

Economic Analysis of Law Review

Labor Inspections as Law Enforcement on Child Labor in Brazil

Fiscalização do Trabalho como Aplicação da “Lei do Trabalho Infantil” no Brasil

Temidayo James Aransiola¹

Center for Applied Economics, Agricultural and Environmental, Institute of Economics, University of Campinas (CEA IE/Unicamp)

Luciana Luk-Tai Yeung³

Inspere Institute of Education and Research

Marcelo Justus²

Center for Applied Economics, Agricultural and Environmental, Institute of Economics, University of Campinas (IE-Unicamp)

RESUMO

São raras as evidências empíricas sobre o efeito das atividades de fiscalização realizadas pelo Ministério do Trabalho e Emprego do Brasil. Este artigo apresenta a hipótese de que as atividades de fiscalização reduzem a taxa de trabalho infantil nos estados brasileiros. Para chegar a essa conclusão, usamos dados agregados das Pesquisas Nacionais de Domicílios, do Ministério do Trabalho e Emprego e do Ministério do Desenvolvimento Social para estimar um modelo dinâmico de dados em painel. Os resultados mostram que as atividades de fiscalização contribuíram para a redução do índice de trabalho infantil. No entanto, a redução decorrente dessa medida de aplicação da lei ainda é modesta em comparação com a decorrente dos programas de transferência de renda.

Palavras-chave: Inspeção. Aplicação da lei. Trabalho infantil. Endogeneidade.

JEL: J8, J46, H53.

ABSTRACT

Empirical evidence on the effect of the inspection activities conducted by the Brazilian Ministry of Labor and Employment is rare. This paper puts forward the hypothesis that inspection activities reduce the child labor rate in Brazilian states. To reach that conclusion, we used aggregate data from National Household surveys, the Ministry of Labor and Employment, and the Ministry of Social Development to estimate a dynamic panel data model. Results show that inspection activities contributed to reduce the child labor rate. However, the reduction resulting from such law enforcement measure is still modest compared to that resulting from cash transfer programs.

Keywords: Inspection. Law enforcement. Child labor. Endogeneity.

R: 08/07/22 **A:** 30/04/23 **P:** 30/04/23

¹ E-mail: temidayo.james.aransiola@gmail.com

² E-mail: mjustus@unicamp.br

³ E-mail: lucianay@inspere.edu.br

Acknowledgments: The authors thank the financial support provided by the São Paulo Research Foundation (FAPESP) – grant number 2015/21410-8 – that made possible the master's degree of the first author at the University of Campinas (Unicamp); Center for Applied Economics, Agricultural and Environmental Research (CEA), Institute of Economics at Unicamp for the infrastructure. Marcelo Justus thanks the National Council for Technological and Scientific Development (CNPq) for his productivity in research grant (308964/2018-7).

1. Introdução

Brazilian law forbids any kind of labor activity for minors under the age of 16, except in the condition of apprenticeship as of the age of 14. Article 227 of the Federal Constitution of 1988 deals with children's and young people's well-being and adults' responsibilities towards them; the rule prohibiting child labor may be found there. In 1990, the so-called "Statute for Children and Adolescents" (ECA – Estatuto da Criança e do Adolescente) was passed in the Congress and pointed towards the same direction. Still, in 2014, there were about 3.3 million child laborers between ages 5 and 17 in the country (IBGE-PNAD, 2014). Specifically, about 2% of this total was between ages 5 and 9; about 25% between ages 10 and 14, and; about 73% between ages 15 and 17.

The Brazilian government adopts some law enforcement measures to reduce child labor; for instance, the former Ministry of Labor and Employment (MTE) conducted labor inspections focusing on child labor through a specialized secretariat (SIT – Secretaria de Inspeção do Trabalho).⁴ The main objectives of these inspections are to enforce the law and to punish exploiters of child labor in Brazil.

Inspection plans are prepared by the Regional Superintendencies of Labor and Employment (SRTEs) based on guidelines of the SIT and reports of child labor. Prior to planning, inspectors undertake preventive actions and inspection activities. Preventive actions involve awareness-creation by publicizing the scale and side effects of child labor through lectures, seminars, debates, and campaigns. After that, inspection activities are performed, which involve local visits to businesses and workplaces in both urban and rural areas (ILO/SIT, 2010).

During visits, inspectors record irregularities concerning child labor, implement actions to remove children from the worksite and issue infraction reports, which may result in fines. To prevent children from going back to work (and escape their parents' pressure to do so), they are included in social welfare programs. Specifically, children under the age of 14 are enrolled in cash transfer programs conditioned to school attendance and participation in social, educational and healthcare projects. Adolescents above the age of 14 are enrolled in apprenticeship programs, which offer technical training at the workplace.

The International Labor Organization, together with the Secretariat of Labor Inspections reported positive results of labor inspections in Brazil, specifically in removing children off work (ILO/SIT, 2010). However, it suggested the effectiveness of inspection activities should not be measured only by the number of children withdrawn from work, but also by awareness-creation, which is counterfactual. Basu (2006)⁵ theoretically showed that labor inspection might reduce child labor. However, for such measure to be effective, penalties (as per fines) to employers had to be significantly high. A few empirical studies investigated and confirmed the mitigating effect of inspection activities on child labor in Brazil, for instance Almeida (2015)⁶.

⁴ A Ministry of Labor (and Employment) existed in several Brazilian governments, but in some, its functions were dismembered into other ministries. The current federal government, of President Jair Bolsonaro, starting in January 2019, extinguished the Ministry, and allocated its functions to the Ministries of the Economy, the Ministry of Citizenship, and the Ministry of Justice. The Secretariat of Labor Inspections (SIT), has now become a Sub-secretariat, under the Ministry of the Economy. Former functions were maintained.

⁵ Basu, K. (2006). "Gender and say: a model of household behaviour with endogenously determined balance of power". *Economic Journal* 116(511), 558–580.

⁶ Almeida, R. B. (2015). *O efeito das fiscalizações do trabalho para a redução do trabalho infantil no Brasil*. Ph. D. thesis, Escola Superior de Agricultura Luiz de Queiroz (USP/ESALQ).

In contribution, this study proposes, firstly, to provide further empirical evidence concerning the effect of labor inspection on child labor. The hypothesis we put forward is that inspection activities reduce child labor rates since they entail awareness creation, withdrawal of children and adolescents from work, provision of social assistance, and fining of exploiters. We observe that the average number of labor inspection has inverse association with the child labor rates of states (see Fig. 1). Similarly to ILO/SIT (2010)⁷ and Almeida and Lima (2010)⁸, we acknowledge underestimation and intrinsic endogeneity of the effect of labor inspection activities.

Our second goal is to contribute to the discussions about child labor, under a legal and economics perspective. For decades – starting with the seminal work of Becker (1968)⁹ – this perspective has predicted that more enforcement of the law in general leads to more efficacy in the achievement of intended results. This discussion is also very much in line with the neo-institutionalist theories on the quality of formal institutions and their impacts on the economies. Yet, some recent theoretical pieces of work have predicted - by means of analytical models - that enforcement by the law, in the case control or ban of child labor, may in some cases lead to more incentives for child labor supply (e.g. Basu, 2005)¹⁰. The result might be reversed if sanctions are more severe, though. With the empirical results in hands, we aim at demonstrating that, at least within the Brazilian context, more enforcement leads to less child labor, a result in line with the predictions of the law and economics literature.

Apart from this introductory section, Section 2 presents a review on previous evidence; Section 3 presents the data, specification and econometric procedures; Section 4 provides the empirical results, and; Section 5 is conclusive.

2. Previous Evidence

In this section, we present some literature on the effects of laws that rule child labor, of labor inspections and of some relevant socioeconomic factors on child labor.

2.1. Child Labor Protections

The subject of child labor is intensively debated in the academic literature. Several different perspectives deal with the problem, ranging from more legalistic approaches to those focused on the consequences in the educational performance, mental and physical conditions of children, and of adults who were engaged in work since young ages.¹¹ Yet, research on the impacts of the law on child labor is more limited.

