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The Impact of Child and Youth Labor on his/her Performance in School

RESEARCH PROPOSAL

Presented to

Partnership for Economic Policy (PEP)

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1. Abstract (100 to 250 words)

In Brazil, many students combine working with studying. Understanding the behavior of this group is crucial for understanding to what extent child labor interferes with children's schooling.

According to a Brazilian Household Survey, in 2011, 7% of the children and adolescents aged between 10 and 15 years and 20% of the 16-17 years old combine working with studying.

In this study we intend to analyze the impact of child and youth labor on school achievement, using "Prova Brasil" school achievement test from 2007, 2009, 2011 and 2013. Prova Brasil is a census data with student´s information in grades 5 and 9. Another source of information to be used is ENEM, a test applied to high school students.

The employment of children and youths is a polemic issue. A group claims that the work performed by kids and youths may bring benefits as they could learn from their jobs and be better off in the future. On the other hand, a young person who works cannot study as much as a one dedicating full time in school and this could bring negative effects for his or her future. This study will help understand the consequences a child or youth will face if simultaneously study and work.

The analyses will be performed separately by gender. We will analyze the impact of child labor on test scores in Portuguese and Mathematics, on grade failure and drop out.

Moreover, we will analyze the factors responsible to the decline in child and youth labor and the increase in schooling from 1992 to 2013 using household surveys (PNAD).

2. Main research questions and contributions

Explain the focus (or key questions) of your research and its policy relevance.

2.1. Explain why you think this is an interesting research question and what the potential value added of your work might be (knowledge gaps). You might want to explain whether or not this question has been addressed before in this context (including key references), and if so, what do you wish to achieve (in addition) by examining the question again?

Since beginning of nineties, Brazil experienced an impressive decline in children and youths labor. According to the National Household Survey, the Pesquisa Nacional de Amostra por Domicilios (PNAD), in 1992, about 23 percent of Brazilian children and youths aged 10 to 15 worked, compared to 7 percent in 2011 (IBGE 2011). With respect to educational indicators such as illiteracy rates and years of schooling, Brazil still lags behind other Latin American countries. However, during the 1990s, school attendance increased, mainly in primary school and for students aged 7 to 14. In 1992, 87 percent of the children aged 7 to 14 attended school. By 2011, this percentage reached 98 percent.

A possible reason why Brazil continues to lag other countries in school achievement despite the increases in school attendance may be that a high percentage of students work while they attend

school. According to the 2011 PNAD data, of Brazilian children aged 10 to 17, 82.4 percent only study, 2.6 percent work and do not study, 10.3 percent combine work with study, and 4.7 percent neither work nor study. This statistic shows that there are a significant number of children and adolescents who continue to divide their time between working and studying, which could harm their school achievement.

Low income families are many times dependent on their kids' earnings as a way to survive. On the other hand, many children and youths work not because they are very poor but because they want to be independent and to consume available goods. Conditional cash transfer programs, such as Bolsa Familia and PETI provide stipends to poor families if their kids stop working and have minimum required school attendance.

This study contributes to the literature by analyzing the direct impact of children and youths labor on the academic progress of students as measured by standardized achievement tests, drop out and grade repetition. The analyses will be performed separately by men and women to observe eventual differences and discriminations by gender.

Authors such as Gunnarsson et al. (2004), Psacharopoulos (1997), Heady (2003), Akabayashi e Psacharopoulos (1999), Stinebrickner and Stinebrickner (2003), Bezerra et al (2009), Dumas (2012) among others, studied the effect of early child labor on student achievement test scores in different countries. However, this present study differs from previous studies because we will use a richer and more updated census data being able to create a panel and control for unobserved effects. Moreover, we will investigate not only if a child works outside his/her home but also the number of hours spent in household activities performed by him/her. Specifically, student performance may be affected differently by work conducted inside the household than by work in the labor market.

There are some studies in the literature looking at the effect of the work performed by children on their attendance rate rather than on performance, such as Ravallion and Wodon, (2000), Assaad et al. (2001), Canals-Cerda and Ridao-Cano (2004), Beegle et al. (2008 and 2006) and Assaad et al. (2005). However, in Brazil is common to see kids combining work and school and therefore looking at the effect of child labor on learning is even more important than on school enrollment.

The impact of child labor on learning may be negative if children and adolescents divide their time between studying and working many hours in jobs that require lots of efforts, which could harm their school achievement. On the other hand, the impact of child labor on learning may be positive if the job involves tasks that results in learning and skills improvement. So, the direction of the expected impact of child labor on learning is unclear.

