surveys will be conducted by tracking each individual from our sample who was originally surveyed and requesting that they again carry out a self-administered survey using a paper instrument. To improve response rates and reduce data collection costs, the individuals will be contacted by telephone and a follow up interview date and time will be established a priori to make sure that the individual will be at home.

Pretesting of the Instruments

After the survey instrument has been developed, we will pretest the instrument in CBA schools in Quito that are not participating in the study. Pretesting will ensure that the survey instructions and wording are appropriate and understandable for students who are in the same age range as those in the study group. The pretest will be administered in person, with the interviewer and interviewee having a hard-copy instrument that will later be tabulated electronically. In the first stage of the interview, the student will complete the survey. In the second stage, the interviewer

⁶¹ Baessler, J., & Schwarzer, R. (1996). Evaluación de la autoeficacia: Adaptación española de la escala de autoeficacia general. *Ansiedad y estrés*, 2, 1-8. This scale is based on 10 statements describing stressful situations, with respondents answering questions on a 4-point Likert scale. The General Self-Efficacy Scale has been translated into more than 25 languages. A Spanish version is available.

⁶² The Comprehensive School Climate Inventory (CSCI) is a nationally recognized school climate survey that provides a profile of a school's strengths and needs. The CSCI measures 12 essential dimensions of a healthy school climate in four broad categories: safety, teaching and learning, interpersonal relationships, and the institutional environment. Specifically, the Student Survey Module II for middle/high school students measures students' opinions on various aspects of the school environment—for example, whether students treat each other with respect and whether teachers encourage the development of new ideas:

<http://www.schoolclimate.org/programs/documents/Student-MS-HS-CSCI%20v-3.pdf>.

⁶³ Oliva, A., Antolín, L. Pertegal, M. Ríos, M. Parra, A., Hernando, A. & Reina, M.C. (2011). *Instrumentos para la evaluación de la salud mental y el desarrollo positivo adolescente y los activos que lo promueven*. Sevilla: Consejería de Salud de la Junta de Andalucía [Social Abilities Scale]. The scale is composed of 12 items that can be ranked from 1 to 7. The 12 items can be grouped into three broad categories: (1) communication and relational skills, (2) assertiveness, and (3) conflict resolution (p. 177).

http://www.uhu.es/angel.hernando/documentos/Libros/INSTRUMENTOS_DESARROLLO%20POSITIVO.pdf.

will discuss the meaning of each item with the student to assess the clarity of the question and the appropriateness of the established categories. After the pretesting process is completed, the survey instrument will be revised and the questions improved so that the information collected will be reliable and valid.

Measurement of Labor Outcomes for Youth 18-24

Although students age 18-24 and working cannot be classified as being exposed to child labor, we will still be able to classify their employment status and especially whether they work in hazardous conditions, industries or occupations. This will allow us to determine whether the likelihood of engaging in hazardous work for students decrease after being exposed to the program, relative to the control group, which is a relevant research question for students of all ages. The survey instrument will be designed to take into account the delicate nature of the questions related to labor outcomes for at-risk youth, in particular illicit work activities. We will work closely with YPD and our in-house cognitive testing specialists to identify the best way for collecting information.

Interviewer Recruitment and Training

A local survey organization will conduct the data collection in the field in Quito. IMPAQ staff will oversee the training of the enumerators and will supervise the pilot testing of the instruments. In the training, considerable time will be devoted to mock interviewing. This process gives the interviewers valuable experience with responses that can be expected during an actual interview and helps the interviewer to become more comfortable with the instrument. Before contacting real respondents, each interviewer will conduct mock interviews with trainers, who will assess whether the interviewer is ready to work on this study.

To assist in the training process, an interviewer manual will be developed. The manual will include a description of the purpose of the study, the study population, the sites, procedures for contacting respondents, information on the computer management and tracking system, questionnaire specifications and probing guidelines, procedures for handling respondents' questions and problems, refusal avoidance and conversion procedures, procedures to protect the confidentiality and rights of human subjects, quality control, recording, and editing procedures. In the following section, we detail our human subjects protection plan.

6.6 Human Subjects Protection Plan

IMPAQ will sub-contract with an experienced, accredited AAHRPP (Association for the Accreditation of Human Research Protection Programs), U.S.-based Institutional Review Board (IRB), in order to ensure there are no ethical issues with any component of the proposed RCT evaluation. The IRB that IMPAQ has been working with recently is Chesapeake IRB, which has maintained full accreditation with AAHRPP since 2004.

The IRB submission to seek expert advice is particularly important given that most planned survey respondents belong to vulnerable populations. They are economically or educationally disadvantaged people and many of them will be under the age of 18 (hence minors). We will

work closely with our implementing partners, an Ecuadorian child labor expert and our local data collection partner to guarantee that the evaluation design and the structure and wording of the evaluation materials are appropriate for ethical and/or sensitive issues and in accord with the laws of Ecuador. Furthermore, the IRB will review the evaluation designs and the structure and wording of all evaluation materials for ethical and/or sensitive issues, holding them to the highest US and international standards. Currently, Ecuador does not have an IRB for social science research set up, only for biomedical research. Hence it is imperative that IMPAQ works closely with the Chesapeake IRB to ensure that procedures are followed to assure confidentiality and ethical conduct as it pertains to these vulnerable groups. IMPAQ will also work in coordination with our implementing partners to determine any additional in-country review or approval processes required for the evaluation to occur and will adhere to and meet those requirements as needed.

Finally, IMPAQ will ensure that the evaluation of the YPD program accords with the following stipulations set forth in the ***Management Procedures and Guidelines of the Cooperative Agreement***:

- Adult and child interviews will be non-invasive and all answers will be kept confidential, ensuring that the risks are minimal.
- Survey participants will not be paid for participation in the surveys. Participation in the research will be voluntary and confidential. However, light refreshments could be served to the participants to create a more relaxed and participatory environment.
- Consent and assent forms will be used, and the contents of consent/assent forms will be explained verbally before the start of the interview. A copy of the informed written consent, translated in Spanish, will be made available to all survey respondents and focus group participants.
- No child under 18 years of age will be interviewed without both caregiver and child agreeing to the child being interviewed. Caregivers will sign the consent form. Assent will be obtained verbally from children and recorded by the surveyors. Children will also sign the assent form.
- The implementing agency/enumerator will explain to the child in simple language the general purpose of the research, the contents of the interview, and the interviewing process.
- It will be explained to the child that participation is voluntary and confidential and that he/she may interrupt or discontinue the interview at any time with no negative consequences at all. It will be reinforced that their participation in the survey will not impact in any way their ability to take part of YPD and CBA activities in any way.
- The implementing agency/enumerator will state that the subject is allowed to ask questions concerning the interview, both before agreeing to be involved and during the course of the interview.
- The implementing agency/enumerator may also instruct the child that they are allowed to skip questions or entire sections of the interview, with no repercussions.
- The child may choose not to participate in the research even if the child's caregiver agrees to the child being interviewed. It will finally be explained that the child's responses will

not be shared with any other person in the community, including the caregiver, at any point of time. The enumerators will be trained to never reveal the contents of their interviews.

- IMPAQ will work closely with the implementing agency to draft a plan for dealing with cases of child labor or abuse identified in the survey population. For example, enumerators will be trained in how to cope with cases of abuse, in particular in how to report issues to the appropriate local authorities.
- The research teams will record names and some geographic information including the name and location of the village/settlement, as well as contact information of relatives or neighbors. This will support higher response rates during the follow-up survey, and allow monitoring of the quality of the collected information. All identifying information will be kept confidential and the data will be securely stored.
- Data files will only be shared after all identifying indicators have been removed. Data files that are publicly released will be cleared by OCFT following an approved data release policy and procedure.⁶⁴

6.7 Data Quality

In addition to the strategies mentioned in the section on data collection, we have established the following data quality control processes to ensure high data quality:

- *In the Field:* For the paper surveys, data entry staff will report periodically any inconsistencies or illegible data on the instruments they are keying in. Coordinators will check these data on various quality metrics, which will be provided by IMPAQ staff. Once the coordinators approve the data, the data will be uploaded to IMPAQ's Federal Information Security Management Act (FISMA)-certified secure server on a weekly basis.
- *At IMPAQ:* An analyst will download the data on a weekly basis and run quality control checks. Findings will be flagged back to the team in the field to make additional decisions and adjustments as needed.