One line of discussion has focused on alternative manners to control child labor, for instance, trade sanctions and international commercial bans. Its overall conclusion is that, many

⁷ ILO/SIT (2010). **The good practices of labor inspection: the prevention and eradication of child labor.** SIT/MTE/ILO.

⁸ Almeida, A. M. F. and A. Lima (2010). Permanências e mutações na definição intergeracional do trabalho infantil. **Educação e Sociedade** 31(111), 347–369.

⁹ Becker, G. S. (1968). “Crime and Punishment: an Economic Approach”. *Journal of Political Economy*, 76, 169–217.

¹⁰ Basu, K. (2005). “Child labor and the law: notes on possible pathologies”. *Economic Letters* 87, 169–174.

¹¹ See De Guzman Chorny et al (2019) for a broad, multi-disciplinary and multinational review of the literature. For a less updated and, somehow, more economic-perspective survey, see Basu (1999).

times, these mechanisms do not inhibit child labor or improve the well-being of children (e.g., Jafarey and Lahiri, 2002¹²; Basu, Chau and Grote, 2006¹³).

Others have precisely tackled the impacts of the law on banning child labor. For instance, Basu (2005)¹⁴ shows that traditional legal enforcement (i.e. by imposing fines on firms that are caught hiring children) may cause child labor to rise. In fact, the author shows that labor supply will increase in line with the increase in penalties. Following those analytical results, Bharadwaj et al (2020)¹⁵ present empirical evidence that more children will work as a consequence of parents' responses to diminished child wages caused by legal restrictions on child labor. However, it is important to emphasize that these authors have only analyzed one case of law against child labor in India. As they conclude: "This paper does not intend to suggest that *all* labor bans are useless. In fact, well formulated and implemented bans could absolutely help in eliminating child labor".

As a counterpart, but following most of the analytical exercises done in the economic literature, Rogers and Swinnerton (2008)¹⁶ present a model assuming that there are two kinds of child labor: exploitative and non-exploitative. Their results show that well targeted laws banning exploitative child labor do increase children's welfare. In particular, if expected fines to exploitative employers are increased, both the number of firms and the level of employment in exploitative activities fall. In addition, increases in the marginal punishment cause an individual child's probability of being exploited to fall. In the authors' words, "... for children's, any detection and enforcement is better than none, and until exploitative child labor is eliminated completely, the greater the penalty expected by exploitative firms, the better" (p. 31).

Thus, even authors that have shown some possible neutral or even negative impacts of laws controlling child labor are cautious in emphasizing that generalizations should not be made. In some examples, the effects of the law might be positive in the combat against child labor.

Next, we turn our eyes to some more empirical pieces of research.

¹² Jafarey, S. and Lahiri, S. (2002). "Will trade sanctions reduce child labour? The role of credit markets." **Journal of Development Economics**, Vol. 68, 137-156.

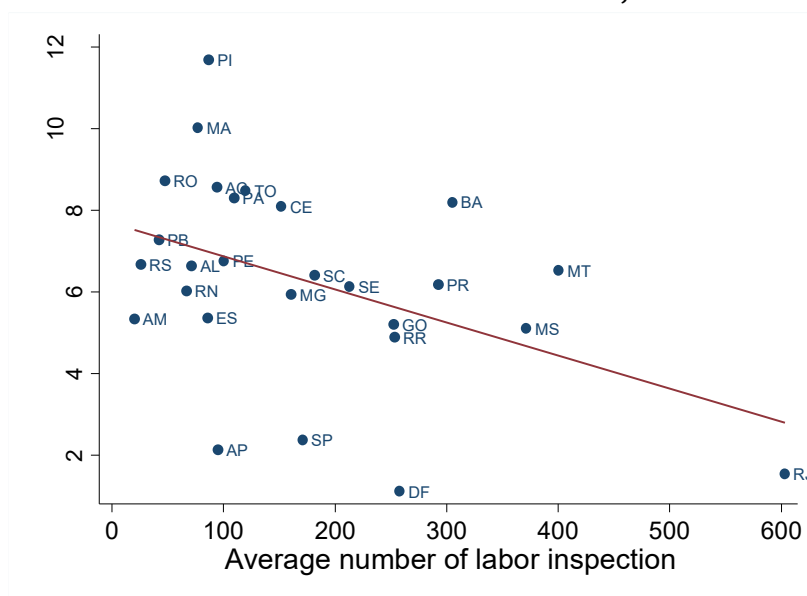
¹³ Basu, A., N. Chau, and U. Grote (2006). "Guaranteed Manufactured without Child Labor: The Economics of Consumer Boycotts, Social Labeling and Trade Sanctions". **Review of Development Economics**, 10(3), 466-491.

¹⁴ Basu (2005), op.cit.

¹⁵ Bharadwaj, P., L. Lakdawala, and N. Li (2020). "Perverse Consequences of Well Intentioned Regulation: Evidence from India's Child Labor Ban". **Journal of European Economic Association**, V. 18 (3), 1158-1195.

¹⁶ Rogers, C.A. and K.A. Swinnerton (2008). "A theory of exploitative child labor." **Oxford Economic Papers** 60, 20-41.

Figure1: Average child labor rate and average number of labor inspection in state, 2004-2009 and 2011-2014, Brazil.



Source: elaborated by the authors

2.2. Labor Inspection

In Brazil, the only empirical study found concerning the effect of labor inspection on child labor, to date,¹⁷ was that of Almeida (2015)¹⁸. Since the Secretariat makes inspection decisions based on complaints filed in the Ministry, it is expected that the estimates of the effect of inspections on child labor are underestimated and an endogeneity. To deal with that issue, this author adopted a two-step generalized minimum least squares method using data from the 2000 and 2010 census and SITI database. In the first stage model, the number of labor inspectors and the distance between inspection agencies and firms were used as instruments to estimate the number of inspections. Subsequently, this estimate was used as a regressor in the second stage model, which was for child labor. It was found that 1% increase in the number of labor inspections reduced the proportion of child laborers between ages 10 and 17 in 0.22% and 0.26% for the years 2000 and 2010, respectively. In absolute terms, labor inspection activities accounted for the reduction of, approximately, 8,658 and 8,856 child laborers in the years 2000 and 2010, respectively.

It is also worth acknowledging the evidence obtained by further papers on the impacts of labor inspections, but of other natures. Foguel and Corseuil (2020)¹⁹ evaluate inspections aimed at eliminating informal labor in Brazil. Informality is a pervasive problem in the Brazilian economy, and efforts have focused both on the creation of awareness and application of punishment. The authors study the implementation of a new governmental program (Plancite), and explore the fact that the punishment component presented different intensities across different regions of the country. Among treated municipalities (i.e., those in which the program was actually implemented), a higher intensity in punishment led to higher probabilities in the formalization of previously informal employees. The effect observed was monotonically related to the intensity of punishment.

¹⁷ March/2018

¹⁸ Almeida, op.cit.

¹⁹ Foguel, M, C.H. Corseuil (2020). "What Drives the Effect of Labor Inspections on Formal Labor? The Roles of Information and Punishment." *Working Paper*. Brasília: IPEA.

2.3 Poverty and Income Inequality

Most theoretical and empirical literature has been agree poverty is the major determinant for the supply of child labor, both at micro and macro levels. From the micro-level stance, some empirical studies (Basu and Van, 1998²⁰; Kassouf, 2001²¹; Edmonds and Turk, 2002²²; Kassouf, 2002²³; Basu, 2003²⁴; Hilowitz et al., 2004²⁵) defend that families send children to work only if adult's income does not cover the basic needs of the family. Thus, families in situation of poverty or extreme poverty are more likely to send children to work, since rich families do not depend on children's income for subsistence. From the macro-level angle, studies such as Galli (2001)²⁶, Edmonds (2005)²⁷, Edmonds and Pavcnik (2005)²⁸ and Kambhampati and Rajan (2006)²⁹ concluded that macroeconomic progress reduces child labor. This is because richer societies can offer more free and good quality education, better health services, as well as adopting poverty reduction measures, compared to poorer societies. Moreover, richer societies have a higher level of adult wage, which directly reduces micro-level poverty.