2.2   Describe the specific policy issues/needs that your research aims to address; how your potential outcomes/findings may be used in policy making?
Justify timing of your research in terms of policy and socioeconomic needs/context – e.g. reference to existing/planned/potential policies at the national level.

- Evidence of previous consultation with potential users (e.g. policymakers and key stakeholders) to help define your research question is strongly encouraged. Include a list of names, institutions and email addresses when possible.

This present study was formulated after observing the interest of many different research organizations in knowing the impact of children and youths labor on the academic progress of students. Previous consultation with potential users of the results are listed below:

If the results show that the work of children and youths have a negative impact on learning, policy makers will have to make efforts to prohibit child and youth labor, through social programs, enforcement of the law and labor inspections or by raising awareness about the importance of education and the hazard of early entrance into the job market. On the other hand, if the results show that the work of children and youths have a positive impact on learning, policy makers will have to try to adjust curriculum and time schedule as well as create more technical schools.

The social and economic situation of the population in Brazil has improved in the last decades. However, due to a large income and regional inequality in the country, we still face disadvantaged groups who need social assistance. These groups comprise residents of rural areas as well as of the Northeast and North regions and low income families. Focus will be given to those groups.

Previous Consultation:

Ana Kassouf was a child labor consultant and prepared a discussion document for the *III Global Conference on Child Labor* that took place in Brasilia in October 2013. Due to this event and to Dr Kassouf field of research she had the opportunity to meet many policy makers and researchers from the Ministry of Social Development, Ministry of Labor and Justice Ministry and researchers from ILO. The Conference was organized in collaboration with the International Labor Organization (ILO) in Geneva and Brasilia.

The Understanding Children's Work Programme (UCW) represented by Dr Furio Rosati and University of São Paulo represented by Dr Ana L Kassouf have a collaboration agreement to study and develop research on the topic Child and Youth Labor, advising undergraduate and graduate students on this topic. The Understanding Children's Work (UCW) programme is an inter-agency research cooperation initiative involving the International Labour Organisation (ILO), UNICEF and the World Bank.

Recently Dr Kassouf participated in the Project "Education for All Global Monitoring Report 2015" with UNESCO, analyzing how the increase of enrolment rates affect children and youths learning in Brazil. The goal was to provide insights into which students are progressing and meeting curriculum goals, and also signal which policies and strategies are having the desired effect in terms of learning outcomes. With more children entering and completing basic education than ever before, it is often claimed that expanding access inevitably means lowering the quality of education. New entrants are more likely to come from marginalized households where they tend to have experienced malnutrition and poverty, and where the parents are low educated and

unable to help them with their studies. Comparing experiences within countries over time can provide a picture of how to increase not only the number of children who get into school, but also the number who learn.

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Furio Rosati	Director	Understanding Children Work - UCW	frosati@ucw-project.org
Maria Claudia Falcão	Project Assistant	International Labor Organization - ILO	falcao@oitbrasil.org.br
Paula Montagner	Ministry Adviser	Ministry of Social Development	paula.montagner@mds.gov.br
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Nihan Koseleci Blanchy	Researcher,	UNESCO	n.koseleci-blanchy@unesco.org

3. Methodology

Presentation of the specific techniques that will be used to answer the research questions and how exactly they will be used to do so. Explain whether you will use a particular technique normally used in other contexts or whether you intend to extend a particular method and how you will do so. Explain if these methods have already been used in the context you are interested in (including key references).

Estimating the relationship between child and youth labor and schooling is complicated because students who work might do poorly in school, but poor performance in school can also lead to families deciding that children should invest more time in work. School characteristics, family characteristics, and individual characteristics all affect both child labor and school achievement.

Orazem and Gunnarsson (2003) discuss possible controls for the reverse causality of test scores on child labor. The instruments should be variables that change the probability of child labor without also directly affecting test scores. According to the authors, good instruments for child labor are measures of the opportunity cost of child time in school. Given the available data used in this study and the variables discussed by Orazem & Gunnarsson, we have the choice of using: (i) starting school age or (ii) local child wage by age for boys and girls in urban and rural areas. The latter will be obtained from the yearly National Household Surveys (PNAD) by metropolitan region, urban/rural and men/women.

Moreover, creating a student or school pseudo panel and using fixed or random effect models allow the control for both the endogeneity of child labor and the presence of other unobservables (e.g. kids ability and parental preferences) that are potentially correlated with both the decision to work and to study. An additional contribution of this study is the attempt to control for teacher, principal and school characteristics using a rich set of variables available from Prova Brasil and ENEM data. Another novel aspect of this paper is the use of controls for students' motivation by including proxy variables in the regression analyses.

We will also use propensity score matching to check the robustness of the results.