Quality Control Checks

IMPAQ staff will review the data collected to ensure high data quality. Items that will be reviewed during this check include:

- Data completeness
- Skip pattern logic
- Final dispositioning of records
- Data cleaning accuracy

Once data collection has ended, IMPAQ will compile a final dataset and perform additional data checks, including identifying outliers, performing logic checks, and making all necessary

⁶⁴ Please see U.S. Department of Labor, Bureau of International Labor Affairs, Office of Child Labor, Forced Labor, and Human Trafficking. *Management Procedures & Guidelines for Cooperative Agreements*, pages 87-88. 2014

corrections to the data. We will also create a data dictionary to facilitate the analysis phase of the study. We will then compile the survey responses into a master file for analysis.

Data Cleaning Activities

An important first step is cleaning the data and applying accepted techniques to address missing data (e.g., imputation, deletion). Next, we will examine the frequency distributions for each question to ensure that all data are within a valid range for each survey question. Although using a well-developed computer script with embedded skip patterns and logic checks minimizes the chances for errors and inconsistent answers, we will carefully review the data, checking for coding errors, misapplied ranges, inconsistent answers, or other illogical results. We will account for missing data by using approved ascription and imputation techniques. We will then clean the data to remove incorrect coding and any identifying data in the open-ended responses. All open-ended responses will also undergo data cleaning. Our staff will group like responses together and create consistent codes for each case. For longer responses, we may use several codes to identify multiple themes and codes within each response.

6.8 Personally Identifiable Information and Data Security

Personally Identifiable Information (PII)

IMPAQ's process for handling PII is designed to reduce the exposure of personal identifiers to an absolute minimum. One of the first steps taken when a dataset arrives at IMPAQ from an outside source is to identify the PII, such as names, addresses, and phone numbers. From the first transmission point, all data are encrypted with SSL encryption to minimize exposure during the transit. After transmission, the data rest in a special storage system that is encrypted using a FIPS 140-2 encryption compliance system. Only designated staff within IMPAQ have access to the data to move it to a segregated PCI-compliant network. This process, together with the other data security procedures and infrastructure in place at IMPAQ (described in the following section), minimizes the chance of unauthorized access to personal identifiers.

Data Security

A state-of-the-art router, firewall, and intrusion detection system protects the IMPAQ computing network and prevention system, which is monitored 24x7 by the security operations center of our Internet service provider. We employ formal configuration and change management procedures and tools to ensure that changes to our network systems are made in a controlled and documented manner and only after the security and performance implications of proposed changes have been carefully considered. Our firewall rules are reviewed on a regular basis. All IMPAQ executives annually complete the FISMA-compliant federal information system security awareness training provided online by the Department of Defense at http://iase.disa.mil/eta/iss_icv5/. IMPAQ holds credit monitoring and privacy notification insurance with the Chubb Insurance Group.

For the transfer of project data to or from IMPAQ, we use an internally managed secure file transfer server running a FIPS 140-2-compliant encryption module. In addition, we use the FIPS

140-2-compliant secure ZIP software for encrypting data files stored on IMPAQ's secure research data subnet.

Database servers are maintained in a secure server room, with physical access restricted to authorized IMPAQ IT staff. Data are protected using a layered firewall infrastructure, local network DMZs, active port analysis and monitoring, regular password reassignment, server login access control, application of the latest security patches to operating systems, and network monitoring for suspicious activities.

IMPAQ's systems log all PII-related access and extracts. IMPAQ information technology security personnel routinely review these logs for inappropriate activities and take action as needed. In addition, all prospective IMPAQ employees must pass a criminal background check as a condition of employment.

6.9 Analysis Plan

In this section, we describe our analytical approach to estimating the effect of the YPD intervention. That is, we will estimate what happens, during one school year, to an average CBA student who was taught Cultural and Artistic Education by an YPD teacher compared with an average CBA student who was taught this subject by a non-YPD teacher. Our identification strategy relies on the random assignment of students to treatment and control groups, which ensures that any differences in outcomes between the treatment group and the control group are attributable to the program. Below we list the steps in our analysis plan.

Baseline Equivalence Analysis

After gathering information from school records and the survey instrument, we will perform an analysis of the descriptive statistics for the whole population of the study and then for the treatment and control groups separately. This information will allow us to assess the means and deviations from crucial variables such as age, gender, labor participation, and hours working.

Although randomization, on average, balances treatment and control individuals on observed and unobserved characteristics, there may still be some differences across the two groups due to random chance. To confirm that the groups are balanced, we will test for baseline equivalence by comparing mean observable characteristics between the treatment and control groups. To check for the balancing of the groups, we will chose a set from the variables described in the baseline characteristics and perform a *t*-test to determine whether the means of each variable are statistically significantly different between the treatment group and the control group.

The samples will be considered balanced if the *t*-tests do not show significant differences. If, due to chance, we find significant differences for some variables, we will control for those at the estimation stage of the analysis.

Impact Analysis Using Regression Models

To measure program impacts with increased statistical efficiency, we will estimate a multivariable regression model. The standard regression model can be expressed by the following equation:

$$Y_{ijs} = \alpha + \beta T_{js} + \gamma X_i + \theta S + u_{ijs}$$

where:

Y_{ijs} determines the outcome of interest for an individual i in classroom j in school s

T_{js} determines the treatment indicator, which equals 1 if the individual i in classroom j in school s was assigned to the treatment and 0 otherwise

S is a series of dummy variables for each school (school fixed effects) aimed at controlling for time-invariant school characteristics that could also affect outcomes

u_{ijs} is an independently and identically distributed error term between individuals within groups with a pooled mean of 0 and variance of σ^2

The parameter of interest in this model, β , is the regression-adjusted average intent to treat effect of the intervention. To reduce unexplained variation in individual outcomes and thus improve the precision of the estimator and increase the corresponding minimum detectable effect, the model will control for baseline student characteristics such as age, gender, and other demographics (X_i). We will also include school fixed effects to account to the fact that randomization was “blocked” at the school level.

To account for the fact that students are clustered within classrooms within schools, we will specify that the standard errors allow for intragroup correlation, relaxing the usual requirement that the observations be independent. We will cluster the standard errors within classroom and school using the `vce()` option in Stata for estimating variance–covariance matrix corresponding to the parameter estimates.

Given that individuals selected for the program will be stratified by gender and age to allow for equal proportions, we will be able to modify the regression model to include interaction effects on gender and age. The parameters from these interacted variables will allow us to estimate the heterogeneous effects of how boys and girls may be benefiting differently and how different age groups show smaller, equal, or larger effects from the YPD intervention.

6.10 Missing Data and Attrition

We will attempt to obtain full responses to our survey questionnaire. For the paper surveys administered in the classroom setting, a coordinator will provide guidance on survey completion and can address student respondents’ questions on the spot. The tablet-based data collection can be programmed to guarantee that all required questions are answered. Missing data can be a problem if there are patterns such as a question that only a certain group feels comfortable

answering. In instances of missing data at the item level, we will conduct a thorough analysis of the nature of the missing data. In addition to understanding the patterns of missing data,⁶⁵ we will also investigate the nature of the missing data—for example, whether certain groups are more likely to have missing values.

We will test whether the missing data are random (MAR), which means that there is no relationship between the missing data and any values, observed or missing. We will use Little's test and also the dummy variables technique for whether a variable is missing, as well as *t*-test or chi-square tests. If the missing data are random, then the analysis is not affected; if we detect patterns, we will adjust the analysis to account for them.

If the amount of missing data poses concern, we will explore different options available to handle item-specific missing data on potential covariates. We will try various methods proposed in the missing data literature, such as inverse probability weighting (IPW)⁶⁶ with complete case analysis, maximum likelihood (ML), and multiple imputation (MI) techniques.⁶⁷

Given that the study will focus on a population likely to drop out of school, we will examine overall attrition rates for the whole sample at the Year 1 and Year 2 follow-up surveys. We will check whether the attrition rate affected the treatment and comparison groups differently and examine whether attrition is correlated with observable characteristics. If one group presents higher levels of attrition due to students dropping out of school or because they become impossible to track (e.g., because of migration or deliberate nonresponse), we will treat this as an outcome of the YPD program and analyze it accordingly. If the attrition for either or both groups is correlated with specific observable characteristics after the first round of data collection (e.g., a specific region or socioeconomic status), even though this will not affect the validity of the results, we will take those findings into consideration for the second round of data collection and for interpretation purposes.