Inasmuch as poverty is widely accepted as a major cause of child labor, some studies (Barros et al., 1994³⁰; Ray, 2000³¹; Rogers and Swinnerton, 2004³²; Kambhampati and Rajan, 2006³³; Dumas, 2007³⁴) have questioned this relationship. In short, these authors claim that the hypothesis of poverty as the major cause of child labor is doubtful. However, there is, yet, no consensus regarding the basis of such argument in literature.

Particularly, for Brazil, Kassouf (2001)³⁵; Schwartzman (2001)³⁶; Emerson and Souza (2003)³⁷; Aquino et al. (2010)³⁸ and Cacciamali et al. (2010)³⁹ found robust empirical evidence of a

²⁰ Basu, K. and P. H. Van (1998). "The economics of child labor". *American Economic Review*, 412–427.

²¹ Kassouf, A. L. (2001). "Trabalho infantil: escolaridade x emprego." *EconomiA* 2(2), 549–586.

²² Edmonds, E. and C. Turk (2002). *Child labor in transition in Vietnam*. Number 2774. The World Bank, February.

²³ Kassouf, A. L. (2002). *Aspectos sócio-econômicos do trabalho infantil no Brasil*. Secretaria dos Direitos Humanos.

²⁴ Basu, K. (2003). *Policy dilemmas for controlling child labor*. *Working Papers* 03-11, Cornell University, Center for Analytic Economics.

²⁵ Hilowitz, J., J. Kooijmans, P. Matz, P. Dorman, M. de Kock, and M. Alectus. (2004). *Child Labor: A Textbook for University Students*. ILO.

²⁶ Galli, R. (2001). *The economic impact of child labour*, Volume 128. International Institute for Labour Studies.

²⁷ Edmonds, E. V. (2005). "Does child labor decline with improving economic status?" *Journal of Human Resources* 40(1), 77–99.

²⁸ Edmonds, E. V. and N. Pavcnik (2005). "Child labor in the global economy." *The Journal of Economic Perspectives* 19(1), 199–220.

²⁹ Kambhampati, U. S. and R. Rajan (2006). "Economic growth: A panacea for child labor?" *World Development* 34(3), 426–445.

³⁰ Barros, R., R. Mendonça, and T. Velazco (1994). *Is poverty the main cause of child work in urban Brazil?* *Instituto de Pesquisa Econômica Aplicada*. Rio de Janeiro: IPEA, 1994. (Texto para discussão, 351).

³¹ Ray, R. (2000). "Analysis of child labour in Peru and Pakistan: a comparative study." *Journal of Population Economics* 13(1), 3–19.

³² Rogers, C. A. and K. A. Swinnerton (2004). "Does child labor decrease when parental incomes rise?" *Journal of Political Economy* 112(4), 939–946.

³³ Kambhampati and , op.cit.

³⁴ Dumas, C. (2007). "Why do parents make their children work? A test of the poverty hypothesis in rural areas of Burkina Faso." *Oxford Economic Papers* 59(2), 301–329.

³⁵ Kassouf (2001), op.cit.

³⁶ Schwartzman, S. (2001). *Trabalho infantil no Brasil*. Brasília: Organização Internacional do Trabalho.

³⁷ Emerson, P. M. and A. P. Souza (2003). "Is there a child labor trap? Intergenerational persistence of child labor in Brazil." *Economic Development and Cultural Change* 51(2), 375–398.

³⁸ Aquino, J. M., M. M. Fernandes, E. T. Pazello, L. G. Scorzafave (2010). "Trabalho infantil: persistência intergeracional e decomposição da incidência entre 1992 e 2004 no Brasil rural e urbano". *Revista de Economia Contemporânea* 14(1), 61–84.

negative relationship between family income and the probability of child labor. However, the magnitude of the coefficient found for this proxy for poverty is low in all these studies. Therefore, family income has to increase significantly in order to reduce child labor in Brazil.

Galli (2001)⁴⁰, Ranjan (2001)⁴¹, and Sarkar and Sarkar (2016)⁴² theoretically demonstrated that income inequality increases child labor. However, no empirical evidence has been found in literature concerning such association.

2.4. Level of Urbanization

Urbanization rate is also an important determinant of child labor; not only because of the difference in the poverty levels but also due to peculiarities attached to child labor in rural and urban areas in terms of proportion, visibility, and sectoral distribution. There is a consensus in literature that the rate of child labor is higher in rural areas (Kassouf, 2007⁴³; ILO, 2013⁴⁴). However, despite the fact that higher rates are observed in rural areas, in Brazil the number of children and adolescents who work is higher in the urban areas due to high population density (Inaiá, 2008⁴⁵; Kassouf, 2015⁴⁶).

Another factor that increases the labor force of children and adolescents in the urban area is migration, caused by the pursuit of better education, health services, and economic opportunities. It is, however, important to note that inasmuch as the living conditions of urbanized areas seem better, one has to take into account the effect of inequality and wage differences between skilled and unskilled workers. According to Barros et al. (1994)⁴⁷ and Ferreira-Batista and Cacciamali (2012)⁴⁸, the socioeconomic conditions of poor households or unskilled workers in urban areas are harsher when compared to those of the same group in rural areas.

2.5. Unemployment

Empirical evidence from Edmonds (2005)⁴⁹, using Vietnamese data, points that child labor is reduced with economic growth; the author, however, warns that such relationship is non-linear. In contradiction, Kambhampati and Rajan (2006)⁵⁰ found empirical evidence using data from India, that economic growth increases child labor as a result of the increase in firms' demand for cheaper labor. These authors noted that child labor is only reduced when growth is sufficiently sustained to outweigh the increase in the demand for cheaper and unregulated labor.

³⁹ Cacciamali, M. C., F. Tatei, and N. F. Batista (2010). "Impactos do programa bolsa família federal sobre o trabalho infantil e a frequência escolar". *Revista de Economia Contemporânea* 14(2), 269 – 301.

⁴⁰ Galli, op.cit.

⁴¹ Ranjan, P. (2001). "Credit constraints and the phenomenon of child labor." *Journal of Development Economics* 64(1), 81–102.

⁴² Sarkar, J. and D. Sarkar (2016). "Why does child labor persist with declining poverty?" *Economic Inquiry* 54(1), 139–158.

⁴³ Kassouf, A. L. (2007). "O que conhecemos sobre o trabalho infantil?" *Nova Economia* 17, 323– 350.

⁴⁴ ILO (2013). *Marking progress against child labour: global estimates and trends 2000-2012. Technical report, International Labor Organization (ILO)*, IPEC (International Programme on the Elimination of Child Labor).

⁴⁵ Inaiá, M. M. C. (2008). "O trabalho infantil no Brasil contemporâneo." *Caderno CRH* 21, 551–569.

⁴⁶ Kassouf, A. L. (2015). "Evolução do trabalho infantil no Brasil." *Sinais Sociais* 9(27), 9–45.

⁴⁷ Barros, R., R. Mendonça, and T. Velazco, op.cit.

⁴⁸ Ferreira-Batista, N. and M. C. Cacciamali (2012). "Migração familiar, trabalho infantil e ciclo intergeracional da pobreza no estado de São Paulo." *Nova Economia* 22, 515 – 554.

⁴⁹ Edmonds, op.cit.

⁵⁰ Kambhampati and Rajan, op.cit.

Abu-Ghallow (2012)⁵¹, using Palestinians data, concluded that increase in unemployment, which is also indicative of economic performance, leads to the increasing rate of child labor as a result of lower contribution of adults to family income.

