Trade Shocks and Child Labor: Evidence from Brazil *

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Abstract

This paper examines the medium- and long-term effects of Brazil's tariff reform in the 1990s on schooling and child labor. We exploit differences across industries in the adult and child employment composition in an empirical strategy that allows us to identify distinct effects of local economic shocks on household decisions. Relative to the national trend, we document that regions specialized in adult-specific industries experienced lower growth in schooling and higher increases in child labor, especially in paid works. Regions specialized in child-specific industries observed opposite effects. We provide evidence that these results translated into persistent effects on human capital formation and a structural transformation in employment composition.

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1 Introduction

The analysis of children's time allocation in the context of a household decision problem has received enormous attention from the human capital literature over the past decades[1]. Despite considerable advances, a more proper understanding of the mechanisms linking economic shocks and child labor is still needed. The connection between aggregate income shocks and household decisions is far from simple. In equilibrium, an economic shock (e.g., a decline in the price for a particular commodity produced regionally) causes numerous simultaneous changes in the labor market, thereby triggering different labor supply responses from both adults and children.

Perhaps not surprisingly, the extensive empirical literature on the impact of aggregate income shocks on child labor and educational attainment has obtained mixed results. On the one hand, many studies support a negative relationship between income shocks and child labor. For instance, Beegle et al. (2006) show that negative agricultural shocks increase the number of hours worked by children and reduce school enrollment in Tanzania. Edmonds and Pavcnik (2005) find that higher rice prices due to the end of export quotas in Vietnam are associated with large declines in child labor. Edmonds et al. (2010) examine the impact of tariff reform in rural India in the 1990s and find that schooling increases less in districts more exposed to trade liberalization. Interestingly, they find suggestive evidence that families reduce school enrollment to save schooling costs and that the burden of helping their families cope with poverty falls disproportionately on girls.

On the other hand, several other empirical studies, particularly those focusing on Latin American countries, find a positive relationship between income shocks and child labor. For instance, Kruger (2007) exploits variations in the value of coffee production at the municipality level to show that periods of economic growth lead to more child labor and less schooling. Similarly, Duryea and Arends-Kuenning (2003) shows that child labor in Brazil also increases in urban areas as local labor market opportunities improve while school attendance decreases. Carrillo (2020) also finds that cohorts in coffee cultivation areas in Colombia who faced higher world coffee prices during childhood completed fewer years of schooling and subsequently have lower adult earnings scores. Focusing on investments in human capital, Thomas et al. (2004) document that the Indonesian crisis in 1998 was associated with significant reductions in school enrollments.

How can one make sense of this plethora of seemingly contradictory results? In

[1]See Basu (1999) for a comprehensive review of the literature.

a relevant contribution to the literature, Soares et al. (2012) argue that the evidence uncovered by the empirical literature is entirely consistent with theory once one realizes that different types of income shocks bring together different combinations of income and substitution effects. Following Basu and Van (1998), the authors propose a simple partial equilibrium model that captures essential aspects of the household decision-making problem. They show that positive economic shocks that are mostly related to changes in the households' full income cause an "income effect" and therefore should lead to less child labor and more schooling. Conversely, positive economic shocks that are mostly related to changes in the opportunity cost of children's time cause a "substitution effect" and should lead to more child labor and less schooling. In practice, however, it is difficult to separately identify and distinguish between these two effects since, in general, economic shocks are associated with both of them simultaneously. Thus, a better understanding of the transmission channels through which shocks affect household decisions is needed.

This paper studies the medium- and long-term effects of the adjustment costs of a trade liberalization policy on schooling and work decisions in a general equilibrium framework. Specifically, we examine these issues in the context of Brazil's trade reform in the 1990s. In a move toward openness, the federal government significantly reduced import tariffs on different products between 1990 and 1995, promoting an increase in competition from international markets, especially for the most protected industries. As in Kovak (2013) and Dix-Carneiro and Kovak (2017), we exploit cross-section variation in the pre-liberalization industrial composition across Brazilian regions and differences across industries in the magnitude of tariff declines over time to investigate the effects of tariff cuts on child time allocation. By focusing on differences across regions in changes in tariff protection, we thus investigate how schooling and child labor changes differ in regions more specialized in harder-hit industries relative to regions with a relevant fraction of workers employed in industries less affected.

We complement the literature by exploiting differences in the initial patterns of industrial specialization to identify whether shocks to returns to adult and child labor have distinct impacts on household decisions. In particular, children enjoy a comparative advantage in specific industries. Hence, tariff cuts of a given magnitude will affect children and adults differently depending on the initial industry mix of a given region. Following Autor et al. (2019), we extend the traditional shift-share strategy as follows: first, we calculate a child labor intensity index for each tradable industry measured by the ratio of child to adult workers in each region. Next, we construct two disaggregated tariff shock measures, one for adult-specific industries and one for child-specific industries. These measures allow us to exploit distinct effects of tariff cuts on schooling and child labor for different industry compositions.

Our findings suggest differential effects of trade liberalization on schooling and child labor. We find that children living in regions specialized in adult-specific industries left school to improve family incomes through paid employment, whereas school attendance increased faster as child-specific industries lost protection. A region with a 10 p.p. change in adult industry tariff shock experienced a 9.9 p.p. increase in schooling between 1991 and 2000, approximately 37 percent below the national average. In the 1991-2010 horizon, schooling increased almost 50 percent below the national trend. The same shock is associated with slower decreases in the fraction of children working without attending school over these periods (4.07 p.p. and 4.89 p.p., respectively). On the other hand, school attendance increased more in regions that experienced higher tariff declines in child-specific industries. A change in child industry shock of 0.3 p.p. would have led to an increase of 1.9 percentage points in the medium run (2000) and 2.78 p.p. in the long run (2010). To put these numbers in perspective, they correspond to around 12 and 14 percent increase above the national trend, respectively. The evidence on work activities mirrors these findings on schooling. Specifically, the share of children who only work was reduced by 0.55 p.p. between 1991 and 2000 and by 0.80 p.p. over 1991-2010. The declines are largest for those children who work and attend school, which represent the most significant share of child workers.

We document that the consequences of trade shocks go beyond the individuals directly affected by them. For instance, we provide evidence on how these costs might be transmitted for future generations by showing the persistent effects of the trade reform on human capital formation. Overall, the results indicate that trade reform had reduced educational attainment in regions specialized in adult-intensive industries. By 2010, high school dropout increased almost 38 percent above the national average with similar deterioration in the average years of schooling. Finally, we present evidence on how these differences in schooling trends translated into subsequent labor market outcomes in adulthood by documenting changes in local employment composition across sectors in harder-hit regions. Formal employment has deteriorated in regions exposed to shocks in adult-specific industries, and labor has reallocated from manufacturing to agriculture and services activities. On the other hand, the exposure to the shock on child industries has led to better employment opportunities in manufacturing industries, increased earnings, and relative increases in formal employment.

This study contributes to the literature by investigating the long-term trends in child labor and schooling. Our empirical analysis combines four waves of the Brazilian Demographic Census from 1980 to 2010, while previous work on Brazil has focused mostly on short-term or cyclical changes in child labor (Duryea and Arends-Kuenning, 2003; Duryea et al., 2007; Kruger, 2007). Most closely related to our paper is Bai and Wang

(2020) who exploits the 1991 Indian tariff reform to examine the impact of losing tariff protection on children's activities. The authors propose a strategy to identify income and substitution effects by computing disaggregated tariff measures. To do this, they classify crops in the Indian rural areas that are the most and least child labor-intensive using household survey data. The advantage of our strategy, however, is twofold. First, it does not focus solely on agricultural activities by exploiting shocks in all industries, especially in the manufacturing sector. Second, we directly exploit the geographical distribution of working children across Brazilian regions by using censitary data. The large sample sizes (between 1.9 and 3.4 million children per year) allow us to obtain precise estimates of child employment by industry and region that could not be obtained using typical household surveys.

Another related work is Kis-Katos and Sparrow (2011), which documents a faster decrease in child labor in districts that were relatively more exposed to Indonesia's trade liberalization in the 1990s. The authors also provide indirect evidence that this effect was driven by positive income effects for the poor. Greenland and Lopresti (2016) documents large increases in U.S. high school graduation rates in the labor markets most affected by import competition. Using variation in the timing of export manufacturing plant openings across local regions in Mexico, Atkin (2016) also studies the impacts of globalization on the labor force and finds higher school dropout rates due to the increased job market opportunities. Finally, this paper also relates to the growing literature on the effects of trade on local labor markets (Gonzaga et al., 2006; Topalova, 2010; Autor et al., 2013; Acemoglu et al., 2016; Dix-Carneiro and Kovak, 2017; Dix-Carneiro et al., 2018; Ponczek and Ulyssea, 2021).

The remainder of the paper is organized as follows. Section 2 briefly describes the Brazilian trade reform, the child labor in Brazil, and data. Section 3 describes the measures of local trade shocks and the empirical strategy. Section 4 presents our main results on child labor and schooling, while Section 5 presents the results on human capital formation and structural transformation. Section 6 concludes.

2 Background and Data

2.1 Brazilian Trade Reform

For more than five decades, Brazil adopted an industrialization policy based on import substitution represented by a complex protection system against foreign competition. In addition to the high levels of nominal tariffs, there was a nontransparent protection structure composed of special regimes and non-tariff barriers, like lists of banned prod-

ucts, quantity controls, and government procurement restrictions (Kume et al., 2003). In a move towards more transparency in the trade policy, the newly elected government unexpectedly announced a reform agenda in 1990 by eliminating non-tariff barriers and replacing them with higher import tariffs with equivalent protection in a process known as "tariffication". From that moment onwards, the tariffs started to reflect the accurate level of protection faced by the national industry by becoming the principal trade policy instrument, even though these changes had not effectively altered the protective structure[2].

From 1990 to 1995, the nominal tariffs were gradually reduced from 30.5 percent to 12.8 percent, on average. Notably, not only the overall level of the protection fell but also the dispersion across industries. The standard deviation dropped from 14.9 percent to 7.4 percent. Figure 1a plots the percentage change in the nominal tariffs by industry. We observe that some industries experienced steeper reductions than others. For instance, tariff cuts were about 25 percent in Rubber and Apparel, but only 3.2 percent in Petroleum, Gas, and Coal. On the other hand, nominal tariffs in Agriculture slightly increased by 1.4 percent. We exploit this cross-industry variation in tariff cuts in our identification strategy, as discussed in Section 3.

Important to our empirical strategy, the most protected industries before the reform experienced the largest tariff cuts (Kovak, 2013). Figure 1b shows a strong negative correlation between tariff changes and pre-liberalization tariff levels, which were imposed decades earlier (Kume et al., 2003). This pattern alleviates concerns related to the possibility that tariff cuts were associated with previous industry performance or other potential confounders related to political pressures attempting to influence government decisions. Finally, the reform was close to a once-and-for-all event since tariffs remained approximately constant after the reductions, as can be seen in Figure A1.

2.2 Child Labor

The incidence of child labor in Brazil has been declining since the 1980s. Between 1980 and 2010, child labor decreased by more than seven percentage points, to 5.5 percent of all children aged 10 to 14. Among other things, improvements in living standards, increasing urbanization, and the adoption of local and federal policies focused on promoting school attendance and controlling child labor explain this progress (Barros and Mendonça, 2010). Nevertheless, the decline has occurred primarily among children who only work. The

[2]We refer the interested reader to Kovak (2013) and Dix-Carneiro and Kovak (2017) for a more detailed description of the trade liberalization reform in Brazil.

incidence of child labor among children who combine work and school, which represents the most significant share of child workers, has remained constant in the same period.

The incidence remains high in rural areas, with approximately 14.2 percent compared to 3.5 percent in urban regions in 2010. Agriculture is the largest employer of children, even in urban areas. Figure 2 shows that agriculture employed 89.6 percent of rural working children and 19.7 percent of urban working children in 2010. In urban areas, non-agricultural industries played a relevant role in child labor. In particular, manufacturing industries employed 12.4 percent of urban children in 2010. Interestingly, although 64.2% of working children in urban areas in 2010 worked for pay, almost three-quarters of those in agriculture were unpaid, suggesting that these children worked on the household's land. Despite this evidence, a closer look at the industry composition reveals significant heterogeneity in child labor incidence.

To the extent that children enjoy a comparative advantage in specific industries, one would expect that children's and adults' occupational choices might readjust as their opportunities for employment change. Hence, to better understand the labor demand responses to the trade reform, we exploit these differences in industry mix composition by calculating a child labor intensity index for each tradable industry measured by the ratio of child to adult workers[3]. Perhaps unsurprisingly, Figure A2a shows that the most child-intensive industries are related to agriculture. For instance, cotton, tobacco, and sugar cane employ disproportionately more children than other industries. Outside of agriculture, footwear, non-metallic mineral manufacturing, wood products, textiles, and apparel are particularly intensive in child labor. Figure A2b shows that these industries are highly informal and then less likely to be enforced by the labor regulations when employing children. Overall, this analysis suggests that children display a comparative advantage in productions with lower skills requirements.