⁶⁵ Stata command such as “-misstable-”.

⁶⁶ Seaman, S.R., White, I.R. (2013). Review of inverse probability weighting for dealing with missing data. *Statistical Methods In Medical Research*, 22(3), 278-295.

⁶⁷ Schafer, J.L., & Graham, J.W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7(2), 147-177.

7. Qualitative Study

The IMPAQ team will complement the impact evaluation with a qualitative component to bring more in-depth understanding of how and why changes occurred as a result of the program, as well as the mechanisms of those changes.

7.1 Research Questions

The research questions are organized to obtain answers in two thematic areas: (1) **program implementation**, including the fidelity with which the program activities are implemented, and the implementation successes, barriers, and solutions; and (2) **lessons learned and sustainability**, including lessons and recommendations for future programming and scale-up. The qualitative research questions are presented in Exhibit 15.

Exhibit 15: Qualitative Research Questions

Implementation
1. To what extent do program stakeholders (Quito Secretariat of Education representatives and YPD implementation staff and captains) and beneficiary teachers and students view the program activities as having been implemented as expected?
2. How does YPD (training, captains, and educational resources) influence teachers' pedagogical practices, classroom climate, student performance, attendance, and socioemotional skills?
3. To what extent do beneficiary teachers share YPD pedagogical practices and resources with non-beneficiary teachers?
4. To what extent, and for how long, do beneficiary teachers sustain YPD pedagogical knowledge and practices?
5. Have male and female students and male and female teachers benefited from the project equally or differently, and how does the progress made compare to the expected project outcomes?
Lessons Learned and Sustainability
6. What are the stakeholder and beneficiary views on the project successes? What factors contributed to these successes?
7. What are the stakeholder and beneficiary views on the gaps and challenges in the project implementation? What solutions were implemented or recommended?
8. What additional support is considered necessary to achieve the expected results?
9. What key lessons and recommendations can be drawn?

7.2 Research Methodology

The qualitative design combines (1) a review, analysis, and synthesis of project data and documents, and (2) a qualitative rapid-assessment approach using key informant interviews and focus group discussions at five schools in Quito. These interviews and focus groups will be conducted as part of school site visits made by the research team. Exhibit 16 presents the timeline, the phase, and the type of qualitative data to be collected during the evaluation.

Exhibit 16: Timeline of Qualitative Data Collection

Timeline	Phase	Qualitative Data Collection
June 2017	Year 1 follow-up	Document review Key informant interviews with <ul style="list-style-type: none"> ▪ Program stakeholders ▪ YPD teachers Focus groups with <ul style="list-style-type: none"> ▪ Non-beneficiary teachers ▪ YPD students
June 2018	Year 2 follow-up	Key informant interviews with <ul style="list-style-type: none"> ▪ Program stakeholders ▪ YPD teachers ▪ Former YPD students who graduated from the program ▪ Former YPD students who dropped out of the program Focus groups with <ul style="list-style-type: none"> ▪ Non-beneficiary teachers

We will carry out in-depth interviews and focus group discussions with selected key program stakeholders and program participants about their perceptions of the program implementation process, lessons learned, and recommendations for future programming. We will select key informants based on their level of involvement in the rollout of the programs and their level of engagement in the day-to-day CBA and YPD activities.

In Year 1. The research team will conduct four to eight in-depth key informant interviews with representatives from YPDE and from the Secretariat of Education. In each of the five selected school sites from the quantitative sample, the team will conduct two key informant interviews with an YPD captain and an YPD teacher.

At each participating school site, the team will also conduct three focus group discussions—one with two or three non-YPD teachers and two with four to eight YPD students. In the student focus groups, the team will ensure a balanced representation of students from the younger cohort (15–17 years of age) and the older cohort (18–21 years of age). The team may also conduct girls-only and boys-only focus groups to ensure that we effectively capture the girls’ perspectives.

In Year 2. The team will repeat the same key informant interviews and focus group discussions as in Year 1, except for the focus group discussions with beneficiary students.

The team will also conduct key informant interviews with former students who graduated from the program to learn more about success stories, and with former students in the program who dropped out of school in order to understand the challenges and weaknesses of the program.

7.3 Data Source and Data Collection

The team will collect and analyze primary data from the key informant interviews and focus groups in the five selected schools as well as secondary data from program documents and, if possible, from monitoring and evaluation (M&E) records.

Key Informant and Focus Group Discussions

The IMPAQ team will collect primary data using key informant interview protocols and focus group discussion guides. We will record the interviews and focus groups with the participants' permission. The interview schedules will be determined in consultation with YPD.

- *Key Informant Interviews Protocol:* The protocol for the interviews will focus on respondents' views of the YPD program, covering YPD implementation and success in achieving the program's objectives; challenges and successes; and lessons learned for future efforts and sustainability. The protocol will be customized, as appropriate, to different types of respondents. The interviews will be conducted with individual respondents by trained staff and will take about 1 to 1.5 hours.
- *Focus Group Discussion Guides:* The guide will assess the experiences of teachers and students with different aspects of the YPD program. The discussion guides will also be tailored, as appropriate, to these group. The focus groups will be conducted by trained staff and will take 1.5 to 2 hours.

Program Document Data. We will also review the relevant program documents provided by YPD and the Secretariat of Education, including the monthly individual teacher reports that YPD submits to the Secretariat. We will review all relevant documents rapidly and thoroughly to gain a deeper understanding of the implementation of the YPD project and to identify key implementation components necessary for the qualitative protocols.

7.4 Field Work Procedures

Two IMPAQ site visit teams, each consisting of two field researchers, will collect the qualitative data in the targeted schools over a period of two weeks in Year 1 and two weeks in Year 2. During the interviews and focus groups, one team member will lead the discussion according to the protocols described above, while the other team member will take notes. This approach ensures that one interviewer is actively engaged in the interviews while the second team member captures the content of the discussions through detailed notes.

The teams will summarize the main points of each session using a structured summary form that parallels the structure of the interview guide or focus group protocol. The summary will synthesize the major points and salient themes and will include verbatim quotations that address the key evaluation questions. The summary forms will feed directly into the analysis.

Early in the field period, as a quality control measure, the team's senior technical advisor will review selected summary forms and interview recordings and provide timely feedback to the

field teams. This procedure will help to ensure high-quality and complete data, and will also assist team members in strengthening their interviewing and summarizing skills in real time.

7.5 Qualitative Analysis

The qualitative data collected during the key informant interviews and focus group discussions will be systematically analyzed to identify recurrent patterns or themes pertaining to each of the evaluation questions. The team’s approach ensures that any important similarities and key differences are systematically captured by using what Glaser and Strauss have characterized as “the constant comparative method” of qualitative data analysis.⁶⁸

We will analyze the data from the key informant interviews to determine whether there are important similarities and differences in how these respondents view barriers and facilitators to the program’s implementation. Thus, we will be able to systematically build a picture of the different perspectives of the key stakeholders and beneficiaries and how they vary. For these analyses, we will specifically compare how the respondents viewed the issues by school site and gender. In addition, the secondary sources will be analyzed, described, and then synthesized.

⁶⁸ Glaser, B.G. and Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*, Chicago: Aldine.

8. Evaluation Activities

8.1 Evaluation Schedule and Gantt Chart

The timeline for the evaluation is shown in the Gantt chart in Exhibit 17. The period of evaluation is June 2016 through December 2019. We expect to randomly assign eligible students to treatment and control classrooms at each school in September 2016, before completion of the baseline survey. The Year 1 follow-up survey will be administered in June 2017, and the Year 2 follow-up survey will be administered in June 2018. The evaluation will include two rounds of site visits by IMPAQ staff to collect qualitative data such as interviews and focus groups. The first round of site visits will occur in June 2017; the second round in June 2018. We will obtain institutional review board (IRB) approval for the survey protocols and instruments by Quarter 4 of 2016, before the implementation of the first survey. A detailed work plan with specific dates for all the activities and deliverables that will occur/be delivered in the remainder of 2016 is presented in Exhibit 18. Required deliverables have been highlighted using two asterisks (**).

8.2 Deliverable Timeline

The research team will submit the information/deliverables according to the schedule presented in Exhibit 19. We will provide information regarding the progress of the project in a quarterly federal financial report and a semiannual technical progress report. We will present the evaluation findings through baseline and follow-up survey reports, a qualitative study report, a final analysis report, and a results summary report.