As for Brazil, Duryea et al. (2007)⁵² used Brazil's Monthly Employment Survey (PME, in Brazilian acronym) to analyze the impact of household economic shocks, especially unemployment, on schooling and employment of youths in metropolitan areas. These authors estimated *probit* models and used data that covered about 100,000 children between the ages of 10 and 16, from years 1982 to 1999. The hypothesis tested goes in line with that theoretically posed by Basu (1999)⁵³ and Galli (2001)⁵⁴ that adult unemployment may lead to increase in child labor. The general estimation results provided evidence that does not reject this hypothesis. Specifically, unemployment shock to male household head in metropolitan Brazil increases the likelihood of children between ages 14 and 16 to enter the labor market. However, in a specific model for children between ages 10 and 14, these authors found an inverse relationship between adult unemployment and child labor. Although counterintuitive, such idea supports the observation made by Basu and Van (1998)⁵⁵ concerning the possible ambiguous effect of adult unemployment on child labor.

2.6. Conditional Cash Transfer (CCT)

Most empirical studies that investigated the effect of CCT programs on child labor analyze their effect on time allocation of children and adolescents. Findings from international studies such as Ravallion and Wodon (2000)⁵⁶ and Maluccio and Flores (2005)⁵⁷ pointed that CCT programs have a positive effect on schooling and inverse effect on child labor. Attanasio et al. (2010)⁵⁸ empirically supported this finding by affirming that CCT programs cause a significant increase in the time allocated to studies and also increase the school enrollment rate of children who are prone to enter the labor market early. However, studies such as Duryea and Morrison (2004)⁵⁹ and Glewwe and Olinto (2004)⁶⁰ fail to find the effect of such programs on child labor.

There is a variety of welfare programs adopted in Brazil to ease poor and extremely poor families of financial constraints. Similarly to other developing countries, one of these measures involves conditional direct cash or in-kind transfer to reference individuals of poor and extremely poor households. Among the few studies that investigated the effect of CCT programs in Brazil, most are about the *Bolsa Escola*, which preceded the *Bolsa Família*.

⁵¹ Abu-Ghallow, I. (2012). Child labor supply in Palestine: trends and perspectives. **Topics in Middle Eastern and African Economies** 14.

⁵² Duryea, S., D. Lam, and D. Levison (2007). "Effects of economic shocks on children's employment and schooling in Brazil." **Journal of Development Economics** 84(1), 188 – 214.

⁵³ Basu, K. (1999). "Child labor: Cause, consequence, and cure, with remarks on international labor standards". **Journal of Economic Literature** 37(3), 1083–1119.

⁵⁴ Galli, op.cit.

⁵⁵ Basu and Van, op.cit.

⁵⁶ Ravallion, M. and Q. Wodon (2000). "Does child labour displace schooling? evidence on behavioural responses to an enrollment subsidy." **The Economic Journal** 110(462), 158– 175.

⁵⁷ Maluccio, J. A. and R. Flores (2005). **Impact evaluation of a conditional cash transfer program: The Nicaraguan red de protección social. Technical Report** 141, IFPRI, Washington.

⁵⁸ Attanasio, Orazio, Emla Fitzsimons, Ana Gomez, Diana Lopez, Costas Meghir, and Alice Mesnard. (2010). "Child Education and Work Choices in the Presence of a Conditional Cash Transfer Programme in Rural Colombia." **Economic Development and Cultural Change** 58(2):181–210.

⁵⁹ Duryea, S. and A. R. Morrison (2004). **The effect of conditional transfers on school performance and child labor: Evidence from an ex-post impact evaluation in Costa Rica**. Inter-American Development Bank, Research Department.

⁶⁰ Glewwe, P. and P. Olinto (2004). "Evaluating the impact of Conditional Cash Transfers on Schooling: An experimental analysis of Honduras PRAF program." *Unpublished manuscript, University of Minnesota*.

Cardoso and Souza (2004)⁶¹, using 2000 census data and propensity score method, analyzed the impact of the *Bolsa Escola* program on child labor and school attendance. These authors found that the program had a significant positive effect on school attendance for both boys and girls. However, the program was found short-handed in reducing child labor. In fact, the authors observed that the value transferred was too low to persuade families to forgo income from child labor. Instead, families preferred children to combine work and school.

On a similar course, Ferro and Kassouf (2005)⁶² estimated probit models using 2001 PNAD (Pesquisa Nacional por Amostra de Domicílios - the Brazilian National Household Survey) data. Those authors found that participation in the program reduces about 3 working hours of child laborers. Alike in Cardoso and Souza (2004)⁶³, the result concerning probability to work indicated that children from families who participated in the program are more likely to work due to family unobservables such as “ambition”. In a posterior study, Ferro et al. (2010)⁶⁴ used 2003 PNAD data and propensity score matching method to estimate probit models. Results showed that participation in the *Bolsa Escola* program reduces the probability of children from beneficiary families to work while increases their school enrollment.

Regarding the *Bolsa Família* program (henceforth, PBF), Cacciamali et al. (2010)⁶⁵ analyzed its impact on child labor and school attendance by using 2004 PNAD data to estimate probit models. These authors found a positive relationship between participation in the PBF and child labor, i.e.: children from beneficiary families are more likely to work. This conclusion was sustained in models for both urban and rural areas, and also in models for different regions in Brazil. However, Silveira et al (2013)⁶⁶ sustain that there is no substitution effect caused by the program; their results show that for young people ages 15 to 17, PBF leads to an increase in both school attendance and labor participation. In a more recent study, using municipal level data, Denes et al (2018)⁶⁷ found that municipalities where there were increases in the concession of PBF also observed increases in school attendance. In addition, in these same places the proportion of young students lagging behind in the school year they were supposed to be, declined. However, school performance in these localities improved the least. As the authors suggest: “These two results might be related, since those students who would not be attending school without the PBF, may reduce the average grade once they get in” (p. 310, our translation).

By using propensity score matching methods and PNAD microdata from different years, Araujo et al. (2010)⁶⁸, Aquino et al. (2010)⁶⁹, and Do Nascimento et al. (2016)⁷⁰ concluded that

⁶¹ Cardoso, E. and A. P. Souza (2004). **The impact of cash transfers on child labor and school attendance in Brazil.** *Vanderbilt University Department of Economics (Working Paper)* (407).

⁶² Ferro, A. R. and A. L. Kassouf (2005). “Avaliação do impacto dos programas Bolsa-Escola sobre o trabalho infantil no Brasil.” **Pesquisa e Planejamento Econômico** 35(3), 417–444.

⁶³ Cardoso and Souza, op.cit.

⁶⁴ Ferro, A. R., A. L. Kassouf, and D. Levison (2010). “The impact of conditional cash transfer programs on household work decisions in Brazil.” **Research in Labor Economics** 31, 193– 218.

⁶⁵ Cacciamali, Tatei and Batista, op.cit.

⁶⁶ Silveira, F. G., B. Campolina and R. van Horn (2013). “Impactos do Programa Bolsa Família na alocação do tempo entre escola e trabalho de crianças e adolescentes de 10 a 18 anos.” *In: T. Campello & M. C. Neri (Org.), Programa Bolsa Família uma década de inclusão e cidadania* (pp. 305–325). Brasília: Instituto de Pesquisa Econômica Aplicada (IPEA).

⁶⁷ Denes, G., B. K. Komatsu and N. Menezes-Filho (2018). “Uma avaliação dos impactos macroeconômicos e sociais de programas de transferência de renda nos municípios brasileiros”. **Revista Brasileira de Economia**, v. 72, n. 3, 292-312.

⁶⁸ Araujo, G. S., R. Ribeiro, and H. D. Neder (2010). “Impactos do programa bolsa família sobre o trabalho de crianças e adolescentes residentes na área urbana em 2006”. **EconomiA** 11(4), 57–102.

⁶⁹ Aquino, Fernandes, Pazello and Scorzafave, op.cit.