The methodologies are described below.

1) Fixed Effect Model.

Consider the variable of interest Y, such as children's performance in school, then,

$$Y_{it} = \alpha_i + \gamma_t + \beta'X_{it} + \varepsilon_{it}$$

Where α is the individual or school fixed effect, γ is the time fixed effect, β is the vector of parameters of the exogenous variables X and ε is the error term. The X variables include children's characteristics, school's characteristics, children's work status, and others.

2) Random Effect Model

In the random effect model, α_i is assumed to be uncorrelated with the included regressors and the model is formulated as:

$$Y_{it} = \alpha_i + \gamma_t + \beta'X_{it} + \varepsilon_{it}$$

where

$$\alpha_i = \alpha + u_i$$

3) Propensity score matching method, proposed by Rosenbaum and Rubin (1983).

The idea is to match treatment and comparison groups units on their covariates, matching the most similar ones in terms of observable characteristics. However, it would be very unlikely to match two observations in all variables. This matching gets more unlikely the more variables are added to the vector of characteristics. Hence, the method proposes the reduction of dimensionality using the propensity score – the probability of receiving the treatment conditional on covariates.

$$P(Xi) = \Pr[Di = 1 \,|\, Xi\,]$$

The mean difference on their outcomes gives the average treatment effect on the treated, that is, the mean effect of the treatment on Y. Further discussion on propensity score matching are found in Dehejia and Wahba (2002).

In this method, participants (child who were engaged in domestic work, non-domestic work or in both) are matched with an individual in the non-participant - control group (children not working).

Nearest Neighbor Matching (One-to-One) and other approaches will be used to estimate the effect of the work performed by children on their proficiency in school.

The outcome variables are Portuguese and Mathematics test scores in 5th and 9th grade of primary education and 3rd year of secondary education for each work status (non-domestic, domestic or both non-domestic and domestic). Students' performance may be affected differently by work conducted inside the household or in the labor market.

We will also investigate the number of hours spent in household activities performed by the child and how they may affect their test scores. Moreover, outcomes such as dropping out from school and grade failure will be analyzed.

There is an important identifying assumption when using the method of matching knowing as Conditional Independence Assumption (CIA). According to Bryson et al (2002), the assumption is satisfied "if one can control for observable differences in characteristics between the treated and non-treated group, such that the outcome that would result in the absence of treatment is the same in both cases." The authors also point out that it is important to have a very rich dataset where all the variables affecting both treatment and outcome are observed. So, having a large number of background characteristics is crucial for matching. Since there is no test for the CIA, it is important to have a great knowledge of the empirical and theoretical literature on the topic analyzed to know what variables should be included in the matching process.

In the child labor literature, the most important variables to explain the decision of a child to work are: child age, gender, race, parents's education, place of residence, household size and composition and family income (see Basu and Tzannatos (2003a and 2003b).

To create a counterfactual we will estimate a probit model with the dependent variable being 1 if a child works and zero otherwise. The available control variables in the dataset are: age, gender, race, age started school, number of household members, mothers' education, fathers' education, place of residence, household infrastructure and possession of goods in the household (TV, washing machine, refrigerator, computer etc). Also available in the dataset is: school infrastructure and equipments (computer, internet, libraries and labs), encouragement of the parents towards children's going to school and studying, teacher's education, students 'motivation etc.

Propensity score matching requires not only a large number of variables, as described before, but also a large number of observations, i.e., a large number of participants and non-participants entering the matching process. Smaller samples will provide less precise estimates of treatment effects and may result in small effect passing undetected. This is called common support.

After creating the control and treatment groups we will perform a *t* test for comparing two means: the means of the exogenous variables for children who worked with the means of the exogenous variables for children who do not work. We expect that the differences between the means will not be statistically significant, i.e., the treatment and control groups will not differ from each other, except by the fact that a child works.

We believe Propensity Score Matching is reliable because the same questionnaire is administered to both groups being analyzed and the participants and controls are from the same economic environment. We believe that participants and controls have the same distributions of unobserved characteristics. They are children or teenagers studying in public schools, reflecting similar environment and lower family income level, since higher income parents pay schools for their kids. The most important unobserved characteristic mentioned in the literature is motivation. Fortunately we do have some data on motivation, such as: (i) Do you like to study Portuguese? (ii) Do you like to study Mathematics? (iii) Do you like to read?

(iv) Do you go to libraries, theater or cinema? Do your parents encourage you to study? etc .

Table 1 shows the number and percentage of students in the 5th and 9th grade of primary school, according to their work status in 2007, 2009 and 2011. Data from 2013 will be available soon.

Table 1: Number and percentage of 5th and 9th grade students, according to their work status.