2.3 Data

Our main variables of interest come from four waves of the Brazilian Demographic Census covering 1980 to 2010. The microdata administered by the Brazilian Institute of Geography and Statistics (IBGE) contains socioeconomic characteristics and comprehensive labor market outcomes at the individual level. Relevant to our empirical strategy, it provides data on the activity sector according to the 5-digit CNAE Domiciliar classi-

[3]To identify the most and least-child labor-intensive industries, we use the 1980 census data to avoid concerns related to endogeneity caused by changes in occupational choices, as well as the same concordance from HS codes to Census industry codes as in Dix-Carneiro and Kovak (2017). This mapping provides 44 consistently tradable industries across censuses.

fication for each working individual[4]. The empirical analysis occurs at the microregion level, a group of neighboring municipalities sharing similar geographic and productive characteristics within a state and close to the notion of a local labor market. Our final sample includes 411 microregions whose boundaries are consistent over time[5] (Reis et al., 2008).

Throughout the analysis, we restrict the microdata sample to children between 10 and 14 years old. We exclude younger children because official labor market statistics are available for individuals aged older than 10th. Since work in Brazil is allowed from 14 onwards when minors have apprentice status, we define our children's sample to those individuals younger than 14. Additionally, children are expected to complete the middle-school cycle (mandatory schooling) at this age. We also include in our sample adults between 15 and 64 years old, which are those individuals most likely to participate in the labor market. When studying employed individuals, we exclude those working in public administration. For child labor and schooling outcomes, we look at the share of children at the microregion level working but not in school, not employed but in school, employed and in school, and neither working nor in school. We also obtain two labor market outcomes at the individual level: the total labor market earnings and the employment status by sector of activity. Our analysis focuses on the changes in human capital and labor market outcomes between 1991 and 2000 (medium-run) and 1991 and 2010 (long-run). We use the 1980 census to account for pre-existing trends possibly related to (future) trade shocks. We also rely on census data to construct our demographic control variables at the microregion level at the baseline year 1991: the share of women, the fraction of high-skilled population computed as the fraction of individuals who have completed at least high school and are 18 years old or more, Gini inequality index, and the logarithm of the population.

To construct our local labor market exposure to the trade reform, we use data on industry-specific tariffs provided by Kume et al. (2003). The authors report both the nominal tariffs and the effective rates of protection at the *Nível 50* Brazilian industry classification level from 1987 to 1998. We apply the same methodology as in Dix-Carneiro and Kovak (2017) to aggregate these tariffs into an industry classification compatible with

[4]The CNAE Domiciliar is the official classification of economic activities used by the demographic census and the other household surveys in Brazil. It applies to private or public companies, agricultural establishments, public and private organizations, non-profit institutions, and autonomous agents.

[5]Following the literature, we drop the microregion containing the free trade zone of Manaus. This region was exempt from tariffs and therefore was not affected by the reform in the 1990s. We also drop the archipelago of Fernando de Noronha, a small territory that did not report data in the 1980 census. Including these microregions in the regressions when possible does not change any of our results.

the sector coding in the census data, resulting in 20 tradable sectors plus a non-tradable one.

Table 1 presents the descriptive statistics of the changes in the share of 10-14-year-old children in each activity over the indicated period at the microregion level. We first observe that, in line with the trends in child labor, Brazil has improved educational attainment over the past decades. The fraction of children that report being enrolled in school but not employed substantially increased between 1991 and 2010 (19.6 p.p.). In the corresponding period, the share of children working but not in school decreased 5.7 p.p.. In Panel C, the high level of dispersion suggests substantial heterogeneity in terms of initial demographic conditions across microregions. We observe the same pattern in Panel D when analyzing the local exposure to the trade reform. We explain how we construct these regional trade shocks in Section 3.1.

3 Research Design

3.1 Exposure to Tariff Reform

To construct our measure of local exposure to the tariff reform, we follow the previous literature and exploit two sources of variation in a shift-share design. First, we explore cross-sectional variation in the employment distribution within Brazil. Second, we take advantage of the cross-industry variation induced by distinct changes in the nominal tariffs from 1990 to 1995. Intuitively, although tariff cuts are the same across all regions for a given industry, different localities have been more or less exposed to the tariff reform depending on their pre-liberalization industry specialization. We can thus interpret the tariff reform as a negative labor demand shock in regions more specialized in harder-hit industries relative to regions with a relevant fraction of workers employed in industries less affected.

In particular, we rely on Kovak (2013) and Dix-Carneiro and Kovak (2017) and construct a measure of how much the tariff reform affected labor demand in region m as follows:

$$\begin{aligned} \Delta Tariff_m &= -\sum_{j \in S} \omega_{mj} \Delta log(1+\tau_j), \quad \text{with} \\ \omega_{mj} &= \frac{\frac{\lambda_{mj}}{\varphi_j}}{\sum_{j' \in S} \frac{\lambda_{mj'}}{\varphi_{j'}}} \end{aligned} \tag{1}$$

where τ_j is the nominal tariff on industry j and thus $\Delta log(1+\tau_j)$ is the long difference of the tariff rate in industry j between 1990 and 1995, $\lambda_{mj} = \frac{L_{mj}}{L_m}$ is the initial share of

region m workers employed in industry j (measured at baseline year 1991), φ_j equals one minus the wage bill share of industry j calculated using the 1991 National Accounts from IBGE, and S represents the set of all tradable industries[6]. Note that we multiply the tariff exposure measure by minus one to simplify the interpretation of our results. Then, regions facing greater tariff cuts have larger positive values for $\Delta Tariff_m$.

Although the $\Delta Tariff_m$ captures the overall exposure experienced by microregions to tariff reform, shocks driven by adults or children could differently impact household decisions. To add this dimension of variation, we follow Autor et al. (2019) and construct age-specific measures of tariff shocks at the microregion level. Specifically, we exploit the fact that industries differ in their adult and child employment, so that tariff cuts of a given magnitude will otherwise affect children or adults depending on the set of industry exposed. We thus calculate distinct weights that are specific to the age group by multiplying the microregion-by-industry employment measures in (1) by the initial period child (adult) share of employment in each industry by region ($Ch_{mj} = \frac{L^{Ch}_{mj}}{L_{mj}}$ and $1 - Ch_{mj}$). As a result, we break down the aggregate tariff shock measure into two additive components:

$$\begin{aligned} \Delta Tariff_m^{Child} &= -\sum_{j \in S} Ch_{mj} \cdot \omega_{mj} \Delta log(1+\tau_j) \\ \Delta Tariff_m^{Adult} &= -\sum_{j \in S} (1 - Ch_{mj}) \cdot \omega_{mj} \Delta log(1+\tau_j) \end{aligned} \tag{2}$$

Figure 3 presents the distribution of the adult industry and child industry tariff shocks across microregions. Darker regions are those facing higher tariff cuts, while lighter areas represent less-affected regions. We observe in the maps that there is a significant geographic variation in both local shock measures even within the same state. However, one might be concerned that the correlation between our age-specific shocks measures is high and, for this reason, we can not capture heterogeneous effects. Indeed, Figure A3 in the Appendix shows that the correlation between the adult industry shock and the overall tariff measure is almost perfect ($\rho = 0.98$), which is expected as adults correspond to the vast majority of the workforce. Although the correlation between the child industry shock and the overall shock is equally strong, there is enough power for distinguishing their independent effects.

[6]We follow Kovak (2013) and exclude the non-tradable sector from the analysis. The author demonstrates that because non-tradable price moves together with the price of a locally produced tradable good, then the magnitude of the local tariff shock depends exclusively on the local tradable sector.

3.2 Empirical Strategy

Ideally, we would like to estimate changes in regional labor market conditions for observationally equivalent individuals. However, employed workers may migrate in response to shocks in the local labor market, which leads to changes in the labor force composition. Although previous literature has shown that labor mobility in Brazil is imperfect (Dix-Carneiro and Kovak 2017), we account for possible changes in the workforce composition by implementing an empirical strategy in two steps to filter out compositional effects from our regional earnings and employment estimates. Specifically, for each census year, we run the following regressions at the individual level:

$$y_{it} = \sum_{m} \theta_{mt} Reg_m + \mathbf{X}'_{it}\beta_t + \epsilon_{it} \tag{3}$$

where y_{it} is the outcome of interest for individual i in year $t = 1980, 1991, 2000, 2010$, Reg_m represents the set of microregion fixed effects and $\mathbf{X}'_{it}$ is a vector of individual characteristics that include age, age squared, an indicator for each year of schooling, gender, and race. We consider the following outcomes: (i) the total monthly labor market earnings; (ii) an indicator for whether the individual is employed; and (iii) an indicator for employment in each one of the three sectors: industries intensive in child labor, adult labor, and nontradable. Nevertheless, we also discuss the effects on formal employment, measured by those workers who hold a formal contract characterized by a signed card, and on employment in the agriculture and manufacturing sectors. The microregion fixed effects estimates from these regressions represent the average regional earnings and employment rates not explained by observable worker composition.

In the second step, we use these estimated coefficients to construct our main dependent variables at the microregion level. Specifically, we estimate the impact of tariff shocks running the following basic specification in first difference:

$$\Delta\hat{y}_{mt} = \alpha_0 + \alpha_1 \Delta Tariff_m + \mathbf{W}'_m\gamma + \delta_{st} + \epsilon_{mt} \tag{4}$$

where $\Delta\hat{y}_{mt} = \hat{\theta}_{mt} - \hat{\theta}_{m,1991}$ is the change in outcome y in microregion m between 1991 and $t = 2000, 2010$, $\mathbf{W}'_m$ is the set of controls used in all regressions, and ϵ_{mt} is the error term. Importantly, when analyzing the effects of tariff shocks on child labor and schooling, our dependent variables are given directly by the changes in the share of 10-14-year-old children in each activity over the indicated period (1991-2000 or 1991-2010). All regressions include state fixed effects (δ_{st}) to control for any differential state-specific time trends potentially correlated with trade shocks and the outcome variables. In particular, many relevant health and educational policies are defined at the state level.

All regressions control for the following demographic characteristics computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) to account for preexisting trends that could be related to (future) tariff shocks and are weighted by the inverse of the squared standard errors estimated in the first stage[7]. We report robust standard errors in the analysis, but there might be correlations across microregions within a mesoregion[8]. In Appendix B, we follow the literature and present our results using clustered standard errors at the mesoregion level. This increases the standard errors, but not enough to change our main conclusions.

However, our main goal is to investigate the differential impacts of age-specific tariff shocks on schooling and labor market outcomes. For that, we replace $\Delta Tariff_m$ with $\Delta Tariff_m^{Adult}$ and $\Delta Tariff_m^{Child}$ in Equation (4). Specifically, we estimate the following regression:

$$\Delta\hat{y}_{mt} = \beta_0 + \beta_1 \Delta Tariff_m^{Adult} + \beta_2 \Delta Tariff_m^{Child} + \mathbf{W}'_m\gamma + \delta_{st} + \epsilon_{mt} \tag{5}$$

where δ_{st} are the state fixed-effects and $\mathbf{W}'_m$ is the same vector of controls described above. Therefore, our specifications exploits the within-state variations in schooling and economic conditions, allowing for differential trends across microregions according to initial demographic characteristics as well as pre-trends on the outcome of interest.

Identification relies on the assumption that unobserved microregion-time specific shocks that affect schooling and labor market outcomes are uncorrelated with local exposure to tariff changes. One particular concern to our identification could be the existence of a mean-reversion effect. Specifically, regions heavily specialized in industries intensive in child labor may experience faster growth in schooling because of a lower baseline level. At the same time, these regions face greater child-specific industry shocks simply because of the initial high level of children employed in these specific industries. Therefore, our tariff shock measures would be capturing differential trends across regions with different baseline schooling and child labor rates instead of differences in industry specialization across microregions.

In section 4.2 we discuss a series of robustness exercises. We show that our results are similar across specifications when: (i) we do not control for baseline characteristics or preexisting trends of the outcome variable; (i) add longer pre-trends; (iii) include

[7]When estimating the effects on children's activities, we weight the regressions by the average population between 1991 and $t = 2000, 2010$.

[8]This geographic unit is a group of neighboring microregions within a state and with similar market characteristics.

additional control variables (the urbanization rate and the local supply of public goods proxied by the local government spending per capita); and (iv) account for confounding effects coming from other economic shocks to local labor markets. We also examine whether our results are driven by tariffs variation across manufacturing industries and not by differences between regions specialized in the agriculture or manufacturing sectors. Finally, we investigate whether reversion to the mean across regions with higher and lower levels of the outcome variable could be driving our results by controlling for the level of the dependent variable in 1980. In general, our main conclusions remain the same.

4 Main Results

4.1 Child Labor and Schooling

We start by investigating how the tariff reform affected household decisions regarding child labor and schooling. Figure 4 presents the results of estimating Equation (5). We divide the estimated coefficients for child-specific industries by 10 to make it easier to visualize the results. Since we are interested in the age-specific effects of tariff shocks and the point estimates for the adult industry shock are very close to those estimated for the overall tariff measure, we omit the results of estimating Equation (4) in the following discussion. Table B1 in the Appendix presents the full results.