⁷⁰ Do Nascimento, A. R., A. L. Kassouf, et al. (2016). “Trabalho infantil: Impacto do programa Bolsa Família.” *In Anais do XLII Encontro Nacional de Economia [Proceedings of the 42nd Brazilian Economics Meeting]*, Number 232.

participation in the PBF program has no significant effect on the decision of whether a child should work or not.

Conclusively, the studies reviewed here pointed that participation in the PBF program has no conspicuous effect on the probability of children and adolescents to work. However, most studies found its effect in reducing working hours.

Based on the empirical literature presented in this section, we create insight on the signs and challenges expected from modeling exercises. Concerning the effect of labor inspection on child labor, we expect inverse relationship after addressing endogeneity issues. As per other control variables, on one hand we expect negative signs for poverty, urbanization, and *Bolsa Família* program. On the other hand, we expect a positive sign for adult unemployment, which is a proxy for economic performance.

3. Methodology

3.1. Data and specification

Data concerning the number of labor inspections conducted in various states came from the Information System on Child Labor (SITI/MTE). These figures were only published as of 2006 and had missings for some states. Data for control variables was obtained by aggregating microdata from National Households Surveys (PNADs), except for *Bolsa Família*, which was obtained from the Ministry of Social Development (MDS).

Our panel data covers 27 states over the period between 2004 and 2014 (there is no data for 2010), totaling 210 observations for control variables and 270 for labor inspection variable. Still, the overall panel data is strongly balanced.

In terms of model specification, the response variable is the rate of child labor. Specifically, a child laborer is any individual between the ages of 5 and 15 involved in any labor activity deemed formal or informal, domestic or non-domestic, temporary or permanent, paid or unpaid, except in the condition of apprenticeship. This variable is denoted as *childlabor*.

The group of regressors is composed of: number of Labor Inspections with focus on child labor per 100,000 population (*inspect*); proportion of children and adolescents between ages 5 and 15 enrolled in school (*childeduc*); average family income per capita (*famincome*); average years of mothers' schooling (*mothereduc*); average number of family members (*famsize*); total value allocated to states through the PBF program (*PBF*);⁷¹ unemployment rate of the economically active population (*unemp*); income inequality measured by GINI index (*gini*); urbanization rate (*urban*), and lastly; control for long-run tendency of time series effect (*trend*).

Table 1 presents the description, mean and standard deviation of variables considered for model specification. Higher values of between deviations compared to within deviations imply that there is significant heterogeneity among states.

⁷¹ The values of the *Bolsa Família* program are measured in constant real values of 2014 by using the IPNC price index.

Table 1: Summary Statistics

<i>Variable</i>	<i>Description</i>		<i>Mean</i>	<i>Std. dev.</i>
<i>chlldlabor</i>	Percentage rate of child labor	overall	6.29	3.20
		between		2.48
		within		2.07
<i>childeduc</i>	Percentage of children and adolescents between ages 5 and 15 enrolled in school	overall	92.24	3.26
		between		2.39
		within		2.25
<i>famincome</i>	Average family income per capita	overall	714.87	294.80
		between		273.90
		within		119.98
<i>mothereduc</i>	Average years of mothers' schooling	overall	7.68	1.15
		between		0.97
		within		0.64
<i>famsize</i>	Number of family members	overall	3.88	0.35
		between		0.32
		within		0.17
<i>inspect</i>	Number of Labor Inspections with focus on child labor (per 100,000 population)	overall	6.32	15.63
		between		10.22
		within		11.87
<i>unemp</i>	Unemployment rate of economically active population	overall	5.89	2.36
		between		2.20
		within		0.99
<i>gini</i>	Income inequality measured by the GINI index	overall	0.5322	0.0407
		between		0.0324
		within		0.0254
<i>urban</i>	Urbanization rate in percentage	overall	80.23	9.32
		between		9.09
		within		2.63
<i>PBF</i>	Total value allocated to states by the PBF (in thousands of Brazilian currency - R\$)	overall	91,934.16	90,037.31
		between		84,982.47
		within		33,560.79

Source: Prepared using data from PNAD, SITI/MTE, and MDS.

Note: Number of observations is 270, except for the *inspect* variable which has 207 observations

The rate of child labor among individuals between ages 5 and 15 was about 6.29% during the period from 2004 to 2009 and 2011 to 2014. During the same period, an average Brazilian family was comprised of 4 members; the level of education of mothers was approximately 8 years, and average per capita family income was, approximately, R\$ 715. Moreover, about 92% of children between ages 5 and 15 were enrolled in school; urbanization rate was about 80%; income inequality measured by the GINI index was about 0.53, and; adult unemployment rate was about 6%. The two governmental variables, PBF and Labor Inspection, indicate that the average value allocated to states through the PBF was about \$91 million *reais* and that about 6 work inspections per 100,000 population were conducted in states during the same period.

3.2 Econometric procedures

By using 2001–2009 PNAD data to estimate dynamic panel data models, Ramalho and Mesquita (2013)⁷² provided evidence of the existence of temporal dynamics of child labor rate in Brazil. In line with these authors, we used System Dynamic Panel Data Estimator (henceforth, GMM-SYS). Differently from these authors, we provide a more complete specification by including controls for children's education, mother's education, family size, adult unemployment, and income inequality. In addition, we treated the variables for PBF and labor inspection as endogenous variables during estimation.

Formally, our dynamic model of order 1 in *chldlabor* is represented as:

$chldlabor_{it} = chldlabor_{i,t-1} + \mathbf{x}'_{it}\beta + \alpha_i + \varepsilon_{it}$ (1) where $t = 1, \dots, T$ and $|\gamma| < 1$; *chldlabor* is the column of response variable; $\mathbf{x}$ is a matrix of $N \times K$ regressors that vary over time, t , and across states, i ; α_i contains time invariant factors which vary among states; γ and β are parameters, and ε is the error term.

Compared to standard panel data models, the dynamic panel model estimated by the Arellano and Bover (1995)⁷³ and Blundell and Bond (1998)⁷⁴ system-GMM method addresses endogeneity. This is done by instrumenting endogenous variables using their lagged values and the lagged difference of the dependent variable. In this study, we use all possible lags of the response variable and endogenous variables as instruments.

The variables considered exogenous are *famsize*, *mothereduc*, *unemp*, *gini*, and *urban*. The reason for this is that the decision of a child to work does not determine any of these variables at state level. The variables which we consider endogenous are *famincome*, *childeduc*, *PBF* and *inspect*.

There is evidence that *famincome* is endogenous based on the observation made by Psacharopoulos (1997)⁷⁵ and Basu (1999)⁷⁶ that children tend to be the sole contributors to household income in extremely poor families. In this sense, the endogeneity of average per capita family income tends to be high, if child's income has significant weight in the family income. The simultaneous relationship between child labor and child education is consensus in the literature (Basu, 1999⁷⁷; Dessy and Pallage, 2001⁷⁸; Ranjan, 2001⁷⁹; Das and Deb, 2006⁸⁰). Therefore, the proportion of enrolled children is potentially endogenous. However, such endogeneity is reduced

⁷² Ramalho, H. M. D. B. and S. P. D. Mesquita (2013). "Determinantes do trabalho infantil no Brasil urbano: uma análise por dados em painel 2001-2009." *Economia Aplicada* 17(2), 193–225.

⁷³ Arellano, M. and O. Bover (1995). "Another look at the instrumental variable estimation of error-components model". *Journal of Econometrics* 68(29-51).

⁷⁴ Blundell, R. and S. Bond (1998). "Inertial conditions and moment restrictions in dynamic panel data models". *Journal of Econometrics* 87, 115–143.

⁷⁵ Psacharopoulos, G. (1997). "Child labor versus educational attainment some evidence from Latin America." *Journal of Population Economics* 10(4), 377–386.

⁷⁶ Basu (1999), op.cit.

⁷⁷ *Idem*.

