Does child labor affect children's school performance in Brazil?

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Abstract

In many poor countries, a large number of students combine working with studying. This has become of great importance when analyzing the factors that cause students to work and to what extent work prevents children from studying. In Brazil, an impressive number of children and adolescents both study and work. According to a Brazilian household survey, the 2003 Pesquisa Nacional por Amostra de Domicilios (PNAD), 14 percent of the 27 million children and adolescents aged between 10 and 17 years combine working with studying and only 3 percent only work.

Therefore, to understand child labor and children's schooling in Brazil, we need to focus not only on the question of whether work is responsible for children's low school attendance rates, as many studies have shown (Cavalieri 2000, Emerson and Portela 2001, Duryea and Arends-Kuenning 2003, Kassouf 2003), but whether child labor affects school performance, harming the academic attainment of students. For this purpose, we use Brazilian school achievement test data from the 2003 Sistema Nacional de Avaliação da Educação Básica (SAEB), which has information about achievement tests in Portuguese and Mathematics. The achievement tests were administered to students enrolled in the fourth and eighth grades of ensino fundamental (primary school) and to students enrolled in the third year of ensino medio (high school) in public and private schools throughout Brazil.

The detailed information available in the SAEB data allow us to analyze the impact of domestic work compared to work performed outside the house on students' performance on the exams, as well as the decrease in achievement test scores for each additional hour of work. In this manner, it is possible to determine if the harm caused by children working in their own households, close to their families, is greater or less than the harm caused when children work outside the house. In addition, it is possible to determine whether there exist a minimum number of hours that students can work without harming their school achievement. We can also measure the marginal impacts on children's achievement of an additional hour of work. Neither of these last two issues has been addressed in the existing literature on child labor and children's schooling.

The literature notes two important points to be considered when estimating school achievement equations. The first is omitted variable bias, which arises from excluding variables such as ability and individual motivation. These excluded variables are likely to be correlated with work and with school achievement, leading to a bias on the estimated coefficient for work. The other is the possible endogeneity of the work variable. Does the fact that a child works cause school performance to worsen, or do low school quality and lack of student motivation caused by poor school performance compel a student to work?

Heady (2003) in a study based in Ghana showed that the work done by children has a negative effect on learning in core learning areas, such as reading and mathematics. Gunnarsson, Orazem and Sanchez (2004) did a study of 11 Latin American countries and concluded that students who work score 7.5 percent fewer points on math tests and 7 percent fewer points on language tests than students who study only.

The current study has the advantage of the availability of variables that are good proxies for student motivation and school quality—variables that have not been used previously. The controls for student motivation include whether the student replies that she likes to study, whether the student does home work regularly, and whether the student was older than the correct grade-for-age. The controls for school quality include whether the school has a computer, library, laboratory, and television, the schooling level of teachers, and teacher salaries. In addition, we use instrumental variables to address the endogeneity of the child labor variables. These instrumental variables include the state where the school is located, population size of the city where the child works, urbanization rate, median family income in the state, the percentage of the population aged over 25 that is literate, and the average schooling of the population aged over 25.

We then estimate school achievement test score equations for mathematics and Portuguese, for students in 4^{th} and 8^{th} grade of primary school and for those in the third year of ensino medio, or high school. The dependent variables are the achievement test scores. The exogenous control variables include sex, age, and race of the students, schooling levels of their parents, family income, number of people in the household, region of residence, school infrastructure, and salary and education of teachers. The principal variables of interest in this study are as follows: if the child works or not, the number of hours the child works per week and if the child works at home or outside the home.

The results are similar for the three grades that are studied and for both mathematics and Portuguese tests. We find that working is harmful to children's school achievement compared to not working. In the fourth grade, students who work experience a loss of nearly 10 points on the mathematics test; in the eighth grade, this loss is 8 points and in the third year of high school, it is 12 points. The average value of the school test score variable is about 200 points.

Regarding the work conditions of students, the results indicate better test results for students who only study and do not work. The students who work only inside the house are harmed relative to those students who do not work, but these students are better off than those who work outside the house. The students who have the lowest test scores and are most harmed by working are those who work both inside and outside the house. Students who work both inside and outside the house work longer hours, doing work that requires more physical exertion, and therefore have less time and energy to devote so studies than other students do.

We find also a negative effect of the hours of work on proficiency test scores. For students in the fourth grade and the third year of high school who took the Portuguese

exam, for example, an increase of one hour of work implies a decrease of 3 and 7 points, respectively, on the relevant exam.

We conclude, therefore, that child labor causes a loss in students' achievement in school. Children and adolescents that dedicate all their time to school have better school performance compared to students who work. More work hours per school day implies a decrease in national proficiency test scores. Differences in work conditions affect the school performance of students. In comparison with students that have schooling as their only activity, students who work only at home have lower test scores. Those students who only work outside the house are worse off than those who only work within the house, and students who work both inside and outside the house have the lowest test scores of all the working conditions.