Financial and Technical Progress Reports

Each month, IMPAQ will prepare financial reports as an important vehicle for regular communication regarding the financial status of the project. Semiannual technical reports will include the following information: a summary of activities in the previous months; deliverables submitted with dates of completion; problems encountered or anticipated, and their solutions; progress toward objectives, milestones, and schedules; and planned activities for the next few months.

Baseline Data and Follow-Up Survey Data Reports

We will submit the final baseline data report in Quarter 2 of 2017, the final Year 1 follow-up survey report in Quarter 1 of 2018, and the final Year 2 follow-up survey report in Quarter 1 of 2019. These reports will describe the data collection instruments and the methodology followed for data collection, and will present a descriptive analysis of the data.

Qualitative Study Report

We will submit the final qualitative study report in Quarter 2 of 2019. This report will draw on data from the two rounds of site visits. We will observe and document all processes and systems in place and describe any challenges encountered during the program implementation, as well as steps taken to address those challenges.

Exhibit 17: Gantt Chart of Evaluation Tasks and Activities

RCT Impact Evaluation in Ecuador																							
TASK / ACTIVITY	Contract Calendar Years																						
	2015				2016				2017				2018				2019						
Team Leader: Maurice Kugler	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Task 1: Project Start-Up and Management																							
Federal financial report (FFR) standard form (SF) 425	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			
Technical progress report (TPR), with all required elements		▲	▲		▲			▲	▲			▲	▲			▲	▲			▲			
Task 2: Evaluation Design																							
Evaluation design plan							△▲																
Task 3: Data Collection																							
Baseline survey tools and training materials, IRB approval							△	▲															
Random assignment							▲																
Baseline survey administration								▲															
Baseline survey report package										△	▲												
Baseline survey dataset											▲												
Follow-up survey tools submitted (Year 1)											▲												
Follow-up survey administration (Year 1)											▲												
Follow-up survey report package (Year 1)												△	▲										
Follow-up survey dataset (Year 1)													▲										
Follow-up survey tools submitted (Year 2)															▲								
Follow-up survey administration (Year 2)															▲								
Follow-up survey report package (Year 2)																△	▲						
Follow-up survey dataset (Year 2)																	▲						
Task 4: Qualitative Study																							
Develop site visit materials										▲				▲									
Conduct site visits											▲				▲								
Qualitative study report																		△	▲				
Task 5: Final Reporting																							
Public-use datasets, log of analyses, data crosswalks, data tables																				▲			
Final analysis report																			△	▲			
Results summary report																			△	▲			
Task 6: Final Grantee Activities																							
Government property inventory disposition request																				▲			
Closeout documents																				▲			

Key: Draft △ Final ▲

Exhibit 18: Detailed work plan for 2016

TASK / ACTIVITY	2016	
	Baseline	
	Start Date	End Date
Task 1: Project Start Up and Management		
Contract modification approved by ILAB	7/18/2016	8/24/2016
Task 2: Evaluation Design		
Draft Evaluation Design Plan submitted to ILAB (Celeste)**	8/8/2016	8/8/2016
Receive comments from ILAB on EDP	8/15/2016	8/24/2016
Draft Evaluation Design Plan submitted to ILAB (Kevin)**	8/26/2016	8/26/2016
Receive comments from ILAB on EDP	9/1/2016	9/6/2016
Final Evaluation Design Plan submitted **	9/6/2016	9/6/2016
Receive comments from ILAB on EDP and finalize it	9/13/2016	9/20/2016
Final Evaluation Design Plan approved	9/23/2016	9/23/2016
Task 3: Data Collection		
Preliminary activities for data collection		
Update baseline survey instrument based on YPD comments	6/27/2016	7/1/2016
Recruitment of Schools		
Travel to Ecuador to discuss with GoE recruitment process	6/19/2016	6/25/2016
Obtain support letter from GoE for data collection process	6/24/2016	7/8/2016
Hire child labor expert (CLE)	8/17/2016	8/17/2016
Secure data collection partner (DCP)	8/1/2016	8/1/2016
Update baseline survey protocols and consent forms		
Send survey protocols and training materials to DCP for review	8/1/2016	8/15/2016
Update English & Spanish draft based on DCP comments	8/15/2016	8/17/2016
Send survey protocols and training materials to CLE for review	8/17/2016	8/19/2016
Update English & Spanish draft based on CLE comments	8/22/2016	8/24/2016
Draft Baseline survey instrument submitted to ILAB**		
Draft of survey instruments submitted	8/16/2016	8/16/2016
Draft of table survey constructs submitted	8/16/2016	8/16/2016
Draft of consent forms submitted	8/16/2016	8/16/2016
ILAB approval conditional on the inclusion of suggestions	8/16/2016	8/19/2016
Send revised survey instrument to ILAB and prepare for cognitive int.	8/19/2016	8/22/2016
Cognitive interviews		
Conduct cognitive interviews (9b+9g)	8/23/2016	8/25/2016
Report results of cognitive interviews	8/26/2016	9/2/2016
Draft Baseline survey tools submitted to ILAB**		
Draft of survey protocol submitted	8/25/2016	8/25/2016
Draft of training materials submitted	8/25/2016	8/25/2016
Draft of child labor definitions document submitted	8/25/2016	8/25/2016
ILAB approval conditional on the inclusion of suggestions	8/25/2016	9/2/2016
Finalize IRB process		
Update package based on feedback from ILAB	9/2/2016	9/7/2016
Finalize IRB study protocol	9/7/2016	9/9/2016
Conditional IRB Approval from Chesapeake	9/9/2016	9/23/2016
Distribute among students the informed consent (conditionally approved by IRB and ILAB)	9/27/2016	9/30/2016
Update documents based on IRB comments	9/23/2016	9/27/2016

Final IRB Approval from Chesapeake	9/27/2016	9/28/2016
Random assignment protocol		
Receive data base of enrolled students from Sec	9/19/2016	9/19/2016
Clean and prepare data base for randomization	9/19/2016	9/26/2016
Random assignment implementation	9/28/2016	9/30/2016
Final Baseline survey tools submitted **		
Send revised survey tools to ILAB for final review and approval	9/20/2016	9/20/2016
ILAB Review	9/20/2016	9/27/2016
Update documents based on ILAB comments	9/27/2016	9/29/2016
Finalized survey instruments submitted	9/29/2016	9/29/2016
Finalized survey protocol submitted	9/29/2016	9/29/2016
Finalized training materials submitted	9/29/2016	9/29/2016
Approved consent form submitted	9/29/2016	9/29/2016
Approved parental permission and assent forms submitted	9/29/2016	9/29/2016
IRB approval submitted	9/29/2016	9/29/2016
Administer baseline survey		
Pilot baseline survey instrument	10/5/2016	10/6/2016
Preparation for Data Collection (DCP)	10/7/2016	10/16/2016
Implementation in all schools	10/17/2016	10/21/2016
Data analysis		
Data analysis plan submitted to ILAB	10/31/2016	10/31/2016

Note: ** = Required deliverable

Final Analysis Report

At the conclusion of the study, the research team will prepare a final report that will comprehensively discuss all aspects of the study. The results of the impact evaluation will be presented together with the findings of the process and implementation evaluation, which will be based on the three rounds of site visits.

Results Summary Report

The IMPAQ team will deliver a final results summary report in Quarter 3 of 2019. This report will summarize the key findings of the evaluation, describe any additional lessons learned, and detail the evaluation's contribution to closing the evidence gap in child labor research. We will produce the report in both English and Spanish and will distribute it across a wide array of local and national stakeholders.