⁷⁸ Dessy, S. E. and S. Pallage (2001). "Child labor and coordination failures." *Journal of Development Economics* 65(2), 469–476.

⁷⁹ Ranjan, op.cit.

⁸⁰ Das, S. P. and R. Deb (2006). "A dynamic analysis of child labor with a variable rate of discount: some policy implications". *The B.E. Journal of Economic Analysis & Policy* 5(1), 1–30.

if most children conciliate schooling and work as observed by Kassouf (2002)⁸¹ and Kassouf (2015)⁸².

The government variables, *inspect* and *PBF*, are naturally endogenous. Specifically, the number of labor inspections conducted in a specific region depends on the number of complaints reported concerning child labor in the region. Similarly, the resources allocated to states through the PBF depend on their level of poverty, which, in turn, determines the child labor rate.

We verify serial correlation in the first-differenced errors using the Arellano-Bond test. To confirm the validity of moment conditions we expect to reject the zero-autocorrelation hypothesis not at first order but at subsequent orders. In addition, we perform the Sargan test of over-identifying restrictions to verify if instruments are valid. Note that Arellano and Bond (1991)⁸³ instructed that the Sargan test over-rejects in the presence of heteroskedasticity.

All variables were logarithmized, i.e.: models are in log-log function and, thus, coefficients represent elasticities.

4. Analysis of Empirical Results

The result obtained from model estimation is presented in Table 2. We present a series of alternative specifications (I-IV) to emphasize stability of results. These specifications are classified into two groups – one with control for time trend and the other without it. Within each group, there are three specifications: firstly, a simple model of lagged child labor rate, i.e., without control variables; secondly, a model with lagged value child labor rate and labor inspection, and lastly; a model with lagged value child labor, labor inspection, and other relevant controls. The result analysis of this study is centered on model VI.

Before exploring results, we present the post-estimation tests performed on our model. We tested for collinearity, heteroskedasticity, and normality of residuals on a pooled version of our model estimated using OLS. On the dynamic panel data model we tested for autocorrelation and over-identifying restrictions as suggested by Arellano and Bover (1995)⁸⁴ and Blundell and Bond (1998)⁸⁵. The test for collinearity showed that the degree of association between regressors is not alarming. However, we observed that *famincome* and *mothereduc* are the most correlated. The test value for heteroskedasticity indicated that residuals have constant variance at a 5% level of significance. Nevertheless, for rigor, we calculated robust standard errors. The test for normality showed that residuals are normal at the level of significance of 1% but not at 5%. The test values for autocorrelation indicated that residuals are not correlated and the test for identification shows that over-identifying restrictions are valid at common levels of significance.

Similarly to most socioeconomic issues, the child labor rate is dynamic in time. In this sense, the rate from a specific year is affected by that from previous years. Such dynamics of child labor rate in Brazil was confirmed by Ramalho and Mesquita (2013)⁸⁶ and corroborated by the coefficient of the lagged dependent variable of our model, *chidlabor*_{*i,t-1*}.

⁸¹ Kassouf (2002), op.cit.

⁸² Kassouf (2015), op.cit.

⁸³ Arellano, M. and S. Bond (1991). “Some tests of specification for panel data: Monte carlo evidence and an application to employment equations”. **Review of Economic Studies** 58(2), 277–297.

⁸⁴ Arellano and Bover, op.cit.

⁸⁵ Blundell and Bond, op. cit.

⁸⁶ Ramalho and Mesquita, op. cit.

Table 2: Main Results from Log-Log Models for Child Labor Rate

Response variable: <i>chlldlabor</i>						
	I	II	III	IV	V	VI
<i>chlldlabor</i> _{<i>t</i>-1}	0.727*** (0.079)	0.491*** (0.087)	0.223*** (0.085)	0.492*** (0.134)	0.470*** (0.125)	0.184* (0.097)
<i>inspect</i>		-0.0703*** (0.021)	-0.0546*** (0.018)		-0.0607* (0.032)	-0.0457** (0.019)
<i>famincome</i>			-0.154 (0.495)			-0.192 (0.494)
<i>mothereduc</i>			-2.598*** (0.749)			-2.241*** (0.690)
<i>childeduc</i>			-0.478 (0.984)			-0.850 (1.027)
<i>famsize</i>			-1.539* (0.900)			-1.760** (0.800)
<i>unemp</i>			-0.324** (0.158)			-0.326** (0.159)
<i>gini</i>			-0.106 (0.566)			-0.294 (0.564)
<i>urban</i>			-1.589*** (0.600)			-2.039** (0.808)
<i>PBF</i>			-0.194** (0.056)			-0.184*** (0.050)
<i>trend</i>	No	No	No	Yes	Yes	Yes
Tests			Value			
Heteroskedasticity: Breush-Pagan			$\chi^2 = 6.09$; <i>p</i> -value= 0.0136			
Colinearity: Variance Inflation factor			Mean VIF= 3.85			
Normality: Shapiro-wilk			<i>w</i> = 0.9835; <i>p</i> -value= 0.0158			
Autocorrelation: Arellano-bond						
order 1			<i>z</i> = -3.71; <i>p</i> -value= 0.0002			
order 2			<i>z</i> = -0.91; <i>p</i> -value= 0.3652			
Over-Identification: Sargan			$\chi^2 = 203.13$; <i>p</i> -value= 0.1043			

Note: ***, ** and * denote significance at 1%, 5% and 10%, respectively

The proxy for poverty, *famincome*, was not statistically significant. However, we suspect that it is due to the correlation with mother's education,⁸⁷ which was significant at a level of 1%. Both variables show a negative relationship with child labor rate. We observe that the coefficient for *mothereduc* has the highest value, i.e., child labor rate is most elastic to changes in mother's education compared to other variables. Such observation supports that of Basu

⁸⁷ In a parallel exercise, we noted that excluding mother's education makes family income variable significant but the magnitude of the coefficient of both variables was barely altered. Given the value of mean VIF, we opted to control both variables.

(1999)⁸⁸, which states that a huge governmental effort to educate a generation may reduce child labor in subsequent generations.

Still on family variables, Emerson and Souza (2008)⁸⁹ showed that family size is a determinant of child labor in the sense that the probability of a child to work depends on its order of birth in the family. Specifically, the last born of a family is less likely to work compared to the firstborn because the latter tends to work for the former to study. Apart from upholding this hypothesis, the coefficient for *famsize* also showed to have high elasticity effect on child labor rate.

The estimate found for *unemp* indicates a negative relationship between the rate of child labor and adult unemployment. This relationship is contradictory compared to that theoretically pointed by Galli (2001)⁹⁰. However, Basu and Van (1998)⁹¹ cautioned that the relationship between adult employment and child labor might be ambiguous in a competitive labor market. Our result goes in line with the evidence from Duryea et al. (2007)⁹² for children between the ages 10 and 14. A reasonable explanation for this is that the *unemp* variable captured the effect of economic performance. Therefore, in line with Kambhampati and Rajan (2006)⁹³, one can interpret that the reduction of economic progress led to both adult and child unemployment. Nevertheless, we suggest further investigation of the effect of adult unemployment on child labor.

According to Kassouf (2002)⁹⁴, Hilowitz et al. (2004)⁹⁵, Inaiá 96(2008), Kassouf and Justus (2010)⁹⁷, and ILO (2013)⁹⁸, among many others, the level of urbanization plays a very important role on the child labor rate. Specifically, these authors found that most child laborers are found in rural areas, especially in the agricultural sector. This may be due to lower reach of inspections, high incidence of family agriculture and a higher level of poverty compared to urban areas. In our model, the coefficient for urban corroborated that child labor is elastic to urbanization rates.

In Brazil, the PBF conditional cash transfer is one of the major countermeasures centered on reducing poverty, which is considered in literature as the major cause of child labor.

⁸⁸ Basu (1999), op. cit.

⁸⁹ Emerson and Souza, op.cit.

⁹⁰ Galli, op.cit.

⁹¹ Basu and Van, op.cit.