Dependent variables are given by the changes in the share of 10-14-year-old children in each mutually exclusive activity over the indicated period (1991-2000 and 1991-2010). Diamond markers present the estimations for the adult industry shock, while triangle markers display the coefficients estimated for the child industry shock. The vertical bars denote 95 percent confidence intervals. First, we observe that higher tariff declines in adult-specific industries are associated with lower growth in the share of children who only attend school. The coefficient estimate of -0.58 implies that moving a microregion from the ninetieth to the tenth percentile of regional tariff changes (-10 percentage points) would be accompanied by a decrease in the fraction of children attending school by about 5.8 percentage points $[10 \times -0.580]$ from 1991 to 2000. The estimate of -0.976 indicates that the gap in school attendance growth expanded to 9.76 percentage points by 2010. It is important to interpret these results in the context of the significant progress in school attendance throughout Brazil during this period. On average, the fraction of children in school grew by 15.7 percentage points between 1991 and 2010 and 19.6 percentage points over 1991-2010. Thus, a region with a 10 percentage point change in adult industry tariff shock experienced a 9.9 percentage point increase in schooling between 1991 and 2000, approximately 37 percent below the national average. In the 1991-2010 horizon, schooling

increased almost 50 percent below the national trend.

On the other hand, child-specific shocks have opposite effects on schooling. Specifically, school attendance increased by more in regions that experienced higher tariff declines in child-specific industries. The estimate of 6.338 suggests that moving a microregion from the ninetieth to the tenth percentile of the child-specific tariff shock (-0,3 percentage points) would be accompanied by an increase in the share of children in school by about 1.90 percentage-points $[0,3 \times 6.338]$ in the medium run (2000), followed by faster growth in the long run (2010). Specifically, a change in child industry shock of 0,3 percentage would lead to an increase of 2.78 percentage points in school attendance between 1991 and 2010. To put these numbers in perspective, they correspond to around 12 and 14 percent increase above the national trend, respectively.

We now investigate whether the observed effects on schooling mirror the other activities that children engage in. Specifically, if the age-specific tariff declines are associated with changes in income and substitution effects, we expect distinct responses of child labor decisions depending on the shock. The evidence presented by Figure 4 provides support for industry-specific tariff declines being associated with children's participation in several work categories. Tariffs declines in adult-specific industries are associated with slower reductions in the fraction of children working without attending school. The point estimate suggests that a 10 percentage point change in adult industry shock would lead to an increase of 4.07 percentage points in child labor between 1991 and 2000. Relative to the national trend, this result means that regions exposed to higher tariff declines in the adult industry did not reduce child labor over this period. This effect slightly increases in the long run.

Interestingly, this increase in work is associated with market work where the child engages in labor activities more likely to contribute to the household income. Point estimates suggest that moving a microregion from the ninetieth to the tenth percentile of the adult-specific tariff shock would be accompanied by an increase in the fraction of children working in paid employment by about 3.17 percentage points in the medium run (2000) and 3.88 in the long run (2010). Although the results do not indicate that some of the declines in school attendance appear as an increase in the domestic work - proxied by unpaid employment -, tariff changes are associated with increases in the fraction of children who do not report work and also do not attend school, i.e., "idle". However, we do not rule out the possibility that the higher incidence of children dedicating time to leisure could probably reflect mismeasurement of some type of work. For instance, some parents may not consider household chores or even work in the market as a principal activity of their children.

On the other hand, child labor responded differently in regions highly exposed to

shocks in child-specific industries. In response to a change of -0.3 percentage point in child-specific industry tariffs, the share of children who only work was reduced by 0.55 percentage points between 1991 and 2000 and by 0.80 over 1991-2010. These effects correspond to variations approximately 11 and 14 percent above the national trend, respectively. It is worth noting that declines in child labor are largest for those children who work and attend school, which represent the most significant share of child workers. Once more, data suggest these results are driven entirely by faster reductions of children in market work. The point estimates indicate that a change in child-specific tariffs of -0.3 led to a 2.55 percentage point reduction in paid employment rate in 2000, with increasing effects in 2010.

Overall, the evidence suggests that the differential effects of trade liberalization on schooling and child labor are consistent with the relative role of the opportunity cost of studying and household income. Children living in regions specialized in adult-specific industries left school to improve family incomes through paid employment. At the same time, school attendance increased faster in response to a decrease in the opportunity cost of schooling as child-specific industries lost protection.

4.2 Robustness

The estimated relationship between the tariff reform and household decisions would be biased if unobserved time-varying factors affect both the tariff changes measures and schooling/working decisions. In this section, we discuss several robustness exercises to check the validity of the results presented in Figure 4. We first show that our main conclusions are qualitatively the same when we change the inference method. Table B1 presents the results with p-values from our benchmark specification (robust standard errors) and with clustered at the mesoregion level to account for potential spatial correlation in outcomes across neighboring microregions.

Next, we test the robustness of our results to different specification choices. We also check whether the findings are confounded by other shocks on Brazilian local labor markets. Tables C1-C5 present the results for both the medium run (1991-2000) and the long run (1991-2010). To begin with, we show that the results are robust to a specification that includes neither demographic controls nor preexisting trends of the outcome variable. Then, we use 1970 Census data to construct longer pre-liberalization trends of the outcome variables. Including this additional control in the baseline specification does not change any of our main conclusions. We then investigate whether reversion to the mean across regions with higher and lower levels of the outcome variable could be driving our results by controlling for the level of the dependent variable in 1980. The estimates

generally remain stable, except for the school attendance, which becomes statistically insignificant. To check whether our results are driven by variation in tariffs across manufacturing industries and not by differences between regions specialized in the agriculture or manufacturing sectors, we estimate the baseline regressions excluding microregions above the median of the distribution of workers in agriculture. Once more the estimates remain unchanged. Next, we show that our results are not affected by the inclusion of two potential confounders, both measured at the baseline year 1991: (i) the urbanization rate; and (ii) the local supply of public goods proxied by the local government spending per capita. Although our findings are robust to these specification changes, the effects of liberalization could appear to grow over time because of correlated shocks occurring after trade liberalization. Hence, we carry out some of the robustness checks proposed by Dix-Carneiro and Kovak (2017) to rule out this possibility. Specifically, we include a variable that captures the changes in import tariffs for the post-liberalization period[9] (1995-2000 and 1995-2010), two additional variables capturing changes in the regional real exchange rate, and a variable that accounts for the global commodity shock in the late 2000s. In general, our basic results do not appear to be driven by other confounding shocks. Therefore, the conclusions discussed in the previous sections remain the same.

Finally, we investigate whether investments in school infrastructure are correlated with the microregion's exposure to the trade reform. During the 1990s, the Brazilian government focused remarkable efforts to eradicate child labor and promote schooling. Programs such as the Child Labor Eradication Program (PETI), Bolsa Escola, and other programs at the state and municipal levels were part of a large social assistance strategy in Brazil to reduce poverty and promote school attendance (World Bank, 2001). Although we have no reason to believe that such programs are correlated with region tariff changes, we test the validity of our results by using data from School Census. Specifically, we regress several measures of microregion school quantity and quality on our measures of tariff shocks using the baseline specification. We also obtain data on the local government spending on education at the municipality level from the Ministry of Finance (*Ministério da Fazenda - Secretaria do Tesouro Nacional*) and then aggregate it at the microregion level. Table B3 presents the results. We find no evidence that per capita government expenditures on education are correlated with tariff changes. We also observe no changes in school quality related to tariff shocks, especially to child-specific industry shock whose point estimates are largely insignificant. However, we find a statistically significant association between adult-specific shocks and school quality. If anything, the

[9]We use UNCTAD TRAINS to calculate post-liberalization tariff changes.

evidence is more consistent with increasing returns to education, which does not explain the declines in schooling discussed in the previous section.

4.3 Dynamic Effects

Section 4.1 documented strong and persistent effects of trade liberalization on school attendance. More importantly, we showed that schooling responses are different depending on the region's industry specialization. Regions largely exposed to tariff cuts in adult-specific industries experienced relative decreases in schooling, and regions hit harder by tariff changes in child-specific industries observed a faster increase in school attendance. Both effects increase in the long run (1991 to 2010).

In this section, we confirm this pattern by plotting the yearly evolution of the effects of trade shocks on schooling in Figure 5 using School Census data. Each point represents an individual regression coefficient estimated using Equation (5). We divide the estimated coefficients for child-specific industries by 10 to make it easier to visualize the results. The dependent variable is the change in the share of 10-14-year-old children enrolled in school between the indicated year and 1995. The darker line presents the estimations for child industry shock, and the lighter line displays the coefficients estimated for adult industry shock. Dashed lines denote 95 percent confidence intervals. Figure 5 mirrors the school attendance patterns described in Section 4.1. Specifically, we observe that larger tariff declines in adult-specific industries are associated with lower school enrollment rates. On the other hand, tariff cuts in child-specific industries have a positive association with schooling. These trends in school enrollment are similar in magnitude to what is observed for school attendance in the Demographic Census.

However, these results should be interpreted with caution. Unfortunately, the 1995 School Census is the earliest available data, which forces us to use the last year of the liberalization process as the reference period. This data limitation also prevents us from testing for preexisting trends in school attendance. Second, the School Census changed its methodology to collect data from the school level to a much more comprehensive set of information at the student, teacher, and school level in 2006. Because of this, the database is significantly different in the period pre-and post-2006 (Huberts and Machado, 2017). Furthermore, many schools might have stopped providing information in some years, partially explaining the large standard deviations[10].

[10]In particular, we draw attention to the limitations found in the 1997 School Census. For instance, the Ministry of Education did not collect data on the pupil's date of birth, preventing us from identifying the number of children between 10 and 14 years old enrolled in school. Although we do not observe a substantial difference in the number of schools participating in the census in 1997, the distribution of

Together, the results from this section indicate that the liberalization episode had a strong effect on school attendance over the medium and long terms. We now investigate how the trade reform affected the structure of the local economies. We start by studying the effects on completed human capital formation.

5 Structural Transformation

5.1 Human Capital Formation

We next document the persistent effects of the trade reform on human capital formation. If regions subject to greater declines in adult-specific tariffs experienced persistent smaller increases in school attendance, we would expect a worsening in other educational indicators in those regions relative to the national trend as well. The opposite should happen to those regions exposed to higher tariff cuts in child-specific industries. We use the Census data to examine the effect of the trade reform on different measures of human capital formation. Specifically, In Panel B of Table 2 we estimate Equation (5) using three different measures of human capital on the left-hand side: (i) the changes in the high-school dropout (share of youth aged 15-18 out of school); (ii) changes in the literacy rate; and (iii) changes in the average years of schooling.

The results on the impact of tariff declines on the adult-specific industry are consistent with the estimates for school attendance. The reduction in schooling with tariff declines on adult industries extends to the 15-18-year-old population. Specifically, we observe that a region with a 10 percentage point change in adult industry tariff shock experienced a 5.86 percentage point increase (or smaller decrease) in high school dropout between 1991 and 2000, approximately 24.5 percent above the national average. By 2010, high school dropout increased almost 38 percent above the national trend. Similar to high school dropout, average years of schooling and literacy rate experienced relative deterioration in regions facing higher tariff shocks on adults. It is worth noting that the effects of tariff declines in child-specific industries are less precisely estimated and not statistically significant, except for the impact on literacy rate over 1991-2000. The point estimate does not go in the expected direction, i.e., when regions exposed to greater tariff shocks on child-specific industries have experienced lower growth in literacy rate. However, the estimate is statistically significant only at 10%. Furthermore, the significance is not robust

enrollments is quite different from other years, with some regions exhibiting extreme values. To deal with these issues, we input the values for 1997 by calculating a simple average between 1996 and 1998 censuses.

to the inclusion of the cluster at the mesoregion level. Overall, the results indicate that trade reform had reduced educational attainment in regions specialized in adult-intensive industries.

5.2 Economic Activity

After establishing that trade liberalization shocks have distinct effects on human capital formation, we then provide evidence that the trade reform induced a structural transformation in economic activity both in the medium and the long run. We start by discussing the results of adult labor markets presented by Figure 6a. Dependent variables are calculated using a two-step procedure explained in section 3.2 and are given by the changes over the indicated period (1991-2000 and 1991-2010). Diamond markers present the estimations for the adult industry shock, while triangle markers display the coefficients estimated for the child industry shock. The vertical bars denote 95 percent confidence intervals. Despite small differences in specification, we observe the same pattern described in previous literature (Dix-Carneiro and Kovak, 2017; Dix-Carneiro et al., 2018). In particular, higher tariff declines in adult-specific industries are associated with relative decreases in earnings both in the medium and the long run. The negative effect on the employment rate however is temporary. The coefficient estimate of -0.450 implies that moving a microregion from the ninetieth to the tenth percentile of regional tariff changes (-10 percentage points) would lead to a 4.5 percentage points reduction in the employment rate in 2000, with the effect vanishing in 2010.

We now investigate whether there were changes in local employment composition across sectors. For this analysis, we classify industries into child-labor intensive or adult-labor intensive as discussed in Section 2.2. Interestingly, trade liberalization has led to a reallocation of adult labor across sectors. In particular, we observe adult workers shifting from the adult-labor intensive sector to the child-labor intensive in response to tariff cuts shocks in adult-specific industries. A region with a 10 percentage point change in adult industry tariff shock experienced a 7.30 percentage point relative increase in employment rate in the child labor-intensive sector between 1991 and 2000 and a 7.64 percentage point decrease in the fraction of adults occupied in the adult labor-intensive sector. This reallocation effect is permanent and amplified over time with larger point estimates for 1991-2010. Put differently, these results suggest a relative deterioration in the local labor market for those adults exposed to the tariff reform. As discussed in Section 2.2, child labor-intensive industries are highly informal and with lower skill requirements.