	5th grade primary school					
	2007		2009		2011	
Work Status	number	%	number	%	number	%
Do not work	1,066,170	54.18	1,244,669	56.20	1,188,449	56.92
Work in the household	627,577	31.89	641,338	28.96	618,358	29.61
Work in the market	147,760	7.51	182,583	8.24	158,994	7.61
Work in both	126,376	6.42	146,101	6.60	122,207	5.85
Total	1,967,883	100	2,214,691	100	2,088,008	100
	9th grade primary school					
	2007		2009		2011	
Work Status	number	%	number	%	number	%
Do not work	733,228	43.07	828,909	46.12	905,441	47.21
Work in the household	620,352	36.44	609,186	33.89	647,994	33.78
Work in the market	198,063	11.63	210,504	11.71	218,011	11.37
Work in both	150,888	8.86	148,823	8.28	146,552	7.64
Total	1,702,531	100	1,797,422	100	1,917,998	100

Source: Microdata of Prova Brasil.

Observe that close to 54-57% of the students in 5th grade neither work in the household nor in the market. Close to 29-32% work in the household more than an hour a day, around 8% work in the market or outside their houses and 6% work in both, outside and inside their houses.

The percentage of students working increase with age (or grade) as it can be observed in table 1 for 9th grade and in table 2 for 3rd year of high school where 39% of the youths in high school were currently working in 2012.

In 2011, if we consider separately the work status: in the household only, in the market only and in both places, there are, respectively, 618, 158 and 122 thousand kids working in 5th grade.

Therefore, to create a counterfactual we have available more than one million children (do not work). Similar numbers appear in the 9th grade.

Table 2: Number and percentage of 3rd year of high school students, according to their work status.

3rd year high school

Work Status	2012	
	number	%
Currently working	342,018	28.00
Have already worked	209,471	17.15
Never worked	670,111	54.85
Total	1,221,600	100.0

Source: Microdata of ENEM - 2011.

Given the available data to be used in this study - Prova Brasil and ENEM- we believe that we have a large number of variables and a large number of observations that allow us to create a credible counterfactual, such that all remaining unobservables are not likely to be relevant to the choice of child labor and performance.

School Panel - Fixed Effect Model

Another alternative methodology we intend to use is to create a school panel data and use fixed effect to better control unobserved effects invariant in time.

The Prova Brasil data in 2007, 2009, 2011 and 2013 will be used to create a panel of schools. For each year, Table 3 shows the total number of schools and the number of schools with at least one kid working or without any kid working outside his or her house in 5th grade and 9th grade.

Our identification rests on the assumption that – after controlling for school and year fixed effects, state time trends, initial score times time trend, observable child, parents, teachers and school characteristics – the presence of children working in a given school in a given year is unlikely to be correlated with unobserved factors that determine the education outcomes examined in this study (test scores, dropping out and grade promotion).

Table 3: Total number of schools by year and the number of schools with at least one kid working or without any kid working outside his or her house for 5th and 9th grade.

5th Grade	2007	2009	2011
Schools with at least one Kid working	36,370	42,553	39,603
Schools without kids working	1,092	1,000	1,202
Total number of schools	37,462	43,553	40,805
9th Grade	2007	2009	2011
Schools with at least one Kid working	27,056	31,561	31,300
Schools without kids working	319	373	299
Total number of schools	27,375	31,934	31,599

Source: Prova Brasil.

4. Data requirements and sources

This is a critical part of the proposal. The key issue is to explain the reason for the use of the particular data. You must establish that they are ideal for the question you wish to address. Please consult the "Guide for designing a research project proposals" for more detail.

Prova Brasil is a census dataset for students in their 5th and 9th grades in public schools, collected by the Ministry of Education every 2 years. The great majority of students in Brazil, and mainly from lower income families, is in public schools. Students are expected to start school at the age of 6, so they would be 10 or 11 years old at grade 5 and 14 or 15 years old at grade 9.

In this study we will create a pseudo-panel using data from 2007, 2009, 2011 and 2013. We will select children in the 5th grade in 2007, for example, and then try to find a similar child in the same school who is 4 years older in 2011, using variables such as gender, color and month and year of a child´s birth. Although we cannot know for sure if he or she is the same child, we believe that there is a large chance that we choose the same child. The same will be done with children in the 5th grade in 2009 and in the 9th grade in 2013.