⁹² Duryea et al, op.cit.

⁹³ Kambhampati and Rajan, op.cit.

⁹⁴ Kassouf (2002), op.cit.

⁹⁵ Hilowitz, Kooijmans, Matz, Dorman, de Kock and Alectus, op. cit.

⁹⁶ Inaiá, op.cit.

⁹⁷ Kassouf and Justus (2010), Kassouf, A. L. and M. Justus (2010). "Trabalho infantil no meio rural brasileiro: evidências sobre o 'paradoxo da riqueza'". *Economia Aplicada* 14(3), 339 – 353.

⁹⁸ ILO (2013), op.cit.

Still, evidence concerning the effect of this program on child labor is rare. Apart from Cacciamali et al. (2010)⁹⁹ who found positive relationship between child labor and participation in the PBF, Araujo et al. (2010)¹⁰⁰, Aquino et al. (2010)¹⁰¹ and Do Nascimento et al. (2016)¹⁰² found no evidence of relationship between both. However, the latter authors found evidence that the value transferred to families through the PBF has a mitigating effect on the probability of child labor. Similarly, in this study, we found evidence indicating that the value allocated to states through the PBF reduces child labor rate. We believe that the contradictory sign and lack of significance in previous studies may be due to the correlation of participation in the PBF with poverty since only the poor population is eligible to participate in the program.

Concerning the main objective of this study, our results do not reject the hypothesis that inspection activities in states contribute to reducing child labor rates. Specifically, we found that for every 1% increase in inspection activities per 100,000 population, the child labor rate is reduced by approximately 0.05%. This finding corroborates that by Almeida (2015)¹⁰³.

The coefficient for *inspect* indicates that inspection has little effect on the child labor rate. However, one has to consider the following: a) inspection with focus on child labor is a relatively modest countermeasure in terms of resources and scale compared to, for example, the PBF; b) inspections are highly dependent on the collaboration of society to report child labor, and; c) the efficacy of inspections is limited because of some hidden forms of child labor, especially in rural areas and family environments. Moreover, we agree with ILO/SIT (2010)¹⁰⁴ that the effect of labor inspection should not be reduced to the number of children withdrawn from work, since the effect of awareness creation is unobservable and not measurable at first.

5. Concluding Remarks

Labor inspection with focus on child labor is a law enforcement measure adopted by the Brazilian government to specifically reduce child labor and to punish exploiters of the same. The contribution of this study is to provide more evidence regarding this effect, to dialogue with previous works that differed in their conclusions, and finally, to dialogue with the theoretical learnings from the literature of law and economics.

Our empiric result does not reject the hypothesis that inspection activities contributed to reducing the child labor rate in Brazil. Specifically, we found that the 1% increase in inspection activities per 100,000 population reduces child labor by about 0.05%. This finding is influential as it highlights the importance of labor inspection, which has been going through budget cuts due to the ongoing economic crisis.

Among all variables controlled in the model, that for mother's education showed highest elasticity effect on child labor rate. This implies that education is a means to reduce child labor rate in the long run. This may be achieved through a major governmental effort to increase

⁹⁹ Cacciamali, Tatei and Batista, op.cit.

¹⁰⁰ Araujo, Ribeiro and Neder, op.cit.

¹⁰¹ Aquino, Fernandes, Pazello and Scorzafave, op.cit.

¹⁰² Do Nascimento and Kassouf, op.cit.

¹⁰³ Almeida, op.cit.

¹⁰⁴ ILO/SIT (2010), op.cit.

access to higher education in a certain generation, especially in less developed regions. Such generation is likely to earn a better income and, consequently, shall not need children and adolescents to work to support family income. Still, such generation tends to recognize the negative effects of early labor and, thus, condemn and report it when witnessed.

We also observed that regional policies that promote urbanization might significantly reduce child labor rates. Such policies sprout positive externalities such as access to better health, education and infrastructural facilities, which in turn bolster economic performance. However, it is important that urbanization policies take into account possible adverse effects such as an increase in crime, inequality, uncontrolled migration, poor living conditions, etc. Such conditions may end up diverting child labor to invisible and worst forms such as prostitution, drug trafficking, street trading, etc.

Our result also shows that the *Bolsa Família* conditional cash transfer program contributes to reducing child labor rates through the values allocated to states. Apart from poverty relief, such effect may be attributed to the condition imposed on poor families to withdraw children from work and enroll them in school in order to participate in the program. This result contradicts previous theoretical findings, and some empirical evidence for other developing countries.

Lastly, we found empirical evidence that corroborates previous literature concerning the intertemporal dependence of child labor rate in Brazil. Therefore, the effect of governmental countermeasures against child labor in a period may be disseminated to subsequent periods.

References

Abu-Ghallow, I. (2012). Child labor supply in Palestine: trends and perspectives. **Topics in Middle Eastern and African Economies** 14.

Almeida, A. M. F. and A. Lima (2010). Permanências e mutações na definição intergeracional do trabalho infantil. **Educação e Sociedade** 31(111), 347–369.

Almeida, R. B. (2015). **O efeito das fiscalizações do trabalho para a redução do trabalho infantil no Brasil**. Ph. D. thesis, Escola Superior de Agricultura Luiz de Queiroz (USP/ESALQ).

Aquino, J. M., M. M. Fernandes, E. T. Pazello, L. G. Scorzafave (2010). “Trabalho infantil: persistência intergeracional e decomposição da incidência entre 1992 e 2004 no Brasil rural e urbano”. **Revista de Economia Contemporânea** 14(1), 61–84.

Araujo, G. S., R. Ribeiro, and H. D. Neder (2010). “Impactos do programa bolsa família sobre o trabalho de crianças e adolescentes residentes na área urbana em 2006”. **Economia** 11(4), 57–102.

Arellano, M. and O. Bover (1995). “Another look at the instrumental variable estimation of error-components model”. **Journal of Econometrics** 68(29-51).

Arellano, M. and S. Bond (1991). “Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations”. **Review of Economic Studies** 58(2), 277–297.

Attanasio, Orazio, Emla Fitzsimons, Ana Gomez, Diana Lopez, Costas Meghir, and Alice Mesnard. (2010). “Child Education and Work Choices in the Presence of a Conditional Cash Transfer Programme in Rural Colombia.” **Economic Development and Cultural Change** 58(2):181–210.

Barros, R., R. Mendonça, and T. Velazco (1994). **Is poverty the main cause of child work in urban Brazil?** *Instituto de Pesquisa Econômica Aplicada*. Rio de Janeiro: IPEA, 1994. (Texto para discussão, 351).

Basu, A., N. Chau, and U. Grote (2006). “Guaranteed Manufactured without Child Labor: The Economics of Consumer Boycotts, Social Labeling and Trade Sanctions”. **Review of Development Economics**, 10(3), 466-491.

Basu, K. (1999). “Child labor: Cause, consequence, and cure, with remarks on international labor standards”. **Journal of Economic Literature** 37(3), 1083–1119.

Basu, K. (2003). **Policy dilemmas for controlling child labor**. *Working Papers* 03-11, Cornell University, Center for Analytic Economics.

Basu, K. (2005). “Child labor and the law: notes on possible pathologies”. **Economic Letters** 87, 169-174.

Basu, K. (2006). “Gender and say: a model of household behaviour with endogenously determined balance of power”. **Economic Journal** 116(511), 558–580.

Basu, K. and P. H. Van (1998). “The economics of child labor”. **American Economic Review**, 412–427.

Becker, G. S. (1968). “Crime and Punishment: an Economic Approach”. **Journal of Political Economy**, 76, 169–217

Bharadwaj, P., L. Lakdawala, and N. Li (2020). “Perverse Consequences of Well Intentioned Regulation: Evidence from India’s Child Labor Ban”. **Journal of European Economic Association**, V. 18 (3), 1158-1195.

Blundell, R. and S. Bond (1998). “Inertial conditions and moment restrictions in dynamic panel data models”. **Journal of Econometrics** 87, 115–143.