On the other hand, child-specific shocks have opposite effects on adult's labor market. Specifically, earnings and employment rate increased by more in regions that experienced

higher tariff declines in child-specific industries. The estimate of 13.028 suggests that moving a microregion from the ninetieth to the tenth percentile of the child-specific tariff shock (-0,3 percentage points) would be accompanied by an increase in adult's earnings by about 3.90 percentage points in the medium run (2000), followed by faster growth in the long run (2010). Most important, child-specific shocks led to an opposite migration effect for adults. Specifically, we observe adults migrating from non-tradable industries to those intensive in adult labor. The magnitude of the effects is both economically and statistically significant. Moving a microregion from the ninetieth to the tenth percentile of our child-specific tariff shock would be accompanied by a relative increase in the fraction of adults working in adult labor-intensive industries by about 2.23 percentage points in the medium run and by 2.92 percentage points in the long run.

Figure 6b presents the results for the labor market outcomes for children. Not surprisingly, we first observe that the trade reform was not associated with relative changes in earnings. It is worth noting that the effects are less precisely estimated in parts because we do not observe market wages for the vast majority of children. On the other hand, the effects on employment rate mirrors the results presented in Section 4.1. Specifically, tariffs declines in adult-specific industries are associated with higher increases in employment, with stronger effects in the long run (2010). On the other hand, employment rates experienced relative decline in regions highly exposed to shocks in child-specific industries. Regarding sectoral employment composition we do not observe a clear reallocation pattern, but the estimates suggest a relative decline of child labor in adult-labor intensive sectors. These are predominantly manufacturing industries that were the most hit activities by the tariff liberalization.

To better characterize the structural transformation in the economy, in Table 3 we assess how the schooling results translated into subsequent better labor market outcomes in adulthood. In particular, we analyze whether higher levels of schooling allowed individuals to explore more skill-intensive economic activities. Panel B presents the results of estimating Equation (5). Columns 1 and 2 show that formal employment in harder-hit regions by adult-specific industry shocks experienced relative decreases between 1991 and 2000. The larger point estimate for 1991-2010 suggests that the employment growth continued to diverge in these regions in the long run. Although this effect is well documented in the literature, the novel results come from the analysis of the child-specific industry shock. Regions specialized in industries intensive in child labor experienced faster growth in formal employment both in the medium (2000) and the long (2010) run. The sectoral composition analysis in columns 3-8 reveals that employment in agriculture increased relatively more in regions with higher tariff cuts in adult industries. These same regions experienced lower increases in manufacturing employment. In contrast, we document a

shift in employment toward manufacturing in regions exposed to child-specific shocks. The process of structural transformation deepened in the long run. Overall, the adult employment responses to tariff changes are also consistent with increasing returns to education discussed in previous sections.

6 Concluding Remarks

This paper studies the medium- and long-term effects of the adjustment costs of a trade liberalization policy on schooling and work decisions in a general equilibrium framework. Despite the extensive literature investigating the impacts of income shocks on child labor and schooling, previous works frequently focused on the household decision-making problem overlooking the structure of the productive sector, which is fundamental to determine how labor responds to economic shocks. In addition to highlighting the responses of the productive sector, in this paper, we complement the literature by exploiting differences in industry employment composition to identify whether shocks to returns to adult and child labor have distinct impacts on household decisions.

The improvement in living standards and the adoption of local and federal policies contributed to a substantial decline in child labor and to an increase in schooling since the 1990s in Brazil. However, we documented differential effects of trade liberalization on schooling and child labor. By exploiting age dissimilarities in industry specialization, we find that children living in regions specialized in adult-specific industries left school to improve family incomes through paid employment, whereas school attendance increased faster as child-specific industries lost protection. These differences in school attendance and child labor trends relative to the national average are robust and economically meaningful.

Since child labor generates substantial externalities, our results add a relevant dimension to these adjustment costs by showing that the consequences of trade shocks go beyond the individuals directly affected by them. For instance, we document how these costs are transmitted for future generations by showing the persistent effects of the trade reform on human capital formation. Overall, the results indicate that trade reform had reduced educational attainment in regions specialized in adult-intensive industries. We document that high school dropouts and average years of schooling experienced relative deterioration in regions more exposed to tariff shocks on adults. Finally, we present evidence on how these differences in schooling trends translated into subsequent labor market outcomes in adulthood by documenting changes in local employment composition across sectors in harder-hit regions.

Therefore, the findings of this paper provide novel evidence that educational decisions

made early in life based on local labor market conditions have persistent effects. Whereas a large body of the empirical literature on this topic has focused on specific socioeconomic contexts, primarily agriculture activities in rural areas, our analysis encompasses all industries in every Brazilian region. Thus, comprehending how labor markets and schooling decisions responded to these cross-country heterogeneous adjustment costs highlights the importance of considering local economic contexts when designing public policies.

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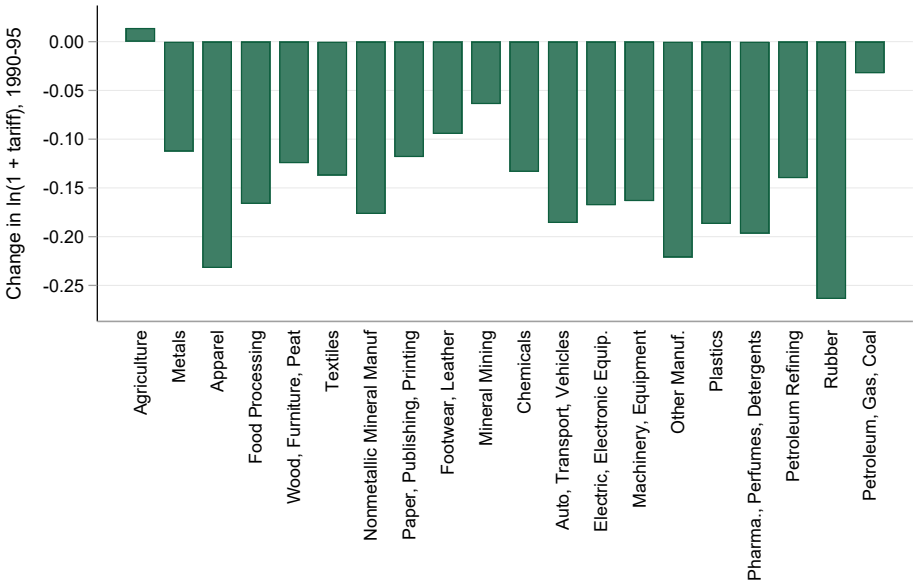
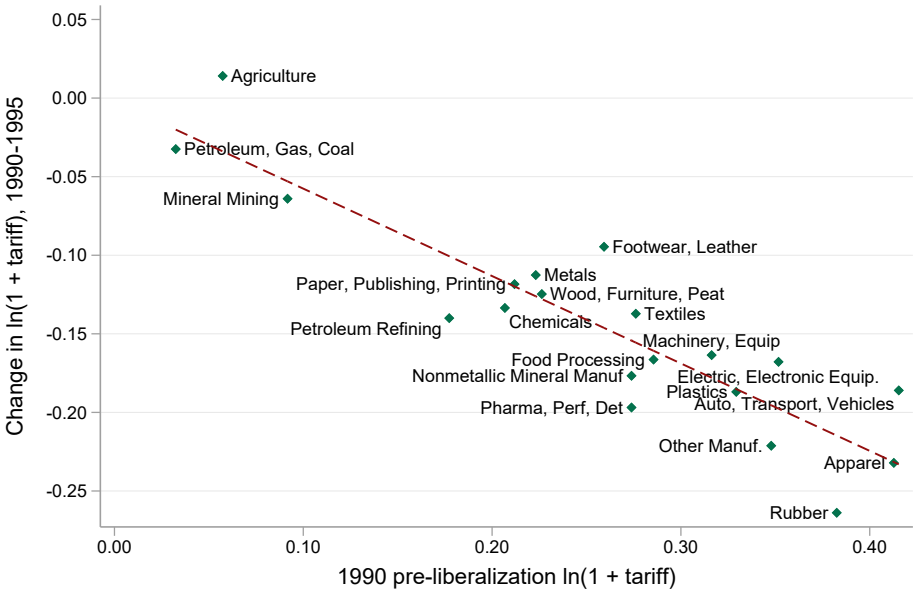
Figures

Figure 1: Change in Tariffs

(a) Changes in log(1+tariff), 1990-1995



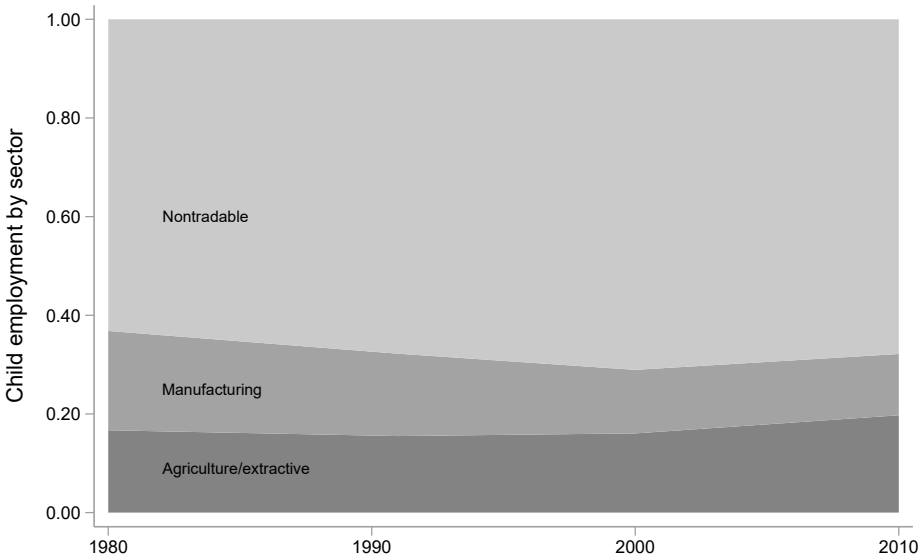
(b) Tariff Changes vs Pre-Liberalization Tariff Levels



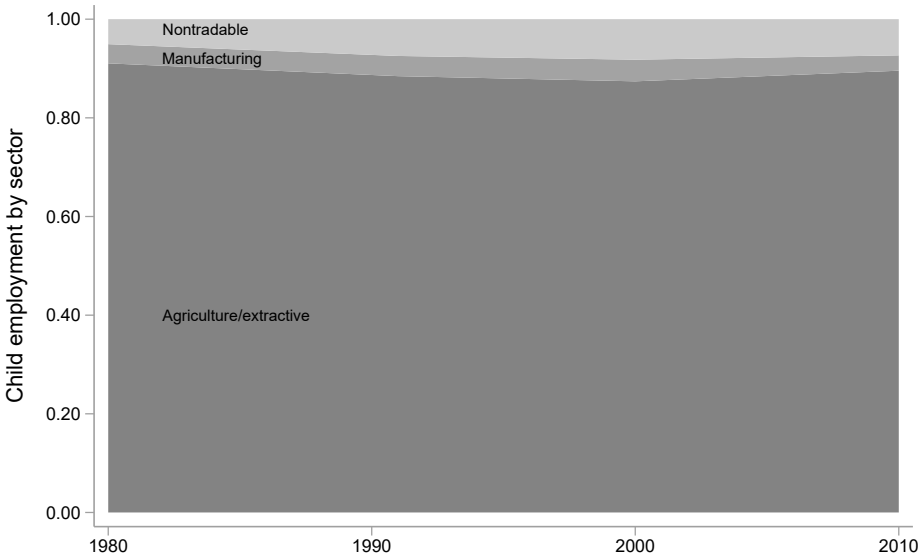
Notes: Figure 1a plots the changes in the log of one plus the nominal tariffs between 1990 and 1995 by industry. Industries are sorted from the largest to smallest according to the value added in 1990. Figure 1b plots the relationship between tariff changes and tariff levels in 1990. Source: Dix-Carneiro and Kovak (2017) and Kovak (2013).

Figure 2: Child Employment Distribution by Sector

(a) Urban areas



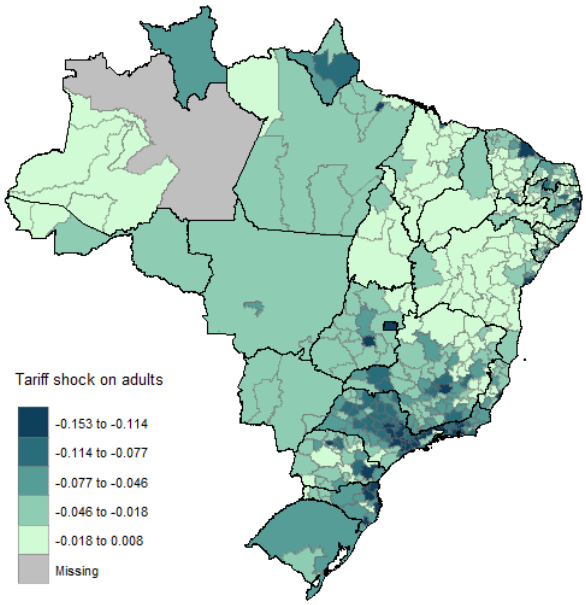
(b) Rural areas



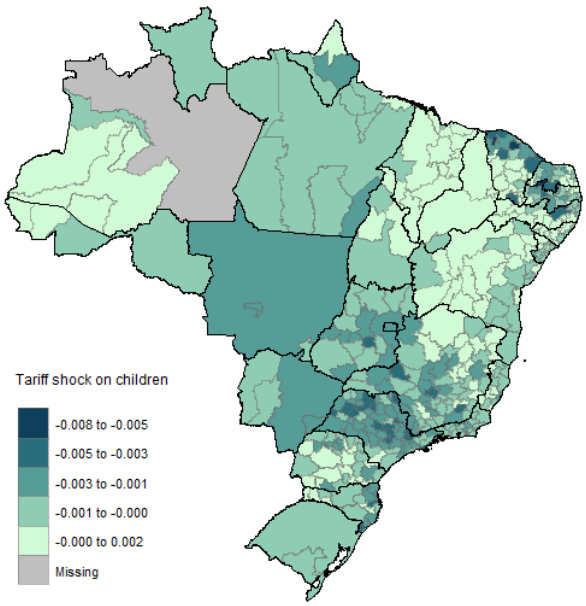
Notes: This figure displays the child employment distribution across sectors. Figure 2a presents the sectoral distribution of child labor in urban areas. Figure 2b exhibits the sectoral distribution of child labor in rural areas. Source: Brazilian Demographic Censuses.