This procedure does not take into account children repeating or abandoning classes. The idea is to first analyze the impact of the work performed by a child on his or her test score. This group will only include children that did not repeat nor abandon classes. After that we will analyze the impact of child labor on drop out and grade failure. According to Prova Brasil 2011, from almost 2 million 9th grade students, close to 660 thousand repeated classes (33%) and close to 110 thousand dropped out school (6%) at least once in their life. The data set provides the following information:

   i)   Have you ever abandoned school during school year and have stayed out of school for the rest of the year?
_ yes once   _ yes twice or more _ no

   ii) Have you ever repeated your school year?
_ yes once   _ yes twice or more _ no

Tables 4 and 5 show the number of students repeating grade and dropping out school.

Table 4: Number and percentage of 5th and 9th grade students who repeated grade or not.

	5th grade primary school					
	2007		2009		2011	
Grade Failure	number	%	number	%	number	%
No	1,441,009	69.54	1,622,158	68.48	1,509,684	69.42
Yes once	457,232	22.06	535,294	22.6	473,950	21.79
Yes twice or more	174,070	8.4	211,236	8.92	191,066	8.78
Total	2,072,311	100	2,368,688	100	2,174,700	100
	9th grade primary school					
	2007		2009		2011	
Grade Failure	number	%	number	%	number	%

	1,153,204	66.41	1,234,356	65.15	1,290,644	66.12
No	1,153,204	66.41	1,234,356	65.15	1,290,644	66.12
Yes once	417,367	24.03	469,755	24.79	452,956	23.21
Yes twice or more	166,025	9.56	190,570	10.06	208,198	10.67
Total	1,736,596	100	1,894,681	100	1,951,798	100

Source: Microdata of Prova Brasil.

Table 5: Number and percentage of 5th and 9th grade students who dropped out or not.

5th grade primary school						
	2007		2009		2011	
Drop out	number	%	number	%	Number	%
No	1,880,736	92.43	2,235,640	92.29	2,010,644	92.01
Yes once	120,794	5.94	145,134	5.99	132,212	6.05
Yes twice or more	33,344	1.64	41,622	1.72	42,354	1.94
Total	2,034,874	100	2,422,396	100	2,185,210	100
9th grade primary school						
	2007		2009		2011	
Drop out	number	%	number	%	Number	%
No	1,606,191	92.58	1,802,535	93.94	1,839,692	94.05
Yes once	98,648	5.69	93,329	4.86	90,828	4.64
Yes twice or more	30,170	1.74	22,960	1.20	25,495	1.30
Total	1,735,009	100	1,918,824	100	1,956,015	100

Source: Microdata of Prova Brasil.

To analyze these impacts we will use propensity score matching and school panel fixed effect, since we will not be able to identify children repeating and abandoning classes in two different periods of time to create a student pseudo-panel.

According to Deaton (1997) the cohort data can have advantages and disadvantages over panel data. As advantages: (i) It can be used to control for unobserved effects just as with panel data, (ii) contrary to panel data do not suffer from attrition, (iii) it will in general be less susceptible to measurement error and (iv) a combination of data from different surveys on different households can be used. On the other hand, the assumption that the cohort population is constant may not hold, mainly when using households and not individuals data, which is a disadvantage of the method. However, as Deaton points out "it is usually clear when these problems are serious". In our study this problem does not seem relevant because we will use 4th grade students and then 9th grade students.

Children and youths respond if they work or not outside their home and if they work in household tasks. Moreover, if they perform household tasks, they will answer the number of hours spent in these activities. Prova Brasil microdata contain information on students' characteristics: age, sex, race, month and year of birth; on their parents' characteristics: age, schooling, education incentives; on teachers' characteristics: education, equipments used in the classrooms: computer, libraries, labs, gym, etc. and school infrastructure.

Another source of data is ENEM, a test performed by students in high school, collected by the Ministry

of Education every year since 1998. The data have information on any paid activity performed by students and the number of hours spent in those activities. Socioeconomic variables and school information are also available. We will use propensity score matching to create a control group since we cannot create a pseudo-panel. Students take the exam only once in life. There are more than 1.2 million students in the 2012 ENEM. We will also create a school panel to analyze the impact of working on test scores.

The PNAD data set (annual household survey) will be used to analyze the improvements in schooling and the decrease in child labor from 1991 to 2013, discussing possible factors responsible for this trend. The descriptive statistics will disaggregate by age, gender, socio-economic status, ethnicity, place of residence (rural/urban), regions and states.

To analyze the decline in child labor and the increase in child schooling we will use only descriptive statistics, looking at possible government policies and socioeconomic conditions in the country that lead to such trends. The creation of a Law designed to increase school spending in the 90´s; an amendment of the child labor law passed in 1998 that raised the minimum working age from 14 to 16 years old; the government social programs launched to increase education and to decrease child labor (PETI, Bolsa Escola, Bolsa Familia); the increase in real minimum wage observed in the last decades; the significant decrease in poverty and in income inequality also observed in the last decades, just to name a few.