Exhibit 19: List of Deliverables

Deliverable	Proposed Completion Date
Federal financial report	Quarterly
Technical progress report, including updated work plan	Semiannually
Final evaluation design plan	Q3 2016
Draft baseline survey tools and training materials	Q3 2016
Final baseline survey tools and training materials, IRB approval	Q4 2016
Draft baseline survey report package	Q1 2017
Final baseline survey report package	Q2 2017
Baseline survey dataset	Q2 2017
Follow-up survey tools submitted (Year 1)	Q2 2017
Draft follow-up survey report package (Year 1)	Q4 2017
Final follow-up survey report package (Year 1)	Q1 2018
Follow-up survey dataset (Year 1)	Q1 2018
Follow-up survey tools submitted (Year 2)	Q2 2018
Draft follow-up survey report package (Year 2)	Q4 2018
Final follow-up survey report package (Year 2)	Q1 2019
Follow-up survey dataset (Year 2)	Q1 2019
Draft qualitative study report	Q1 2019
Final qualitative study report	Q2 2019
Public-use datasets, log of analyses, data crosswalks, data tables	Q3 2019
Draft final analysis report	Q2 2019
Final analysis report	Q3 2019
Draft results summary report	Q2 2019
Final results summary report	Q3 2019
Government property inventory disposition request	Q3 2019
Closeout documents	Q4 2019

APPENDIX 1: MEASURING CHILD LABOR

This Appendix presents more details on child labor measurement framework used for this evaluation. The following documents inform our definition and measurement of child labor:

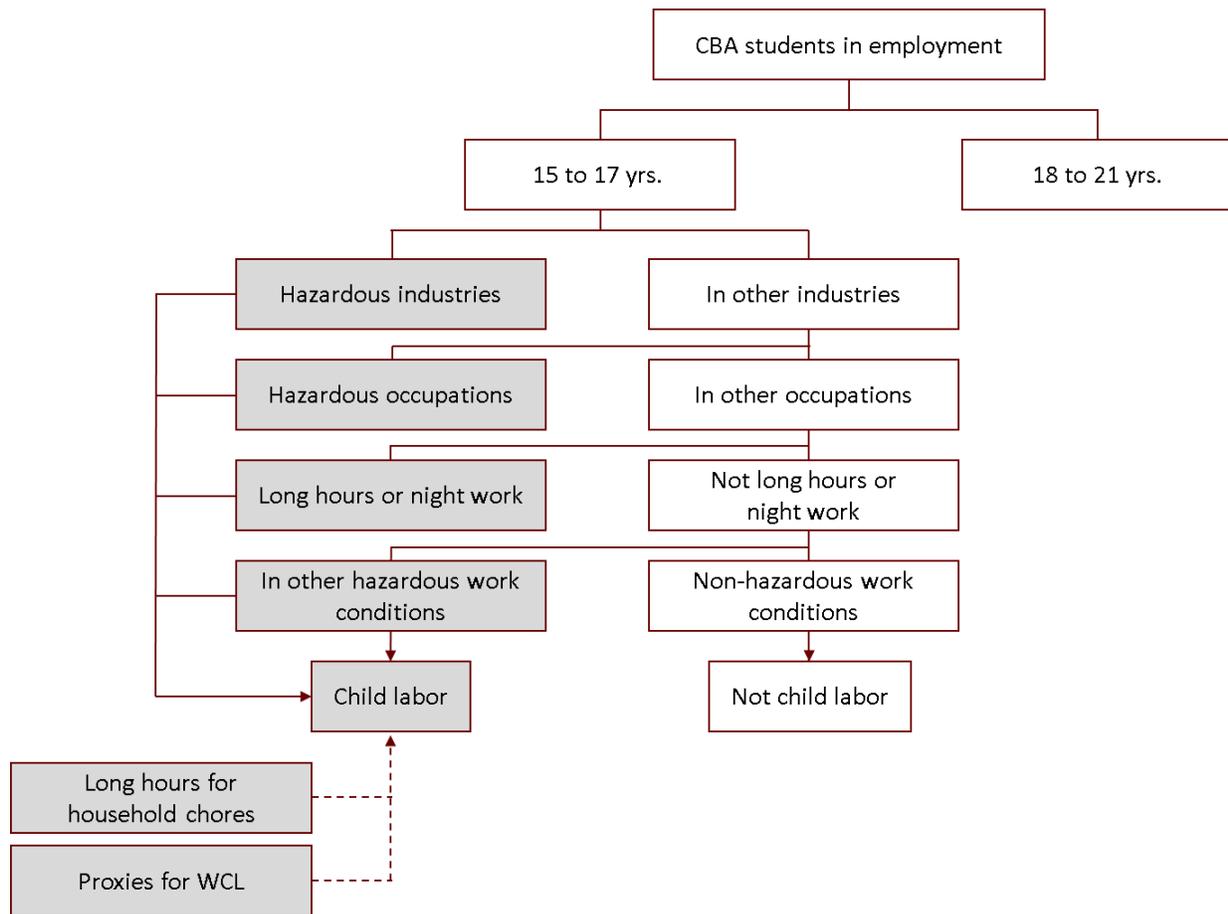
- ILO's Minimum Age Convention of 1973, No.138 (C138);
- ILO's Convention on the Worst Forms of Child Labour, No. 182 (C182);
- ILO's Recommendation to C182. No. 190 (R190);
- ILO's 18th International Conference of Labour Statisticians of 2008 (ICLS18);
- ICLS18-RII: Resolution II, Resolution concerning statistics of child labor, adopted in the 18th ICLS, and
- ILO's 19th International Conference of Labour Statistics Resolutions of 2012 (ICLS19)
- Ecuador Código de la Niñez y Adolescencia (Childhood and Adolescence code, C&A code, 2003)
- Consejo Nacional de la Niñez y Adolescencia, Resolución 16 (Resolution 16 of the National Council for Childhood and Adolescence, 2008)
- Ecuador Labor Code (LC, 2005)

As described in Section 4, for this evaluation, we apply the child labor measurement framework⁶⁹ criteria outlined by the ILO to the CBA minor population, which is the group between 15 to 17 years old, who is currently in employment. *The CBA working adolescents will be considered to be engaged in child labor if they are working night work and long hours, or under hazardous working conditions regardless of the industry or occupation or if they are working in designated hazardous industries or hazardous occupations* (see Exhibit 20 for a graphic representation of the child labor definition).

More details about the comparison between Ecuador and International legislation are provided in Appendix 2.

⁶⁹ http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_223907.pdf

Exhibit 20: Child Labor Diagram for CBA Students



Note: The dotted line for household chores and Other Worst Forms of Child Labor are not included in the estimates of CL.

The government of Ecuador has signed agreements to eliminate child labor in specific industries/sectors like agriculture (banana, flowers, palm oil, timber, and fishing), construction, brick production, and has prohibited the work of minors in all extractive industries.^{70 71} For hazardous occupations we will rely on the list of prohibited work provided by National Council for Childhood and Adolescence – Resolution 16 (this is a long list and reported in Appendix 3).^{72,73}

To the purpose of the survey we will include a preliminary list of occupations that are relevant to our young adult population (Appendix 4 provides a mapping between these occupations and economic sectors, mentioned in the survey, and the hazardous child labor lists in Ecuador to determine whether they will be considered hazardous or not for the purpose of this evaluation).

⁷⁰ <http://www.dol.gov/ilab/reports/child-labor/findings/2014TDA/ecuador.pdf>

⁷¹ Children and Adolescence code, art 86.

⁷² Compendium for hazardous child labor list and related legislation for selected countries-Ecuador http://www.ilo.org/ipec/Informationresources/WCMS_382487/lang--en/index.htm

⁷³ Many of the occupations described in this list were derived from the types of activities associated with the production and harvesting of the banana and flower sectors.

The preliminary list of most common jobs included in the survey for this population has been defined based on some Ecuadorian studies⁷⁴ and the YPD personnel. The final list will be refined through inputs from cognitive and pilot testing of the instrument.

To define long hours⁷⁵ or night work we will use the national legislation outlined previously to determine these limits. In addition, the National Statistics Office (INEC) includes in its survey of child labor a section to ascertain hazardous working conditions (exposure to toxics, fumes, etc.), which we will include in our survey instrument.

Proxies for worst forms of child labor and young adults' hazardous work exposure

The instrument will also include few questions on the student's past behavior related to prostitution and drugs. While these answers won't be used in the definition of child labor, they will serve as a proxy to measure the population's engagement in the worst forms of child labor (WCL).