Cacciamali, M. C., F. Tatei, and N. F. Batista (2010). “Impactos do programa bolsa família federal sobre o trabalho infantil e a frequência escolar”. **Revista de Economia Contemporânea** 14(2), 269 – 301.

Cardoso, E. and A. P. Souza (2004). **The impact of cash transfers on child labor and school attendance in Brazil**. *Vanderbilt University Department of Economics (Working Paper)* (407).

Das, S. P. and R. Deb (2006). “A dynamic analysis of child labor with a variable rate of discount: some policy implications”. **The B.E. Journal of Economic Analysis & Policy** 5(1), 1–30.

De Guzman Chorny, N., A. Raub, A. Earle and J. Heymann (2019). “The state of child labor protections in 193 countries: Are countries living up to their international commitments?” **International Journal of Sociology and Social Policy**, 39, 609-626.

Denes, G., B. K. Komatsu and N. Menezes-Filho (2018). “Uma avaliação dos impactos macroeconômicos e sociais de programas de transferência de renda nos municípios brasileiros”. **Revista Brasileira de Economia**, v. 72, n. 3, 292-312.

Dessy, S. E. and S. Pallage (2001). “Child labor and coordination failures.” **Journal of Development Economics** 65(2), 469–476.

Do Nascimento, A. R., A. L. Kassouf, et al. (2016). “Trabalho infantil: Impacto do programa Bolsa Família.” In *Anais do XLII Encontro Nacional de Economia [Proceedings of the 42nd Brazilian Economics Meeting]*, Number 232.

Dumas, C. (2007). “Why do parents make their children work? A test of the poverty hypothesis in rural areas of Burkina Faso.” **Oxford Economic Papers** 59(2), 301–329.

Duryea, S., D. Lam, and D. Levison (2007). “Effects of economic shocks on children’s employment and schooling in Brazil.” **Journal of Development Economics** 84(1), 188 – 214.

Duryea, S. and A. R. Morrison (2004). **The effect of conditional transfers on school performance and child labor: Evidence from an ex-post impact evaluation in Costa Rica**. Inter-American Development Bank, Research Department.

Edmonds, E. V. (2005). “Does child labor decline with improving economic status?” **Journal of Human Resources** 40(1), 77–99.

Edmonds, E. V. and N. Pavcnik (2005). “Child labor in the global economy.” **The Journal of Economic Perspectives** 19(1), 199–220.

Edmonds, E. and C. Turk (2002). **Child labor in transition in Vietnam**. Number 2774. The World Bank, February.

Emerson, P. M. and A. P. Souza (2003). “Is there a child labor trap? Intergenerational persistence of child labor in Brazil.” **Economic Development and Cultural Change** 51(2), 375– 398.

Emerson, P. M. and A. P. Souza (2008). “Birth order, child labor, and school attendance in Brazil.” **World Development** 36(9), 1647–1664.

Ferreira-Batista, N. and M. C. Cacciamali (2012). “Migração familiar, trabalho infantil e ciclo intergeracional da pobreza no estado de São Paulo.” **Nova Economia** 22, 515 – 554.

Ferro, A. R. and A. L. Kassouf (2005). “Avaliação do impacto dos programas Bolsa-Escola sobre o trabalho infantil no Brasil.” **Pesquisa e Planejamento Econômico** 35(3), 417–444.

Ferro, A. R., A. L. Kassouf, and D. Levison (2010). “The impact of conditional cash transfer programs on household work decisions in Brazil.” **Research in Labor Economics** 31, 193– 218.

Foguel, M, C.H. Corseuil (2020). “What Drives the Effect of Labor Inspections on Formal Labor? The Roles of Information and Punishment.” *Working Paper*. Brasília: IPEA

Galli, R. (2001). **The economic impact of child labour**, Volume 128. International Institute for Labour Studies.

Glewwe, P. and P. Olinto (2004). “Evaluating the impact of Conditional Cash Transfers on Schooling: An experimental analysis of Honduras PRAF program.” *Unpublished manuscript, University of Minnesota*.

Hilowitz, J., J. Kooijmans, P. Matz, P. Dorman, M. de Kock, and M. Alectus. (2004). **Child Labor: A Textbook for University Students**. ILO.

ILO (2013). **Marking progress against child labour: global estimates and trends 2000-2012**. *Technical report, International Labor Organization (ILO)*, IPEC (International Programme on the Elimination of Child Labor).

ILO/SIT (2010). **The good practices of labor inspection: the prevention and eradication of child labor**. SIT/MTE/ILO.

Inaia, M. M. C. (2008). “O trabalho infantil no Brasil contemporâneo.” **Caderno CRH** 21, 551–569.

Jafarey, S. and Lahiri, S. (2002). “Will trade sanctions reduce child labour? The role of credit markets.” **Journal of Development Economics**, Vol. 68, 137-156.

Kambhampati, U. S. and R. Rajan (2006). “Economic growth: A panacea for child labor?” **World Development** 34(3), 426–445.

Kassouf, A. L. (2001). “Trabalho infantil: escolaridade x emprego.” **Economia** 2(2), 549–586.

Kassouf, A. L. (2002). **Aspectos sócio-econômicos do trabalho infantil no Brasil**. Brasília: Ministério da Justiça, Secretaria dos Direitos Humanos.

Kassouf, A. L. (2007). “O que conhecemos sobre o trabalho infantil?” **Nova Economia** 17, 323– 350.

Kassouf, A. L. (2015). “Evolução do trabalho infantil no Brasil.” **Sinais Sociais** 9(27), 9–45.

Kassouf, A. L. and M. Justus (2010). “Trabalho infantil no meio rural brasileiro: evidências sobre o ‘paradoxo da riqueza’.” **Economia Aplicada** 14(3), 339 – 353.

Maluccio, J. A. and R. Flores (2005). **Impact evaluation of a conditional cash transfer program: The Nicaraguan red de protección social**. *Technical Report* 141, IFPRI, Washington.

Psacharopoulos, G. (1997). “Child labor versus educational attainment some evidence from Latin America.” **Journal of Population Economics** 10(4), 377–386.

Ramalho, H. M. d. B. and S. P. d. Mesquita (2013). “Determinantes do trabalho infantil no Brasil urbano: uma análise por dados em painel 2001-2009.” **Economia Aplicada** 17(2), 193–225.

Ranjan, P. (2001). “Credit constraints and the phenomenon of child labor.” **Journal of Development Economics** 64(1), 81–102.

Ravallion, M. and Q. Wodon (2000). “Does child labour displace schooling? evidence on behavioural responses to an enrollment subsidy.” **The Economic Journal** 110(462), 158– 175.

Ray, R. (2000). “Analysis of child labour in Peru and Pakistan: a comparative study.” **Journal of Population Economics** 13(1), 3–19.

Rogers, C. A. and K. A. Swinnerton (2004). “Does child labor decrease when parental incomes rise?” **Journal of Political Economy** 112(4), 939–946.

Rogers, C.A. and K.A. Swinnerton (2008). “A theory of exploitative child labor.” **Oxford Economic Papers** 60, 20-41.

Sarkar, J. and D. Sarkar (2016). “Why does child labor persist with declining poverty?” **Economic Inquiry** 54(1), 139–158.

Schwartzman, S. (2001). **Trabalho infantil no Brasil**. Brasília: Organização Internacional do Trabalho.

Silveira, F. G., B. Campolina and R. van Horn (2013). “Impactos do Programa Bolsa Família na alocação do tempo entre escola e trabalho de crianças e adolescentes de 10 a 18 anos.” *In*: T. Campello & M. C. Neri (Org.), **Programa Bolsa Família uma década de inclusão e cidadania** (pp. 305–325). Brasília: Instituto de Pesquisa Econômica Aplicada (IPEA). URL: http://www.ipea.gov.br/portal/index.php?option=com_content%20&view=article%20&id=20408