Figure 3: Regional Distribution of Tariff Shocks

(a) $\Delta Tariff_m^{Adult}$

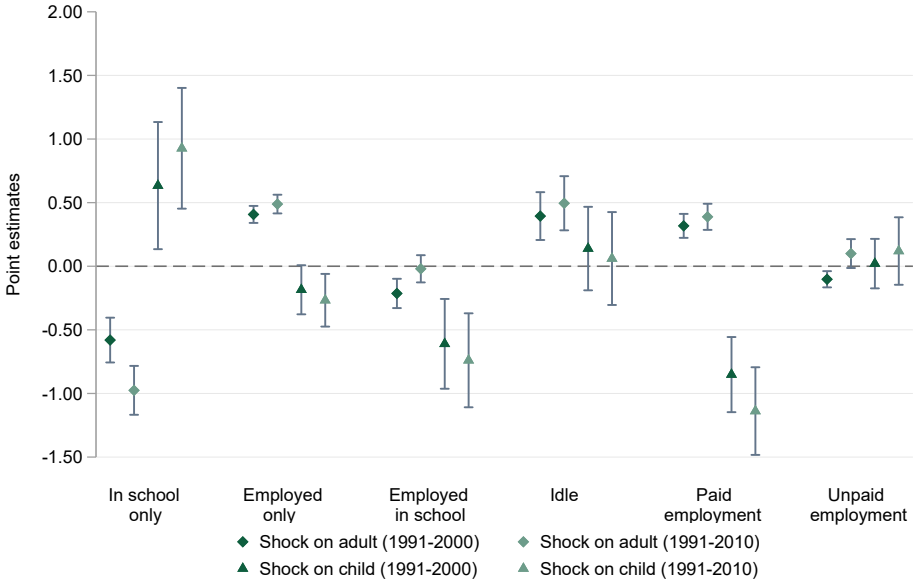


(b) $\Delta Tariff_m^{Child}$



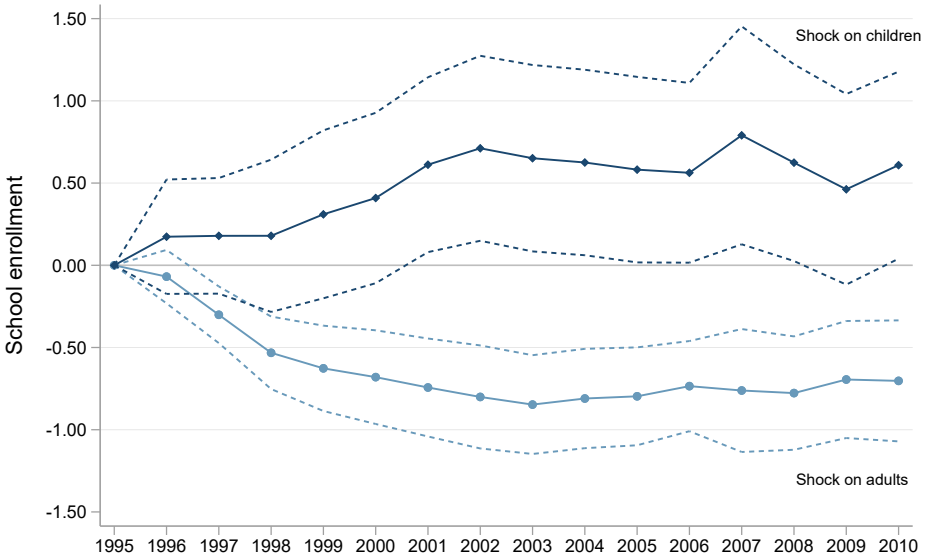
Notes: This figure displays the distribution of regional tariff shock measures across microregions calculated using Equation (2). Figure 3a presents the regional distribution of adult-specific industry tariff shock, while Figure 3b exhibits the distribution of child-specific industry tariff shock.

Figure 4: Effects of Tariff Shocks on Child Labor and Schooling



Notes: This figure plots the estimated effects of local exposure to tariff shocks on child labor and schooling. Each point represents an individual regression coefficient estimated using Equation (5). We divide the estimated coefficients for child-specific industries by 10 to make it easier to visualize the results. Dependent variables are given by the changes in the share of 10-14-year-old children in each activity over the indicated period. Diamond markers present the estimations for the adult industry shock, while triangle markers display the coefficients estimated for the child industry shock. The vertical bars denote 95 percent confidence intervals. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the child population. Robust standard errors are in parentheses.

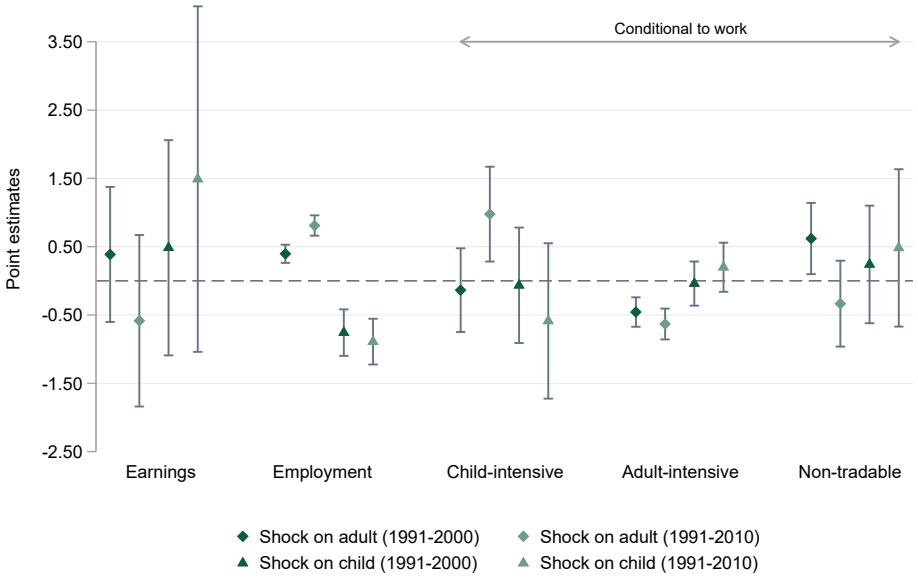
Figure 5: Dynamic Effects of Tariff Shocks on Schooling



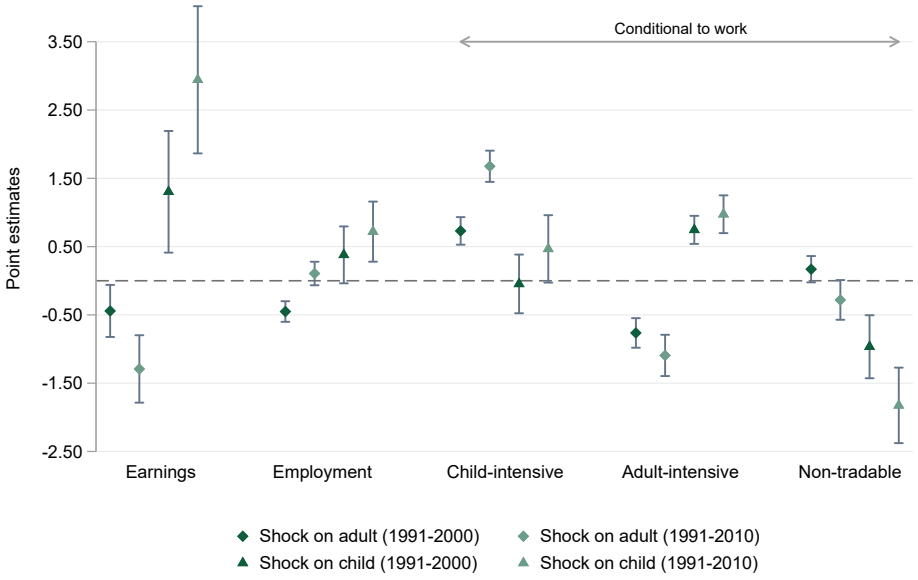
Notes: This figure plots the estimated effects of local exposure to tariff shocks on schooling. Each point represents an individual regression coefficient estimated using Equation (5). We divide the estimated coefficients for child-specific industries by 10 to make it easier to visualize the results. The dependent variable is the change in the share of 10-14-year-old children enrolled in school between the indicated year and 1995. The darker line presents the estimations for child industry shock, and the lighter line displays the coefficients estimated for adult industry shock. Dashed lines denote 95 percent confidence intervals. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions are weighted by the child population. Robust standard errors are in parentheses.

Figure 6: Effects of Tariff Shocks on Labor Market

(a) Adults



(b) Children



Notes: This figure plots the estimated effects of local exposure to tariff shocks on labor market outcomes for adults and children. We divide the estimated coefficients for child-specific industries by 10 to make it easier to visualize the results. The dependent variables are calculated using a two-step procedure explained in section 3.2 and are given by the changes over the indicated period. Diamond markers present the estimations for the adult industry shock, while triangle markers display the coefficients estimated for the child industry shock. The vertical bars denote 95 percent confidence intervals. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the inverse of the squared standard errors estimated in the first stage. Robust standard errors are in parentheses.

Tables

Table 1: Descriptive statistics

	Mean	SD	Min	Max
Panel A: Children's activities (Δ 1991-2000)				
% In school only	0.157	0.062	0.001	0.397
% Work only	−0.049	0.027	−0.212	0.033
% Work and in school	0.026	0.041	−0.065	0.191
% Idle	−0.133	0.071	−0.401	−0.033
% Paid employment	−0.034	0.027	−0.125	0.029
% Unpaid employment	0.015	0.025	−0.084	0.126
Panel B: Children's activities (Δ 1991-2010)				
% In school only	0.196	0.077	0.035	0.446
% Work only	−0.057	0.031	−0.234	0.008
% Work and in school	0.017	0.039	−0.079	0.195
% Idle	−0.156	0.085	−0.492	−0.031
% Paid employment	−0.042	0.033	−0.133	0.085
% Unpaid employment	0.006	0.034	−0.278	0.109
Panel C: Demographic controls in 1991				
Share female	0.499	0.011	0.432	0.531
Share high-skilled population	0.066	0.040	0.008	0.211
Gini inequality index	0.552	0.040	0.438	0.720
Logarithm of the population	12.064	0.995	9.452	16.275
Panel D: Tariff changes (1990-1995)				
$\Delta Tariff_m$	−0.044	0.040	−0.154	0.010
$\Delta Tariff_m^{Child}$	−0.043	0.039	−0.153	0.008
$\Delta Tariff_m^{Adult}$	−0.001	0.001	−0.008	0.002

Notes: This table exhibits descriptive statistics based on data from 1991, 2000, and 2010 Censuses averaged at the microregion level. Panels A and B contain the difference between 1991-2000 and 1991-2010 in the share of 10-14-year-old children in the indicated activity. Panel C displays summary statistics for demographic variables in 1991; the share of high-skilled individuals is computed as the fraction of individuals in the population who have completed at least high school and are 18 years old or more. Panel D shows descriptive statistics for the regional tariff shock measures calculated using Equation (1). In all panels, the sample consists of 411 microregions whose boundaries are consistent over time.