These data sets provide the necessary information to conduct this study. The Ministry of Educational data, which are Prova Brasil and ENEM have information on test scores and employment for students in primary, secondary and high school in Brazil. PNAD is an annual national household survey with detail information on education and employment that will allow us to analyze the trend in enrollment and labor participation in the last 20 years, for different age groups.

The exams administered are standardized, multiple-choice designed to measure students' abilities and capacities in Portuguese (with a focus on reading comprehension) and Mathematics. As a way to compare different students throughout the years the reading and Mathematics tests administered to students use the Item Response Theory. The scores are mapped into cumulative performance scales, which mean that students who are placed at a given level are competent at the skills required at the previous levels of the scale. Based on percentage scales, test scores classify students into levels of achievement in Portuguese and in Mathematics. The highest is the level reached, the best is the student's performance. Level zero is a critical point where students are not able to read, calculate or understand the contents of the test.

In the nineth grade of primary education, the scale in the Portuguese test consists of ten possible levels, according to the score obtained: Level 0 (below 125), level 1 (between 125 and 150), level 2 (between 150 and 175), level 3 (between 175 and 200), level 4 (between 200 and 225), level 5 (between 225 and 250), level 6 (between 250 and 275), level 7 (between 275 and 300), level 8 (between 300 and 325), level 9 (between 325 and 350).

In the third grade of secondary education, the scale in the Portuguese test has two more levels, between 350 and 375 and 375 or more.

In the eighth grade of primary education, the scale in the Mathematics test consists of 13 possible levels: Level 0 (below 125), level 1 (between 125 and 150), level 2 (between 150 and 175),), level 3

(between 175 and 200), level 4 (between 200 and 225), level 5 (between 225 and 250), level 6 (between 250 and 275), level 7 (between 275 and 300), level 8 (between 300 and 325), level 9 (between 325 and 350), level 10 (between 350 and 375), level 11 (between 375 and 400), level 12 (between 400 and 425).

In the third grade of secondary education, the scale in the Mathematics test has one more level, 425 or more.

In the beginning of 2000 the National Institute of educational studies and analyses (INEP), from the Ministry of Education, created a classification of the proficiency levels dividing into four stages: very critical, critical, fair or basic and adequate. Table 3 shows this classification, according to the scores in Portuguese and Mathematics tests. At basic level, for example, students can read and interpret texts at basic stages and are limited to solve mathematic problems.

In Brazil almost 60% of the students in the 9th grade are in critical and very critical levels in Portuguese. Mathematics is even worse than language, where more than 70% of the students are in critical levels.

Table 3 - Levels of test score proficiency in Mathematics and Portuguese for 9th grade students in primary education and 3rd grade students in secondary education

Education	Test	Very Critical	Critical	Basic	Adequate
9th grade	Portuguese	0 – 200	200 – 250	250 – 300	300 – more
9th grade	Mathematics	0 – 225	225 – 275	275 – 325	325 – more
3rd grade	Portuguese	0 – 225	225 – 275	275 – 325	325 – more
3rd grade	Mathematics	0 – 250	250 – 300	300 – 350	350– more

5. Policy influence plan (or research communication strategy)

- Referring to the policy context described in section 2.1., identify potential users of your research findings, including policymakers and other key stakeholders. Provide a list of institutions and, whenever possible, specific individuals to be targeted for effective policy influence. Please also indicate whether you have already made contacts within the institutions

- How, in the elaboration and execution of your project (from design to dissemination), will you consult/communicate with these users to both gather their inputs and keep them informed of your project (expected contributions and uses), in order to increase chances of your findings to be taken-up into policymaking?

You can refer to PEP's research communications strategy and guidance to have a better idea of what is expected in terms of activities for policy outreach and dissemination.

Institution	Contact	Target
Understanding Children Work - UCW	Furio Rosati	Child and Youth Labor
International Labor Organization - ILO	Maria Claudia Falcão	Child and Youth Labor
Ministry of Social Development	Paula Montagner	Social Programs, poverty, child labor, education

| Ministry of Labor | Leonardo Soares Oliveira | Labor Inspection |
| UNESCO | Nihan Koseleci Blanchy | Education |

The decline in child labor and the increase in school attendance in Brazil has been accompanied by a significant advancement in efforts to increase school attendance and eliminate the worst forms of child labor. The creation of a Law designed to increase school spending in the 90´s; an amendment of the child labor law passed in 1998 that raised the minimum working age from 14 to 16 years old. Moreover, the Government increased budget allocations for its flagship social protection programs (PETI, Bolsa Escola, Bolsa Familia, Brasil Carinhoso, and Brasil sem Miséria) and established new guidelines to prioritize child labor in the labor inspectorate system and created a national training academy for labor inspectors. It also restructured the National Program to Eradicate Child Labor to improve coordination and provide additional resources to local governments, and established a new national plan to combat sexual violence and commercial sexual exploitation of children. In 2013, Brazil hosted the Third Global Conference on Child Labor, which reaffirmed the goals of eliminating the worst forms of child labor by 2016 and of implementing the Roadmap adopted at The Hague Global Child Labor Conference in 2010.