The rest of the young adults targeted by the CBA program are ages 18-24. Although they are above the legal working age and technically not in child labor, we will still measure whether they are working in hazardous industries, hazardous occupations, at night or under hazardous working conditions since hazardous work is not acceptable for adults either. This is a particularly interesting aspect of this study. We will have the opportunity to look at the differences in exposure levels to hazardous working conditions between teenagers who are still considered legally as children (15-17 year old youth) and teenagers who just crossed that threshold (above 18 years old) but who in every other way faced similar circumstances. The main difference between the definition of child labor and hazardous labor is that for hazardous labor (applied to all youth) we will just not include long hours as criteria to define work automatically as hazardous. Indeed the ILO conventions on occupational safety and health (OSH) offer protection for all workers. These standards promote basic principles, such as assessment of occupational risks or hazards, and promotion of a culture of prevention that are valid for workers of all ages.⁷⁶

Finally, as described in Section 4, we will measure *Irregular employment* for all youths, which is the sum of three components: vulnerable employment, casual wage employment and temporary (non-casual) employment.

Exhibit 21 exemplifies how the different definitions used for this study will be operationalized using the survey questions.

⁷⁴ Expectations and labor strategies of youth in Quito *in Youth and the Labor Market in Ecuador* (2006). CEPAL/FLACSO(<http://repositorio.cepal.org/handle/11362/31961>); And Implementación De Acciones Para Atender La Problemática De La Niñez y Adolescencia Trabajadora En El Distrito Metropolitano De Quito .

⁷⁵ The 18th ICLS (par 28) states that "The threshold [for long hours] may be determined in terms of the maximum number of hours of work that the national law or regulation sets for children who have reached the minimum working age."

⁷⁶ See for example the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187). http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312332

Exhibit 21: Operationalization of the definitions using survey questions

Hazardous Child Labor	Hazardous Work	Irregular Employment	Hazardous Household Chores*
Students age 15-17 will be considered to be in hazardous child labor if:	Students 18-24 will be considered to be in hazardous work if:	Students (of all ages) will be consider in irregular employment if:	Students (of all ages) will be considered in hazardous household chores if:
They list as industry in the corresponding survey question any of the industries deemed hazardous OR	They list as industry in the corresponding survey question any of the industries deemed hazardous OR	They are either vulnerable workers OR	They choose they work more than 14 hours a week as reported in the corresponding survey question
They list as occupation in corresponding survey question any of the occupations deemed hazardous OR	They list as occupation in corresponding survey question any of the occupations deemed hazardous OR	They are temporary workers (causal/non causal) as described in Appendix 2 according to the relevant survey questions	
They work more than 30 hrs. a week, as reported in the corresponding survey question OR	They work at night as reported in the corresponding survey question OR		
They work at night as reported in the corresponding survey question OR	They respond YES to any item in the questions aimed at capturing working conditions like exposure to dust, fumes, heavy weights etc.		
They respond YES to any item in the questions aimed at capturing working conditions like exposure to dust, fumes, heavy weights etc.			

Note*: Estimates related to household chores will be presented separately and not included in the formal definitions of child labor.

APPENDIX 2: DETAILED INTERNATIONAL AND ECUADOR LEGISLATION

In this Appendix we present a detail comparison of International and Ecuadorian Legislation and reference to the draft survey questions capturing the definition.

Exhibit 22: Definitions in ILO and Ecuador Legislation

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
Child	An individual under the age of 18 years. (ICLS18-RII, par. 8)	Child = Under 12 years old Adolescents = 12 to 17 years old (C&A code, art. 4)	The CBA program targets persons between 15 to 24 years old, which are considered adolescents (15 to 17) and adults (18 to 24) according to Ecuador's legislation. For this evaluation, we will consider "children" the adolescent population, in line with ILO definition.	Date of Birth (DOB)	Developed internally for this survey
Basic minimum working age	15 years old (or 14 for developing countries) (C138, art. 2)	15 years old for any type of work, including domestic service (C&A code, art. 82)	All of the CBA students meet the minimum working age by design.	(DOB)	Developed internally for this survey
Minimum age for hazardous work	18 years old (C138, art. 3)	18 years old (C&A code, art. 182)	It is expected that approximately half of the CBA students will meet the minimum age for hazardous work.	(DOB)	Developed internally for this survey
Minors in Employment	For data collection, work is defined by engaging in an economic activity for at least one hour during the reference week (and total work hours per week > 1). [ICLS 18-RII par. 12] and INEC's methodological data sheet for the calculation of child labor from 5 to 17 years old ⁷⁷ .			Did you perform any of the following activities inside or outside your house last week?	Adapted from SIMPOC Stand-alone Child labor questionnaire
Minimum age for Light Work	13 to 15 years old (or 12 to 14 years old for developing countries). Defined as work that does not threaten their health and safety, or hinder education or vocational orientation and training. (C138, art. 7 par1).		"Light work" is not specified in Ecuador's national legislation.	Since all of the CBA students are older than the required age for ILO's "light work" definition, this is not included	N/A

⁷⁷ http://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Trabajo_Infantil-2012/FICHA_METODOLOGICA-TASA%20DE%20TRABAJO%20INFANTIL%205%20A%2017%20ANIOS.pdf

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
Acceptable work for adolescents	It is not specifically defined in ILO Convention, but this refers to work performed by children who are of legal working age and complies with national and international standards (C182 and C138); that is non-hazardous and non-exploitative, and does not prevent a child from receiving the full benefit of an education.	Under no circumstances the work day for adolescents can exceed 6 hours a day over a maximum of 5 days a week. The work cannot interfere with their education. Parents and employers must ensure they complete their basic education and fulfill their academic duties. (C&A code, art. 84) Night work is defined as work done between 19:00 to 06:00 the following day. It is prohibited for all minors (LC, art. 137)	We'll use Ecuador's definition of number of hours, days, schooling, and working conditions.	At which of the following times did you work in the last week, not counting your household chores? Please include any hours that you worked during weekdays and on weekends. How many hours did you work last week in total across all your jobs, not counting your household chores? Enter zero if you did not work any of these days last week.	Adapted from SIMPOC Stand-alone Child labor questionnaire and Ecuador's National Survey on Child Labor (2012). INEC

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
Worst Forms of Child Labor (WFCL)	<p>a) All forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labor, including forced or compulsory recruitment of children for use in armed conflict;</p> <p>b) The use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances;</p> <p>c) The use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties;</p> <p>d) Hazardous child labor—work that, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety, or morals of children (C182, art. 3)</p>	<p>Work prohibited to all persons under 18 (LC, art. 138)</p> <p>a) All forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labor, including forced or compulsory recruitment of children for use in armed conflict</p> <p>b) The use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances and trafficking of persons</p> <p>c) The use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties</p> <p>d) Work that, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety, or morals of children, such as in the following cases: (see below for list from art 138 in LC)</p>	<p>Standardized statistical concepts and definitions for “worst forms of child labor other than hazardous work”, and often also termed “unconditional worst forms of child labor” are not fully developed [ICLS18-R11 par 19].</p> <p>For this reason, children in worst forms of child labor other than hazardous work are not measured directly in our survey. However, we will collect some information to “proxy” potential participation of adolescents in this type of activities using the following questions [refer to next column]</p> <p>These questions will be analyzed separately, and will NOT be included in the formal CL definition</p>	<p>Have you ever been part of any of those gangs or any other gang?</p> <p>Have you sold drugs for money at any time in the last 6 months?</p> <p>Have you had sex for money or for drugs at any time last 6 months?</p>	Developed internally for this survey
Hazardous Child Labor (HCL)	<p>a) Work that exposes children to physical, psychological or sexual abuse</p> <p>b) Work underground, under water, at dangerous heights or in confined spaces</p> <p>c) Work with dangerous machinery, equipment and</p>	<p>List of HCL codified in Labor Code (LC art. 138)</p> <p>(a) Liquor distillation or manufacturing or mixing of alcohol</p> <p>(b) Manufacturing of white lead or any other toxic dyes, as well as the handling of paintings,</p>	<p>Ecuador’s definition of HCL mostly aligns with ILO’s. The only difference is that national legislation does not include number of hours or night work in the codification of HCL itself; however, national legislation does restrict night work and</p>	<p>What kind of work do you usually do in the jobs/activities</p>	<p>Adapted from School to Work Transition surveys (SWTS)</p> <p>Adapted from SIMPOC Stand-alone Child labor questionnaire and Ecuador’s</p>