Table 2: Effects of Tariff Shocks on Human Capital Formation

	High school dropout		Literacy rate		Average years of schooling	
	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010
	(1)	(2)	(3)	(4)	(5)	(6)
A. Overall tariff shock						
$\Delta Tariff_m$	0.554***	1.051***	−0.547***	−0.783***	−1.215***	−1.174**
	(0.102)	(0.108)	(0.055)	(0.069)	(0.249)	(0.554)
R-squared	0.74	0.82	0.92	0.93	0.81	0.81
B. Adult industry vs child industry shock						
$\Delta Tariff_m^{Adult}$	0.586***	1.106***	−0.522***	−0.773***	−1.178***	−1.196**
	(0.110)	(0.121)	(0.057)	(0.074)	(0.279)	(0.582)
$\Delta Tariff_m^{Child}$	−1.608	−2.744	−2.220*	−1.396	−3.780	0.414
	(2.348)	(2.765)	(1.246)	(2.126)	(6.578)	(10.400)
R-squared	0.75	0.82	0.92	0.93	0.81	0.81
Observations	411	411	411	411	411	411
Mean dep. var.	-0.239	-0.292	0.105	0.156	0.721	2.034

Notes: This table exhibits the estimated effects of local exposure to tariff shocks on schooling and completed years of education. The dependent variables are given by the changes over the indicated period. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the population. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

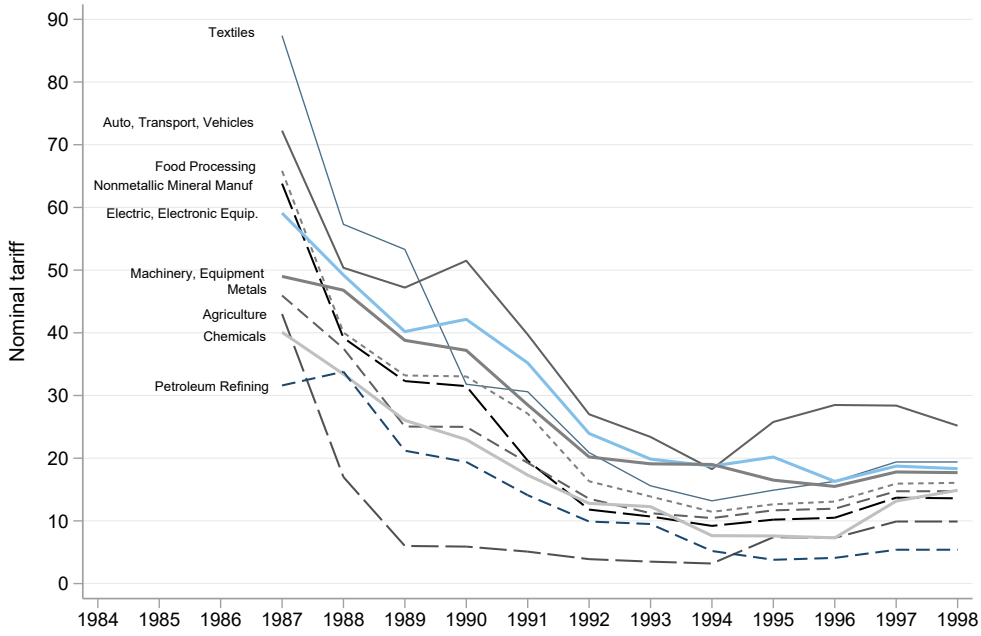
Table 3: Effects of Tariff Shocks on Structural Transformation

	Formal employment		Agriculture/ mining		Manufacturing		Nontradable	
	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Overall tariff shock								
$\Delta Tariff_m$	−0.856***	−0.854***	0.615***	0.944***	−0.541***	−0.751***	0.055	0.033
	(0.113)	(0.138)	(0.065)	(0.115)	(0.083)	(0.136)	(0.108)	(0.146)
R-squared	0.76	0.67	0.74	0.68	0.63	0.60	0.46	0.47
B. Adult industry vs child industry shock								
$\Delta Tariff_m^{Adult}$	−1.248***	−1.390***	0.632***	1.009***	−0.711***	−1.002***	0.237***	0.274**
	(0.113)	(0.140)	(0.068)	(0.117)	(0.085)	(0.142)	(0.091)	(0.131)
$\Delta Tariff_m^{Child}$	12.851***	18.847***	−0.391	−2.707	6.414***	9.330***	−10.366***	−13.465***
	(1.911)	(2.223)	(1.853)	(2.963)	(1.967)	(2.418)	(2.061)	(2.575)
R-squared	0.80	0.72	0.74	0.68	0.65	0.62	0.50	0.51
Observations	411	411	411	411	411	411	411	411
Mean dep. var.	-0.049	0.081	-0.077	-0.151	0.065	0.124	0.012	0.027

Notes: This table exhibits the estimated effects of local exposure to tariff shocks on structural transformation. The dependent variables are calculated using a two-step procedure explained in section 3.2 and are given by the changes over the indicated period. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the inverse of the squared standard errors estimated in the first stage. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix A - Additional Tables and Figures

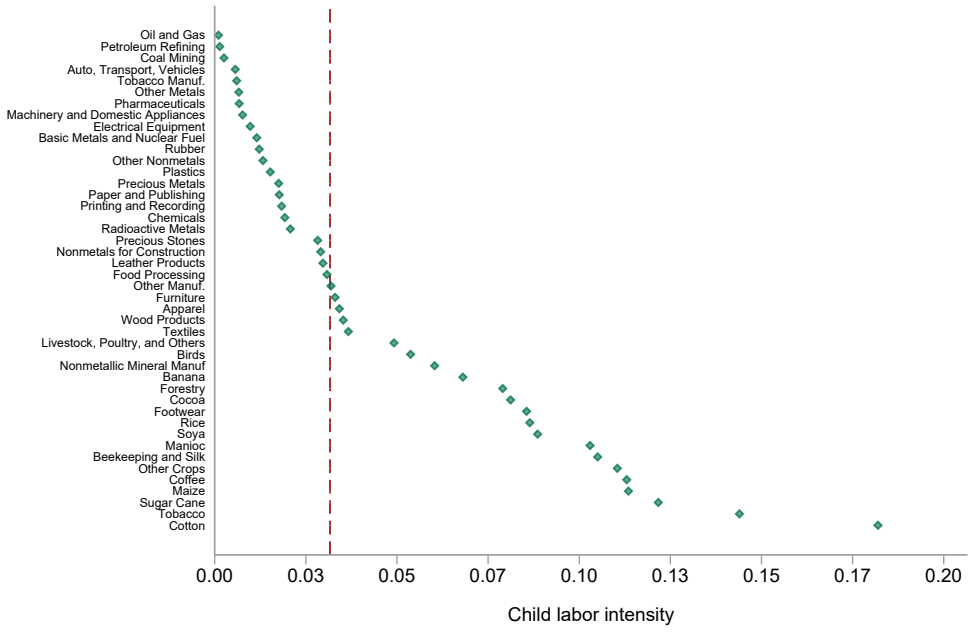
Figure A1: Evolution of Nominal Tariffs (1987-1998)



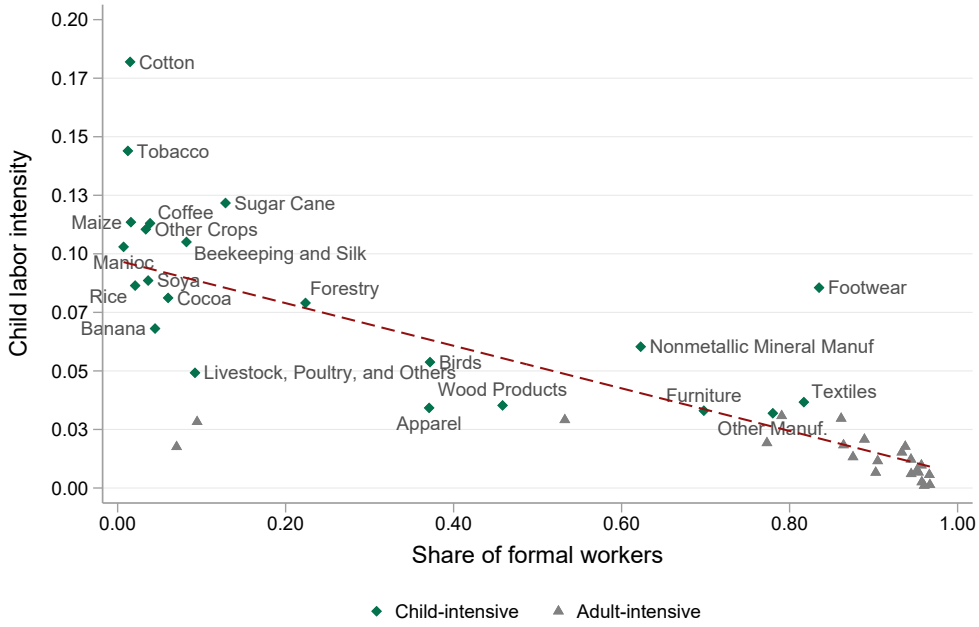
Notes: This figure presents the evolution of nominal tariffs from 1987 to 1998 for the ten largest industries by value added in 1990. Source: Dix-Carneiro and Kovak (2017).

Figure A2: Child Labor Intensity and Formality

(a) Child Intensive Industries



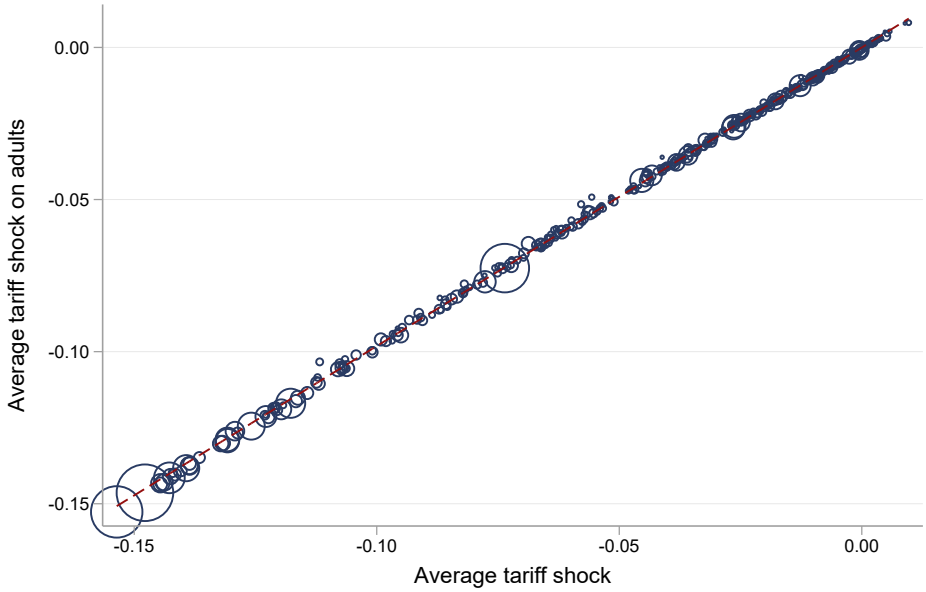
(b) Child Labor Intensity vs Formal Workers



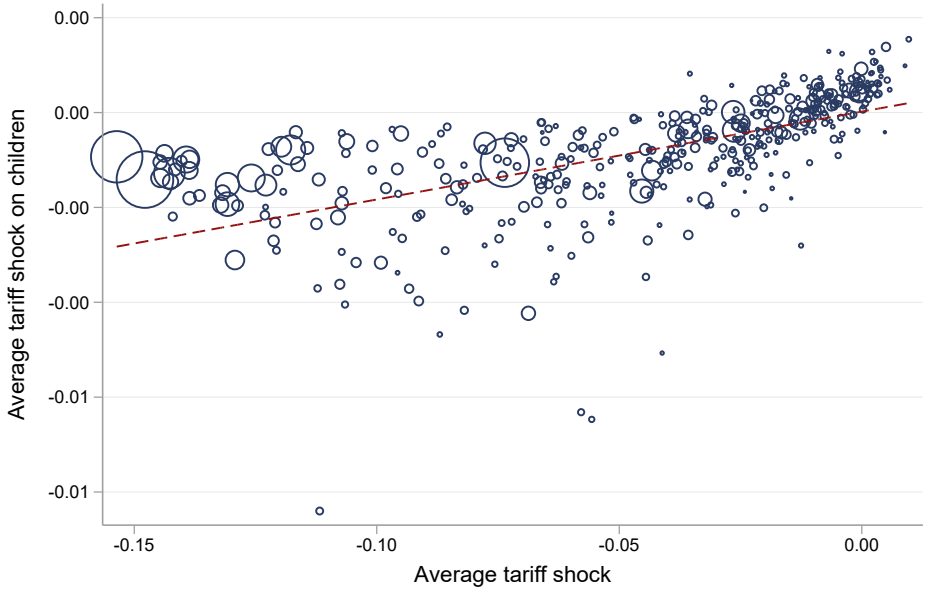
Notes: This figure displays the relationship between child labor intensity and formality. Figure A2a exhibits the child labor intensity for each industry measured by the ratio of child to adult workers. Figure A2b plots the relationship between the child labor intensity and the fraction of adult workers in each industry who are formally employed. Formal workers are those who hold a formal contract characterized by a signed card. Source: 1980 Census.

Figure A3: Regional Tariff Shocks

(a) $\Delta Tariff_m^{Adult}$ vs $\Delta Tariff_m$



(b) $\Delta Tariff_m^{Child}$ vs $\Delta Tariff_m$



Notes: This figure plots the relationship between the measures for the overall tariff shock and adult and child industry shocks, respectively. These measures are computed following Equations (1) and (2). Weights are given by population at each microregion in 1991.