The dissemination activities envisaged by this project, including seminars and workshops, will contribute to mainstream the results among key stakeholders, including international organizations and the government. Publication in economic development and educational journals will contribute to the take up of the findings by academic institutions.

The findings of this study will provide a greater involvement of the educational policies towards the eradication of child labor.

The main audiences for our paper(s) are the Ministry of Development and Social Assistance and the Ministry of Labor in Brasilia, International Labor Organization (ILO) in Brasilia and Geneva, Understanding Children Work (UCW) in Rome, UNESCO, social researchers, and researchers and policymakers in other Latin American countries. Ana Kassouf will take primarily responsibility for dissemination in Brazil, both for policymakers in the Ministry of Social Assistance and Labor and for Brazilian researchers. Dissemination will take the form of presentations and working papers in English and Portuguese in the Department of Economics at the University of Sao Paulo.

Since Professor Kassouf has participated in different projects related to child and youth labor and education, as described in 2.2, due to the stablished contacts it will be easy to disseminate the results through seminars with staffs from the International Labor Organization in Brazil, Geneva and Rome, with Unesco researchers and with the Ministry of Social Development and Ministry of Labor in Brasilia.

Professor Kassouf and other researchers will be jointly responsible for academic dissemination in terms of presentations in Latin America and in North America and elsewhere and in terms of academic publications. One or more papers will be submitted for publication in either economic development journals or educational journals, including journals that focus primarily on Latin

America and the Caribbean.

We also intend to launch courses for students and policy makers interested in learning how to use large data sets, softwares and econometric methods (regression, impact evaluation, etc), which can be done using the infrastructure of the University of Sao Paulo.

6. List of team members

Indicating their age sex, as well as relevant/prior training and experience in the issues and research techniques involved (start with team/project leader).

Note that PEP favors gender-balanced teams, composed of one senior (or experienced) researcher supervising a group of junior researchers, including **at least 50% female researchers,** all contributing substantively to the research project. PEP also seeks gender balance in team leaders and thus positively encourages female-led research teams. (Each listed member must post an up-to-date CV in their profile on the PEP website – refer to "How to submit a proposal")

Name	Age	Sex (M,F)	Training and experience
Ana Lúcia Kassouf	51	F	Ana Kassouf is a full Professor in the Department of Economics at University of Sao Paulo. She has published extensively in English and in Portuguese on education, child labor and social programs in Brazil, including articles in Journal of Development Economics, Economic Development and Cultural Change, Applied Economics, and the Brazilian Review of Econometrics. She has held three post-doctoral positions, two at the London School of Economics and one in Applied Economics at the University of Minnesota and has served as a consultant several times for the International Labour Organization and the World Bank. She obtained her Ph.D. from the University of Minnesota in 1993.
Marcos Garcias	27	M	Marcos de Oliveira Garcias is a PhD student in Economics at the University of Sao Paulo, where Prof. Kassouf is her main advisor. His major field of interest is Social Economics. He has participated in researches on Impact Evaluation as of rural credit for small holders in Brazil and rural insurance program. He has expertise in database management, especially in microdata and in econometric tools.
Camila Rossi	25	F	Camila is a master student in Economics at the University of Sao Paulo, where Prof. Kassouf is her main advisor. Her major field of interest is Social

			Economics. She has expertise in database management, especially in microdata and in econometric tools.
Ida Bojicic Ono	30	F	Ida Bojicic Ono is a master student in Economics at the University of Sao Paulo, where Prof. Kassouf is her main advisor. Her major field of interest is Social Economics and Economics of Education. She has participated in a research on Education and Development related to the role of education and infrastructure to reach economic development in Brazil.

7. Expected capacity building

Description of the research capacities that team members (and potentially their affiliated institutions) are expected to build through their participation in this project.

This is an important aspect in the evaluation of proposals and should be presented in some detail. What techniques, literature, theories, tools, etc. will the team and their institutions learn (acquire in practice) or deepen their knowledge of? How will these skills help team members in their career development? Also indicate which specific tasks each team member would carry out in executing the project.