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
	<p>tools, or that involves the manual handling or transport of heavy loads</p> <p>d) Work in an unhealthy environment that may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels, or vibrations damaging to their health</p> <p>e) Work under particularly difficult conditions, such as work for long hours* or during the night, or work where the child is unreasonably confined to the premises of the employer (R190, art. 3) (C182, art. 3d above)</p> <p>For the purpose of statistical measurement, ICLS18-R11 (par 21-24) HCL should include:</p> <ul style="list-style-type: none"> • Activities that are hazardous in nature <ul style="list-style-type: none"> ○ Designated hazardous industries ○ Designated hazardous occupations • Hazardous conditions (long hours* and other not 	<p>enamels, or varnishes that may contain lead or arsenics</p> <p>(c) Manufacturing of explosives or inflammable or caustic materials, as well as work in stores or sites that manufacture, produce, or deposit any of the aforementioned materials</p> <p>(d) Cutting and polishing of glass or other metals that expel irritant or toxic fumes</p> <p>(e) Loading or unloading of vessels</p> <p>(f) Underground work or in a quarry</p> <p>(g) Machinists or stokers</p> <p>(h) Use of circular saws and other dangerous mechanisms</p> <p>(i) Melting of glass or other metals</p> <p>(j) Transportation of incandescent material</p> <p>(k) Serving alcoholic beverages</p> <p>(l) On-board fishing</p> <p>(m) Custodians or security</p> <p>(n) In general, work that is dangerous to their morals or physical development</p> <p>The LC also stipulates that for working adolescence you should consider also the provisions listed</p>	<p>long hours (over 30) for adolescent work in accordance with ILO's recommendation. For our definition, we will include night work and long hours as HCL.</p>	<p>that you performed last week?⁷⁹ [Response options include relevant occupations for this population, e.g. social club workers, custodian, street worker etc.]</p> <p>What economic sector/industry does your job (or jobs) belongs to?</p> <p>In the last 6 months, were you ever exposed to any of the following in any of your job? [Response options include dust, fumes, etc.]</p> <p>In the past 6 months, did you experience in any of your jobs the following? [Response options include yelled at, intimidated etc.]</p>	<p>National Survey on Child Labor (2012). INEC</p>

⁷⁹ The survey will include hazardous (and non-hazardous) occupations that are more relevant for the CBA population. The preliminary list will be refined using inputs from implementing partners and through cognitive testing. Refer to Appendix 4 for a preliminary list with mapping to whether the occupations/activities listed are considered hazardous or not according to Ecuador legislation.

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
	<p>captured by designated hazardous industries, occupations)</p> <p>*The threshold for long hours may be determined in terms of the maximum number of hours of work that the national law or regulation sets for children who have reached the minimum working age. (ICLS18-RII, par 28)</p>	<p>in art 87 of C&A code as well as any prohibited jobs determined by the National Council of Childhood and Adolescence</p> <p>List of prohibited work codified in C&A code, art. 87. Adolescents are prohibited from working:</p> <ol style="list-style-type: none"> 1. In mines, landfill sites, slaughterhouses, quarries or extractive industries of any kind; 2. In activities that imply the manipulation of explosive substances, psychotropic, toxic, dangerous or noxious to their lives, physical or mental development and health; 3. In brothels or zones of tolerance, places for gambling, selling of alcoholic beverages and other that may be inappropriate for the moral or social development of the adolescent; 4. In activities requiring the use of dangerous machinery or which expose to noise exceeding the legal limits of tolerance; 5. In an activity which may aggravate disabilities, in the case of adolescents who have it; 6. In other activities prohibited in other legal bodies, including the international instruments ratified by Ecuador; 		<p>In the past 6 months, did you have any of the following health problems as a result of any of your jobs? [Response options include fractures, dislocations etc.]</p> <p>How many hours did you work last week in total across all your jobs, not counting your household chores? Please include any hours that you worked during weekdays and on weekends.</p>	

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
		<p>7. In households, whose members have a history as perpetrators of abuse or maltreatment.</p> <p>The National Council of Childhood and Adolescence will determine the specific forms of dangerous, harmful or hazardous work that are forbidden to adolescents, taking into account their nature, conditions and risk to their lives and personal integrity, health, education, security and integral development (the list is very long and available from National Council for Childhood and Adolescence – Resolution 16 and reproduced in Appendix 3).⁷⁸</p>			

⁷⁸ Compendium for hazardous child labor list and related legislation for selected countries-Ecuador
http://www.ilo.org/ippec/Informationresources/WCMS_382487/lang--en/index.htm

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
Unpaid hazardous household Chores	<p>Those performed in the child’s own household under conditions corresponding to those defined in paragraph 20 above, that is, unpaid household services performed (a) for long hours, (b) in an unhealthy environment, involving unsafe equipment or heavy loads, (c) in dangerous locations, and so on. The definition of long hours in unpaid household services of children, relative to their age, may differ from the one applied in respect to children in employment. The effect on a child’s education should also be considered when determining what constitutes long hours. (ICLS18-RII, par 37)</p> <p>The 19th ICLS (Report III, par 41) notes that children who combine household chores with employment are less likely to be in school. It also indicated that a 20 hours a week threshold could be a useful guide to determine long hours in household chore.</p>	<p>Although the number of hours for household chores are not explicitly limited in national laws, Ecuador’s National Statistics Office keeps track of children and adolescents aged 5 to 17 who are engaged in household work for more than 14 hours a week. It includes these statistics alongside the reports of children engaged in child labor.</p>	<p>While not complete, this evaluation will use long hours as an indicator of hazardous household chores. Since there isn’t an agreed upon definition for what constitutes long hours in household services, we will present the findings using both thresholds (more than 14, and more than 20 hours).</p> <p>Estimates for household chores will be presented separately and not included in the formal definition of child labor.</p>	<p>Which of the following household chores do you usually do at home?</p> <p>How many hours did you spend on these household chores last week?</p>	<p>Adapted from SIMPOC stand-alone child labor questionnaire and Ecuador’s National Survey on Child Labor (2012) INEC</p>

	ILO Definition	Ecuador Legislation	Notes	Survey Question	Source
Irregular Employment	<p>Irregular employment:</p> <p><i>Vulnerable employment</i> includes own-account workers and contributing family workers.</p> <p><i>Casual wage laborers</i> mostly paid employees with contract/agreement durations of less than 12 months and seasonal work, occasional work or work based on a fixed task. 80</p> <p><i>Temporary workers (non-casual)</i> are paid employees engaged on a contract with a duration of less than 12 months</p>			<p><i>Vulnerable employment (Q24, options (a) OR (d)</i></p> <p><i>Casual wage laborers</i></p> <p>In your primary activity or job, under which conditions are you currently working? (<i>indicates seasonal work, occasional work or piecework as response option and contract less than 12 months in</i>)</p> <p><i>Temporary workers (non-casual):</i> In your primary activity or job, what is the duration of your contract or agreement?</p>	Adapted from SWTS

⁸⁰ The original definition indicates that casual workers are mostly paid employees with contract/agreement durations of less than 12 months who give as the reason for the limited duration of the contract or agreement seasonal work, occasional work or work based on a fixed task. We simplified the definition to adding additional skip patterns in the survey. Additional skip patterns would be required to list occasional/piecework/seasonal as reason for limited employment duration.

APPENDIX 3: ECUADOR HAZARDOUS CHILD LABOR LIST

This Appendix presents the list of hazardous activities according to the CNNA16 developed by of the National Council for Childhood and Adolescence.