Table A1: Effects of Tariff Shocks on Child Labor and Schooling By Gender

	In school only		Employed only		Employed in school		Idle		Paid employment		Unpaid employment	
	Boy (1)	Girl (2)	Boy (3)	Girl (4)	Boy (5)	Girl (6)	Boy (7)	Girl (8)	Boy (9)	Girl (10)	Boy (11)	Girl (12)
A. 1991-2000												
$\Delta Tariff_m^{Adult}$	−0.608***	−0.584***	0.638***	0.174***	−0.325***	−0.100**	0.262***	0.526***	0.416***	0.207***	−0.090**	−0.109***
	(0.102)	(0.092)	(0.055)	(0.035)	(0.081)	(0.043)	(0.099)	(0.102)	(0.059)	(0.049)	(0.044)	(0.025)
$\Delta Tariff_m^{Child}$	8.228***	4.940*	−0.508	−3.341***	−7.567***	−4.705***	−0.386	3.038	−9.123***	−7.883***	0.546	−0.227
	(3.018)	(2.524)	(1.499)	(0.738)	(2.584)	(1.184)	(1.792)	(2.072)	(2.366)	(1.095)	(1.497)	(0.646)
R-squared	0.75	0.75	0.75	0.48	0.73	0.65	0.85	0.83	0.61	0.59	0.38	0.48
B. 1991-2010												
$\Delta Tariff_m^{Adult}$	−1.187***	−0.787***	0.745***	0.228***	0.025	−0.065	0.367***	0.617***	0.507***	0.258***	0.247***	−0.049
	(0.114)	(0.099)	(0.061)	(0.037)	(0.068)	(0.045)	(0.115)	(0.113)	(0.062)	(0.052)	(0.089)	(0.035)
$\Delta Tariff_m^{Child}$	11.028***	7.943***	−1.547	−3.934***	−8.678***	−6.055***	−1.215	2.274	−12.901***	−9.787***	2.590	−0.352
	(2.515)	(2.735)	(1.592)	(0.770)	(2.243)	(1.609)	(1.875)	(2.272)	(2.547)	(1.338)	(2.102)	(0.794)
R-squared	0.86	0.79	0.78	0.54	0.68	0.71	0.86	0.84	0.64	0.60	0.44	0.55

Notes: This table exhibits the estimated effects of local exposure to tariff shocks on child labor and schooling by gender. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the child population. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix B - Robustness Analysis (Inference)

This section reports the robustness analysis using different inference methods. We exhibit the robust standard errors, the same as those reported in the main results section, and the standard errors clustered at the mesoregion level (91 clusters) for each dependent variable. Results remain qualitatively the same.

Table B1: Robustness Inference: Effects of Tariff Shocks on Child Labor and Schooling

	In school only		Employed only		Employed in school		Idle		Paid employment	
	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. Overall tariff shock										
$\Delta Tariff_m$	−0.464	−0.805	0.372	0.439	−0.305	−0.134	0.410	0.497	0.179	0.205
	(0.091)***	(0.101)***	(0.036)***	(0.041)***	(0.057)***	(0.054)**	(0.091)***	(0.103)***	(0.051)***	(0.059)***
	[0.100]***	[0.117]***	[0.034]***	[0.042]***	[0.069]***	[0.075]*	[0.134]***	[0.156]***	[0.046]***	[0.055]***
R-squared	0.76	0.84	0.71	0.74	0.72	0.69	0.85	0.87	0.58	0.57
B. Adult industry vs child industry shock										
$\Delta Tariff_m^{Adult}$	−0.580	−0.976	0.407	0.489	−0.214	−0.020	0.394	0.495	0.317	0.388
	(0.090)***	(0.098)***	(0.034)***	(0.037)***	(0.059)***	(0.055)	(0.096)***	(0.109)***	(0.048)***	(0.052)***
	[0.100]***	[0.116]***	[0.033]***	[0.041]***	[0.078]***	[0.088]	[0.143]***	[0.167]***	[0.051]***	[0.057]***
$\Delta Tariff_m^{Child}$	6.338	9.271	−1.848	−2.673	−6.100	−7.394	1.390	0.606	−8.517	−11.384
	(2.549)**	(2.421)***	(0.984)*	(1.056)**	(1.800)***	(1.884)***	(1.674)	(1.863)	(1.507)***	(1.757)***
	[2.786]**	[2.696]***	[1.209]	[1.318]**	[1.670]***	[2.097]***	[2.145]	[2.333]	[1.613]***	[1.845]***
R-squared	0.77	0.84	0.71	0.75	0.73	0.71	0.85	0.87	0.65	0.66
Observations	411	411	411	411	411	411	411	411	411	411
Mean dep. var.	0.157	0.196	-0.049	-0.057	0.026	0.017	-0.133	-0.156	-0.034	-0.042

Notes: This table complements Figure 4 by presenting results using different inference methods. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the child population. Robust standard errors, the same as those reported on the main figure, are in parentheses. Standard errors clustered at the mesoregion level are in brackets (91 clusters). Stars reflect p-values based on different confidence intervals for each procedure. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B2: Robustness Inference: Effects of Tariff Shocks on Human Capital Formation

	High school dropout		Literacy rate		Average years of schooling	
	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010
	(1)	(2)	(3)	(4)	(5)	(6)
A. Overall tariff shock						
$\Delta Tariff_m$	0.554	1.051	−0.547	−0.783	−1.215	−1.174
	(0.102)***	(0.108)***	(0.055)***	(0.069)***	(0.249)***	(0.554)**
	[0.134]***	[0.138]***	[0.050]***	[0.066]***	[0.285]***	[0.685]*
R-squared	0.74	0.82	0.92	0.93	0.81	0.81
B. Adult industry vs child industry shock						
$\Delta Tariff_m^{Adult}$	0.586	1.106	−0.522	−0.773	−1.178	−1.196
	(0.110)***	(0.121)***	(0.057)***	(0.074)***	(0.279)***	(0.582)**
	[0.135]***	[0.145]***	[0.054]***	[0.076]***	[0.319]***	[0.751]
$\Delta Tariff_m^{Child}$	−1.608	−2.744	−2.220	−1.396	−3.780	0.414
	(2.348)	(2.765)	(1.246)*	(2.126)	(6.578)	(10.400)
	[2.037]	[2.515]	[1.562]	[2.726]	[6.872]	[11.324]
R-squared	0.75	0.82	0.92	0.93	0.81	0.81
Observations	411	411	411	411	411	411

Notes: This table complements Table 2 by presenting results using different inference methods. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the population. Robust standard errors, the same as those reported on the main table, are in parentheses. Standard errors clustered at the mesoregion level are in brackets (91 clusters). Stars reflect p-values based on different confidence intervals for each procedure. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B3: Robustness Inference: Effects of Tariff Shocks on Provision of Public Goods

	Gov. spending on educ. per capita		No. of primary schools per 1,000		Total schools per 1,000		Teacher-student ratio in primary schools	
	1991-2000	1991-2010	1995-2000	1995-2010	1995-2000	1995-2010	1995-2000	1995-2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Overall tariff shock								
$\Delta Tariff_m$	−1.343	−2.179	2.752	6.395	2.660	6.275	0.049	0.003
	(1.489)	(1.368)	(0.739)***	(1.176)***	(0.788)***	(1.273)***	(0.016)***	(0.022)
	[1.774]	[1.874]	[0.777]***	[1.228]***	[0.848]***	[1.264]***	[0.015]***	[0.022]
R-squared	0.77	0.79	0.51	0.68	0.51	0.70	0.68	0.70
B. Adult industry vs child industry shock								
$\Delta Tariff_m^{Adult}$	−1.471	−2.101	2.558	5.971	2.453	6.030	0.047	−0.003
	(1.877)	(1.674)	(0.712)***	(1.155)***	(0.775)***	(1.272)***	(0.016)***	(0.023)
	[2.131]	[2.150]	[0.746]***	[1.228]***	[0.868]***	[1.330]***	[0.016]***	[0.023]
$\Delta Tariff_m^{Child}$	7.150	−7.386	15.942	35.246	16.750	22.952	0.141	0.432
	(38.440)	(37.071)	(17.243)	(29.814)	(17.660)	(30.160)	(0.357)	(0.478)
	[39.860]	[39.287]	[21.408]	[42.081]	[23.301]	[43.844]	[0.417]	[0.595]
R-squared	0.77	0.79	0.51	0.69	0.51	0.70	0.68	0.70
Observations	344	345	411	411	411	411	411	411

Notes: This table exhibits the estimated effects of local exposure to tariff shocks on provision of public goods using different inference methods. The dependent variables are given by changes over the indicated period. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Robust standard errors, the same as those reported on the main table, are in parentheses. Standard errors clustered at the mesoregion level are in brackets (91 clusters). Stars reflect p-values based on different confidence intervals for each procedure. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B4: Robustness Inference: Effects of Tariff Shocks on Adult Labor Market

	Earnings		Employment rate		Conditional to work: Child-labor intensive		Conditional to work: Adult-labor intensive		Conditional to work: Non-tradable	
	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. Overall tariff shock										
$\Delta Tariff_m$	−0.265	−0.874	−0.373	0.241	0.711	1.724	−0.507	−0.753	0.004	−0.584
	(0.191)	(0.276)***	(0.079)***	(0.097)**	(0.101)***	(0.115)***	(0.103)***	(0.143)***	(0.117)	(0.172)***
	[0.222]	[0.301]***	[0.089]***	[0.110]**	[0.133]***	[0.125]***	[0.105]***	[0.145]***	[0.109]	[0.131]***
R-squared	0.72	0.77	0.59	0.46	0.64	0.83	0.55	0.56	0.48	0.68
B. Adult industry vs child industry shock										
$\Delta Tariff_m^{Adult}$	−0.442	−1.291	−0.450	0.106	0.730	1.677	−0.764	−1.093	0.169	−0.281
	(0.194)**	(0.252)***	(0.077)***	(0.088)	(0.103)***	(0.117)***	(0.110)***	(0.154)***	(0.098)*	(0.148)*
	[0.223]*	[0.253]***	[0.086]***	[0.091]	[0.139]***	[0.134]***	[0.112]***	[0.158]***	[0.114]	[0.126]**
$\Delta Tariff_m^{Child}$	13.028	29.427	3.791	7.193	−0.463	4.666	7.453	9.740	−9.661	−18.251
	(4.543)***	(5.498)***	(2.124)*	(2.246)***	(2.193)	(2.518)*	(1.048)***	(1.411)***	(2.355)***	(2.820)***
	[4.327]***	[6.426]***	[2.050]*	[2.579]***	[2.099]	[2.603]*	[1.243]***	[2.167]***	[2.402]***	[3.492]***
R-squared	0.72	0.79	0.60	0.48	0.64	0.83	0.61	0.62	0.50	0.71
Observations	411	411	411	411	411	411	411	411	411	411
Mean dep. var.	-0.062	0.796	-0.399	-0.638	-0.079	-0.331	0.032	0.060	0.047	0.270

Notes: This table complements Figure 6a by presenting results using different inference methods. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the inverse of the squared standard errors estimated in the first stage. Robust standard errors, the same as those reported on the main figure, are in parentheses. Standard errors clustered at the mesoregion level are in brackets (91 clusters). Stars reflect p-values based on different confidence intervals for each procedure. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B5: Robustness Inference: Effects of Tariff Shocks on Child Labor Market

					Conditional to work					
	Earnings		Employment rate		Child-labor intensive		Adult-labor intensive		Non-tradable	
	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. Overall tariff shock										
$\Delta Tariff_m$	0.491	−0.223	0.214	0.587	−0.149	0.809	−0.456	−0.567	0.664	−0.207
	(0.467)	(0.623)	(0.071)***	(0.081)***	(0.262)	(0.302)***	(0.096)***	(0.102)***	(0.224)***	(0.275)
	[0.481]	[0.685]	[0.084]**	[0.083]***	[0.315]	[0.333]**	[0.104]***	[0.110]***	[0.259]**	[0.294]
R-squared	0.33	0.32	0.59	0.59	0.25	0.31	0.36	0.38	0.29	0.32
B. Adult industry vs child industry shock										
$\Delta Tariff_m^{Adult}$	0.386	−0.585	0.396	0.809	−0.136	0.976	−0.457	−0.632	0.619	−0.334
	(0.504)	(0.641)	(0.068)***	(0.076)***	(0.312)	(0.354)***	(0.110)***	(0.115)***	(0.266)**	(0.321)
	[0.554]	[0.653]	[0.074]***	[0.078]***	[0.388]	[0.393]**	[0.121]***	[0.127]***	[0.309]**	[0.339]
$\Delta Tariff_m^{Child}$	4.839	14.895	−7.580	−8.903	−0.655	−5.875	−0.402	1.989	2.402	4.821
	(8.038)	(12.903)	(1.736)***	(1.709)***	(4.312)	(5.803)	(1.650)	(1.834)	(4.390)	(5.877)
	[8.274]	[12.532]	[1.920]***	[1.970]***	[4.807]	[5.795]	[1.512]	[1.824]	[4.506]	[5.873]
R-squared	0.33	0.32	0.61	0.63	0.25	0.31	0.36	0.39	0.29	0.32
Observations	411	411	411	411	411	411	411	411	411	411
Mean dep. var.	3.092	3.856	-0.649	-0.832	-0.761	-1.052	-0.075	-0.242	0.836	1.295

Notes: This table complements Figure 6b by presenting results using different inference methods. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the inverse of the squared standard errors estimated in the first stage. Robust standard errors, the same as those reported on the main figure, are in parentheses. Standard errors clustered at the mesoregion level are in brackets (91 clusters). Stars reflect p-values based on different confidence intervals for each procedure. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B6: Robustness Inference: Effects of Tariff Shocks on Structural Transformation