This project will be carried out by three young researchers under the advice of a female senior researcher, Ana Lucia Kassouf, which will serve as an advisor throughout all project phases, especially in the last ones.

Camila Rossi and Ida Bojicic are a master students and they had already gone through her undergraduate research. The research will significantly enhance their knowledge of the methodological approaches proposed to evaluate the impact of child labor on student´s performance in school.

Marcos Garcias is a PhD student and he will work in his dissertation evaluating the impact of training programs in rural area and the research will significantly enhance her knowledge of the methodological approaches.

Ana Lucia Kassouf has a wide experience in program evaluation. She teaches Applied Econometrics in undergraduate and graduate levels and part of the program is impact evaluation.

The proposed methodology gained visibility recently. It is now disseminated and available in some statistical softwares. The evaluation of the impact of child labor on children´s performance in school using test scores using the proposed methodology may be considered innovative for policy makers in the Brazilian government and the results will serve to orient public decisions.

Name	Task/contributions
Camila Rossi and Ida	Management of the survey database

Bojicic Ono	
Camila Rossi, Ida Bojicic Ono and Marcos Garcias	Identification of comparison and treatment groups
Camila Rossi, Ida Bojicic Ono and Marcos Garcias	Creating panel data
Marcos Garcias and Ana Kassouf	Econometric Analysis – fixed effect model
Camila Rossi, Ida Bojicic Ono , Marcos Garcias and Ana Kassouf	Discussion of Results
Camila Rossi, Ida Bojicic Ono , Marcos Garcias and Ana Kassouf	Preparation of Preliminary Report
Marcos Garcias and Ana Kassouf	Estimation using propensity score matching and DID
Camila Rossi, Ida Bojicic Ono , Marcos Garcias and Ana Kassouf	Analysis and Discussion of the Results
Camila Rossi, Ida Bojicic Ono , Marcos Garcias and Ana Kassouf	Conclusions and Policy Recommendations
Camila Rossi, Ida Bojicic Ono , Marcos Garcias and Ana Kassouf	Preparation of Final Report

8. List of past, current or pending projects in related areas involving team members
Name of funding institution, title of project, list of team members involved

Name of funding institution	Title of project	Team members involved
International Labor Organization (ILO)	Public Policies adopted for the eradication of child labor in the last two decades.	Ana L Kassouf
UCW (Understanding Children Work)	Project on collaboration to promote research on the issue of child labour in Brazil	Ana L Kassouf
PEP Project	Impact Evaluation of the Brazilian Non-Contributory Pension Program Benefício de Prestação Continuada (BPC) on Family Welfare.	Ana L Kassouf
Brazilian Government	The Impact of the Bolsa	Ana L Kassouf

Foundation (Fapesp) and University of Minnesota	Escola/Familia Conditional Cash Transfer Program on Enrollment, Drop Out Rates and Grade Promotion in Brazil.	
International Labor Organization (ILO)	The Analysis of Social Programs and Policies in Brazil.	Ana L Kassouf
International Labor Organization (ILO)	Analyzing data from 2001 Household Survey to Understand Child Labor Behavior in Brazil	Ana L Kassouf
International Labor Organization (ILO)	Global Study on the Costs and Benefits of the Elimination of Child Labor	Ana L Kassouf
Hewlett Foundation at the University of Illinois	The impact of public policies to eliminate child labor compared to policies to improve school quality in Brazil	Ana L Kassouf
NGO Winrock	Analyzing projects proposed by local communities to eliminate child labor in Latin America	Ana L Kassouf
ADM Institute for the Prevention of Postharvest Loss (University of Illinois at Urbana Champaign)	The Nature of Small Landholder Agriculture in the Brazilian States of Sao Paulo and Parana and Implications for Understanding Post-Harvest Loss	Ana L Kassouf and Marcos Garcias
São Paulo Research Foundation - Brazil (FAPESP)	Agricultura Familiar e os impactos da restrição ao crédito rural: uma análise para diferentes níveis de mercantilização. (Family farms and impacts of rural credit restriction review for different trade levels)	Ana L Kassouf and Marcos Garcias
University of Campinas (UNICAMP)	Educação e Desenvolvimento Econômico (Education and Economic Development)	Ida Bojicic Ono
Conselho Nacional de Desenvolvimento Científico e tecnológico (CNPq).	Educação financeira entre crianças e adolescentes do município de Americana – SP. (Financial education among children and adolescents in	Camila Rossi

Americana - SP).	

9. Describe any ethical, social, gender or environmental issues or risks that should be noted in relation to your proposed research project.

This item does not apply to this project.

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