Exhibit 23: HCL List per CNNA R16

#	CNNA16 (National Council for Childhood and Adolescence Resolution 16)
1	Preparation or handling of nuclear fuel.
2	Manufacture of glass and glass products.
3	Manufacture of refractory ceramic.
4	Forging, treatment and coating of metals.
5	Activities involving the handling of high voltage instruments in the generation, collection and distribution of electric power.
6	Activities to include the conservation of fish and products.
7	Activities to include the spinning, weaving and finishing of industrial textile products.
8	Activities to include tuna, shrimp, and related processing factories.
9	Activities to include industrialized meat products.
10	Cold rooms worker activities.
11	Manufacture of tanks, reservoirs and containers.
12	Activities involving the handling of supplies or explosive instruments or which exposed to contact with instruments whose object is the demolition of buildings.
13	Activities to include the breeding of wild animals in captivity.
14	Activities to include ordinary hunting using traps.
15	Activities to include construction and repair of ships.
16	Activities to include collection, purification and distribution of water.
17	Activities to include cutting, logging and production logs, logs, wood framed.
18	Activities of greenhouses builders
19	Activities of placing or removing plastics in plantations or crops.
20	Manufacturing or handling of chemical products and substances.
21	Manufacturing or handling of fertilizers and nitrogen compounds.
22	Manufacturing or handling of plastics and synthetic rubber.
23	Manufacturing or handling of pesticides and other agricultural chemicals.
24	Manufacturing or handling of pharmaceutical products.
25	Manufacture of paints, varnishes, inks, fillers and coating products.
26	Manufacture of soap, detergents, cleaning products, perfumes.
27	Manufacture of manmade fibres.
28	Renewal of tires and renewal of rubber covers.
29	Manufacture of cement, lime and plaster.
30	Manufacture of primary iron and steel products.
31	Activities involving the handling of supplies for the smelting of metals, or exposure to high temperatures.
32	Manufacture of accumulators and batteries and primary batteries.
33	Manufacture and distribution of gas.
34	Activities to include washing, cleaning of garments and laundry at the industry level.
35	Activities to include the exploitation of mines.
36	Activities to include the extraction of crude oil and gas.
37	Activities to include the extraction of stone, sand and clay.
38	Activities to include mineral extraction to manufacture fertilizer.
39	Activities to include the extraction of salt.
40	Activities to include the manufacture or handling of oil refining products.
41	Activities to include the production of charcoal.

#	CNNA16 (National Council for Childhood and Adolescence Resolution 16)
42	Activities to include the manufacture of flour milling products.
43	Activities to include the manufacture of plywood, boards and panels.
44	Activities to include the manufacture of paper and paper products.
45	Activities to include the manufacture of coke oven products.
46	Activities to include cutting, carving and stone finish.
47	Activities to include manufacture of bodywork.
48	Activities to include sale of fuels in general.
49	Activities to include concentration and distillation of saps
50	Activities to include working with nut ivory (tagua).
51	Activities of fumigator in plantations or crops.
52	Activities of fertilizer in crops or plantations.
53	Activities of removing the "egg yolks" from crops.
54	Activities to prepare chemicals in plantations or crops.
55	Waste and scrap metal recycling.
56	Recycling of waste and nonmetallic waste.
57	Hospitals activities related to human health.
58	Medical and dental activities.
59	Veterinary activities.
60	Activities to include the Elimination of waste and sewage.
61	Activities to include the marinade, tanning and dyeing of fur and leather.
62	Activities to include the sacrifice, slaughtering of animals.
63	Activities to prepare compost in plantations or crops.
64	Activities retail sale in plantations or crops.
65	Activities which cause long distance displacement overland, via maritime and cabotage, by air or via rail.
66	Activities to include funeral and related activities.
67	Activities to include the manufacture of alcoholic beverages.
68	Activities to include distillation, rectification and mixture of alcohol and fermented substances.
69	Activities to include the manufacture of tobacco products.
70	Activities to include the service in bars and cantinas.
71	Activities of custody or guardianship that expose your teen to possible risks or attacks.
72	Grafting in plantations or culture activities.
73	Propagator in plantations or culture activities.
74	Domestic service ("living in")
75	Activities of canal-making for the preparation of the soil.
76	Installer of irrigation activities.
77	Activities where you prepare chemicals.
78	Activities where it is necessary to clean brushwood.
79	Activities involving fertilizers.
80	Grazier activities.
81	Truss cleaner activities.
82	Deschivador activities.
83	Tie maker activities.
84	Activities of cutter
85	Activities related to stowing.
86	Mule care taker activities
87	Motorcycle repairing activities.
88	Sheather activities.
89	Sanitizing Activities
90	Weigher activities.

#	CNNA16 (National Council for Childhood and Adolescence Resolution 16)
91	Activities of tagger.
92	Docker activities.
93	Activities of day laborer

Source: Compendium for hazardous child labor list and related legislation for selected countries-Ecuador
http://www.ilo.org/ipecc/Informationresources/WCMS_382487/lang--en/index.htm

APPENDIX 4: HAZARDOUS WORK CODING BASED ON THE SURVEY

This appendix maps the occupations and industries response options in the draft survey to the hazardous child labor lists available from Ecuador legislation to determine whether a given response could be used to classify students in hazardous work or not. We used as reference three lists:

- (i) The hazardous work list from the LC art 138 (reported in Appendix 2);
- (ii) C&A code art 87 (reported in Appendix 2);
- (iii) The CNNA16 list in Appendix 3.

The LC art 138 and C&A code art 87 are broader, while the CNNA16 expands on both lists but is much more detailed. The activities/occupation in the survey have been phrased using more common terms accessible to our population, and have then been mapped to the more technical terms of activities available from the legislation.

What kind of work do you usually do in the job/activities you performed last week?	Hazardous list (s)	Hazardous (Y/N)
Miner	Hazardous according to LC art 138 item # (f), C&A art 87 item #1; CNNA16 item # 35	Y
Bread and pastry-making	Prevalent occupation among our population, but not considered hazardous	N
Car repair shop handyman	Hazardous according to CNNA16 list item #47	Y
Carpenter	Hazardous according to CNNA16 list items #17; #43	Y
Cleaning/ janitor	Prevalent occupation among our population, but not considered hazardous	N
Construction worker	Hazardous according to CNNA 16 item #29	Y
Domestic worker (living in the house)	Hazardous according to CNNA16 list item #74	Y
Domestic worker (living outside the house)	Prevalent occupation among our population, but not considered hazardous	N
Loading unloading in markets/Packer	Hazardous according to CNNA 16 item #86	Y
Street worker, including shoe shining, market vendor, windshield cleaner, street entertainer, bike messenger, trader, car washer, look after cars; bus payment collector or other street work	This is not in any of the LC, C&A or CNNA16 lists but street work activities are flagged as hazardous per Ecuador laws or regulations in this document https://www.dol.gov/ilab/reports/child-labor/findings/2014TDA/ecuador.pdf ; Street work will be considered Hazardous to our purposes	Y
Cook or Waiter/waitress (in restaurants)	Prevalent occupation among our population, but not considered hazardous	N
Waiter/waitress in bar/cantinas or bartender-serving alcoholic beverages	Considered hazardous according to item in LC art 138 (k); CNNA16 item #70	Y
Taxi/motorcar driver	* not hazardous per se, but if younger than 18 illegal will be flagged	Y
Custodian or security guard	Hazardous according to LC art 138 (m); CNNA16 item #71	Y
Social club worker (in places for gambling, selling of alcoholic beverages, gentlemen clubs)	Hazardous according to C&A item #3	Y
Recycler of waste, scrap metal and nonmetallic waste	Hazardous according to CNNA 16 items #55, 56	Y
Garbage worker/collector	Hazardous according to CNNA 16 item #60	Y
Brick maker	Hazardous according to CNNA 16 item # 29; #37; #45	Y
Other (please describe in your own words your main activities or what do they make you do)	Students' responses here will be mapped to determine whether hazardous or not	

What economic sector/industry does your job (or jobs) belong to?	Hazardous list (s)	Hazardous (Y/N)
Agriculture (production of banana, flowers, palm oil, timber)	Not in any of the lists but these are flagged as hazardous per Ecuador laws or regulations in this ILAB document https://www.dol.gov/ilab/reports/child-labor/findings/2014TDA/ecuador.pdf . Will be considered as hazardous (although we expect very few minors in agriculture)	Y
Mining and Quarrying	Considered hazardous according to LC art 138 (a) , C&A# 1	Y
Manufacturing	* Not considered hazardous per se in legislation	N
Construction	Not in any of the lists but these are flagged as hazardous per Ecuador laws or regulations in this ILAB document https://www.dol.gov/ilab/reports/child-labor/findings/2014TDA/ecuador.pdf .	Y
Hotels and restaurants	not considered hazardous per se	N
Wholesale and retail trade	not considered hazardous per se	N
Informal or ambulatory sales	not considered hazardous per se	N
Repair of motor vehicles, motor cycles and other machinery	not considered hazardous per se	N
Transportation/storage	not considered hazardous per se	N
Other service activities	not considered hazardous per se	N
Other (please briefly describe)	Students' responses here will be mapped to determine whether hazardous or not	

* CNNA16 hazardous work list includes several activities taking place in manufacturing industry (e.g. manufacturer of glass); these represents very specific occupations or activities that can expose students to dangerous agents or working conditions. These aspects will be captured in subsequent survey questions about working conditions (Q34-Q35) or if students list specific manufacturing occupations under the "other" option in Q29