	Formal employment		Agriculture/ mining		Manufacturing		Nontradable	
	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010	1991-2000	1991-2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Overall tariff shock								
$\Delta Tariff_m$	−0.856	−0.854	0.615	0.944	−0.541	−0.751	0.055	0.033
	(0.113)***	(0.138)***	(0.065)***	(0.115)***	(0.083)***	(0.136)***	(0.108)	(0.146)
	[0.147]***	[0.193]***	[0.090]***	[0.147]***	[0.085]***	[0.140]***	[0.098]	[0.105]
R-squared	0.76	0.67	0.74	0.68	0.63	0.60	0.46	0.47
B. Adult industry vs child industry shock								
$\Delta Tariff_m^{Adult}$	−1.248	−1.390	0.632	1.009	−0.711	−1.002	0.237	0.274
	(0.113)***	(0.140)***	(0.068)***	(0.117)***	(0.085)***	(0.142)***	(0.091)***	(0.131)**
	[0.123]***	[0.168]***	[0.084]***	[0.135]***	[0.096]***	[0.134]***	[0.107]**	[0.105]**
$\Delta Tariff_m^{Child}$	12.851	18.847	−0.391	−2.707	6.414	9.330	−10.366	−13.465
	(1.911)***	(2.223)***	(1.853)	(2.963)	(1.967)***	(2.418)***	(2.061)***	(2.575)***
	[2.166]***	[2.532]***	[2.117]	[3.336]	[2.182]***	[2.528]***	[2.417]***	[3.266]***
R-squared	0.80	0.72	0.74	0.68	0.65	0.62	0.50	0.51
Observations	411	411	411	411	411	411	411	411

Notes: This table complements Table 3 by presenting results using different inference methods. Panel A presents the results from the estimation of Equation (4). Panel B exhibits the results of estimating Equation (5) by replacing the overall tariff shock with the age-specific tariff shocks. All regressions control for state fixed effects and the following demographic controls computed at the baseline year 1991: share of women, the share of high-skilled population, Gini inequality index, and the logarithm of the population. Regressions additionally include the lagged dependent variable (Δ1980-1991) and are weighted by the inverse of the squared standard errors estimated in the first stage. Robust standard errors, the same as those reported on the main table, are in parentheses. Standard errors clustered at the mesoregion level are in brackets (91 clusters). Stars reflect p-values based on different confidence intervals for each procedure. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix C - Robustness Analysis (Confounders)

This section reports the robustness of our main results by testing different specifications and accounting for confounding effects coming from other economic shocks to local labor markets. To begin with, we present the estimates with neither demographic controls nor preexisting trends of the outcome variable, which provides a more transparent treatment-control analysis. To further account for confounding preexisting trends, we include longer pre-trends (Δ1970-1980) as an additional control to the baseline specification. We then investigate whether reversion to the mean across regions with higher and lower levels of the outcome variable could be driving our results by controlling for the level of the dependent variable in 1980.

Next, we examine whether our results are affected by the inclusion of two potential confounders, both measured at the baseline year 1991: (i) the urbanization rate; and (ii) the local supply of public goods proxied by the local government spending per capita. To check whether our results are driven by variation in tariffs across manufacturing industries and not by differences between regions specialized in the agriculture or manufacturing sectors, we estimate the baseline regressions excluding microregions above the median of the distribution of workers in agriculture.

Finally, we carry out some of the robustness checks proposed by Dix-Carneiro and Kovak (2017) to rule out the possibility that our results are coming from other correlated shocks to local labor markets occurring after trade liberalization. Specifically, we include a variable that captures the changes in import tariffs for the post-liberalization period[11] (1995-2000 and 1995-2010), two additional variables capturing changes in the regional real exchange rate, and a variable that accounts for the global commodity shock in the late 2000s. In general, the conclusions discussed in the previous sections remain the same.

[11] We use UNCTAD TRAINS to calculate post-liberalization tariff changes.

Table C1: Robustness: Effects of Tariff Shocks on Child Labor and Schooling

	Dep. variable: In school only							
	No controls (1)	Longer pre-trends (2)	Level in 1980 (3)	Non-agro regions (4)	Additional control (5)	Post-liberalization (6)	Exhange rates (7)	Commodity shock (8)
A. 1991-2000								
$\Delta Tariff_m^{Adult}$	−0.977***	−0.575***	0.201*	−0.471***	−0.421***	−0.562***	−0.607***	−0.546***
	(0.062)	(0.090)	(0.103)	(0.132)	(0.091)	(0.088)	(0.100)	(0.096)
$\Delta Tariff_m^{Child}$	9.292***	6.159**	0.154	6.274**	10.777***	5.086**	7.425***	6.494**
	(2.320)	(2.674)	(2.308)	(2.689)	(3.630)	(2.515)	(2.540)	(2.634)
Share female		−1.542***	−0.837*	−1.776***	−1.230**	−1.470***	−1.527***	−1.481***
		(0.542)	(0.468)	(0.528)	(0.619)	(0.520)	(0.515)	(0.491)
Share high-skilled		−0.185*	0.161*	−0.228*	−0.042	−0.208*	−0.159	−0.158
		(0.111)	(0.084)	(0.119)	(0.087)	(0.110)	(0.105)	(0.106)
Gini inequality index		−0.206***	−0.047	−0.201***	0.111	−0.202***	−0.214***	−0.233***
		(0.071)	(0.052)	(0.072)	(0.079)	(0.071)	(0.072)	(0.068)
Logarithm of the population		0.006***	0.000	0.005**	0.000	0.006***	0.006***	0.006**
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
inschoolonly pretrend, 1980-1991		−0.023		−0.006	0.173***	−0.040	−0.039	−0.031
		(0.053)		(0.055)	(0.058)	(0.052)	(0.056)	(0.055)
inschoolonly pretrend, 1970-1980		−0.023						
		(0.064)						
1980 inschoolonly			−0.426***					
			(0.040)					
Share urban				−0.013				
				(0.033)				
Log gov. spending per capita				−0.009*				
				(0.005)				
Post liberalization tariff shock						2.341**		
						(0.988)		
Import real exchange rate							−0.132	
							(0.094)	
Export real exchange rate							−0.110	
							(0.106)	
Commodity price shock								−0.150
								(0.103)
R-squared	0.72	0.77	0.85	0.77	0.83	0.77	0.77	0.77
B. 1991-2010								
$\Delta Tariff_m^{Adult}$	−1.366***	−0.952***	−0.075	−0.861***	−0.737***	−0.999***	−1.027***	−0.592***
	(0.061)	(0.101)	(0.107)	(0.148)	(0.104)	(0.100)	(0.097)	(0.121)
$\Delta Tariff_m^{Child}$	12.077***	8.562***	1.816	9.331***	15.804***	7.176**	8.297***	11.031***
	(2.200)	(2.473)	(2.043)	(2.564)	(3.789)	(2.976)	(2.436)	(2.665)
Share female		−1.467***	−0.657	−1.762***	−1.218*	−1.688***	−1.916***	−0.653
		(0.531)	(0.493)	(0.510)	(0.679)	(0.496)	(0.422)	(0.447)
Share high-skilled		−0.246**	0.178**	−0.230*	−0.136	−0.212*	−0.173*	−0.261**
		(0.116)	(0.088)	(0.128)	(0.089)	(0.112)	(0.104)	(0.107)
Gini inequality index		−0.214***	−0.034	−0.203**	0.152*	−0.223***	−0.301***	−0.182**
		(0.080)	(0.064)	(0.082)	(0.088)	(0.081)	(0.073)	(0.078)
Logarithm of the population		0.006**	−0.002	0.005	0.000	0.005**	0.007***	0.002
		(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
inschoolonly pretrend, 1980-1991		−0.097		−0.081	0.125*	−0.108*	−0.126**	−0.078
		(0.059)		(0.060)	(0.066)	(0.059)	(0.058)	(0.058)
inschoolonly pretrend, 1970-1980		−0.090						
		(0.067)						
1980 inschoolonly			−0.474***					
			(0.036)					
Share urban				−0.023				
				(0.040)				
Log gov. spending per capita				−0.006				
				(0.006)				
Post liberalization tariff shock						0.541*		
						(0.326)		
Import real exchange rate							0.025	
							(0.040)	
Export real exchange rate							−0.290***	
							(0.061)	
Commodity price shock								0.246***
								(0.042)
R-squared	0.81	0.84	0.91	0.84	0.89	0.84	0.86	0.86

Notes: This table complements Figure 4 by checking the robustness of the main results to alternative specifications and to confounding effects from other shocks to local labor markets. Panel A presents the results for changes in the dependent variable between 1991 and 2000. Panel B exhibits the results for the period between 1991 and 2010. All regressions follow the specification in Equation (5). Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C2: Robustness: Effects of Tariff Shocks on Child Labor and Schooling

	Dep. variable: Employed only							
	No controls (1)	Longer pre-trends (2)	Level in 1980 (3)	Non-agro regions (4)	Additional control (5)	Post-liberalization (6)	Exhange rates (7)	Commodity shock (8)
A. 1991-2000								
$\Delta Tariff_m^{Adult}$	0.403***	0.419***	0.201***	0.316***	0.323***	0.414***	0.361***	0.414***
	(0.020)	(0.037)	(0.036)	(0.048)	(0.030)	(0.032)	(0.035)	(0.036)
$\Delta Tariff_m^{Child}$	−2.646***	−1.936**	−1.016	−2.244**	−6.471***	−2.336**	−1.741*	−1.828*
	(0.882)	(0.969)	(0.857)	(1.019)	(1.321)	(1.017)	(1.041)	(0.987)
Share female		−0.119	−0.171	−0.039	0.166	−0.056	0.034	−0.077
		(0.150)	(0.115)	(0.150)	(0.182)	(0.153)	(0.141)	(0.158)
Share high-skilled		−0.036	−0.038	−0.073	−0.043	−0.052	−0.034	−0.038
		(0.045)	(0.033)	(0.050)	(0.043)	(0.043)	(0.042)	(0.046)
Gini inequality index		0.082***	0.025	0.061**	−0.013	0.081***	0.094***	0.075***
		(0.029)	(0.022)	(0.029)	(0.030)	(0.028)	(0.028)	(0.028)
Logarithm of the population		0.000	0.001	0.001	−0.000	0.000	−0.000	0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
workonly pretrend, 1980-1991		0.035		0.042	0.113***	0.052	0.044	0.043
		(0.038)		(0.037)	(0.043)	(0.036)	(0.037)	(0.036)
workonly pretrend, 1970-1980		−0.024						
		(0.032)						
1980 workonly			−0.307***					
			(0.032)					
Share urban				0.034**				
				(0.015)				
Log gov. spending per capita				−0.001				
				(0.002)				
Post liberalization tariff shock						0.836**		
						(0.367)		
Import real exchange rate							−0.034	
							(0.030)	
Export real exchange rate							0.184***	
							(0.038)	
Commodity price shock								−0.029
								(0.037)
R-squared	0.70	0.71	0.81	0.72	0.84	0.71	0.73	0.71
B. 1991-2010								
$\Delta Tariff_m^{Adult}$	0.487***	0.512***	0.255***	0.366***	0.384***	0.510***	0.465***	0.404***
	(0.022)	(0.041)	(0.041)	(0.054)	(0.037)	(0.044)	(0.035)	(0.048)
$\Delta Tariff_m^{Child}$	−3.374***	−2.859***	−1.726*	−3.166***	−7.785***	−0.866	−3.410***	−3.108***
	(0.918)	(1.052)	(0.897)	(1.032)	(1.140)	(1.354)	(1.007)	(1.068)
Share female		−0.187	−0.232**	−0.068	0.108	−0.072	0.131	−0.354**
		(0.159)	(0.118)	(0.157)	(0.218)	(0.163)	(0.144)	(0.168)
Share high-skilled		−0.004	−0.011	−0.055	−0.009	−0.014	−0.042	−0.003
		(0.050)	(0.037)	(0.059)	(0.050)	(0.052)	(0.047)	(0.048)
Gini inequality index		0.075**	0.007	0.046	−0.029	0.082**	0.068**	0.066**
		(0.032)	(0.024)	(0.032)	(0.037)	(0.032)	(0.029)	(0.032)
Logarithm of the population		0.000	0.001	0.001	−0.000	0.001	−0.001	0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
workonly pretrend, 1980-1991		0.005		0.020	0.097*	−0.015	0.015	0.005
		(0.043)		(0.041)	(0.052)	(0.043)	(0.039)	(0.040)
workonly pretrend, 1970-1980		−0.047						
		(0.034)						
1980 workonly			−0.338***					
			(0.034)					
Share urban				0.045**				
				(0.017)				
Log gov. spending per capita				−0.001				
				(0.002)				
Post liberalization tariff shock						−0.448***		
						(0.166)		
Import real exchange rate							0.070***	
							(0.013)	
Export real exchange rate							0.004	
							(0.019)	
Commodity price shock								−0.057***
								(0.021)
R-squared	0.74	0.75	0.84	0.75	0.85	0.75	0.77	0.75

Notes: This table complements Figure 4 by checking the robustness of the main results to alternative specifications and to confounding effects from other shocks to local labor markets. Panel A presents the results for changes in the dependent variable between 1991 and 2000. Panel B exhibits the results for the period between 1991 and 2010. All regressions follow the specification in Equation (5). Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C3: Robustness: Effects of Tariff Shocks on Child Labor and Schooling

	Dep. variable: Employed in school							
	No controls (1)	Longer pre-trends (2)	Level in 1980 (3)	Non-agro regions (4)	Additional control (5)	Post-liberalization (6)	Exhange rates (7)	Commodity shock (8)
A. 1991-2000								
$\Delta Tariff_m^{Adult}$	−0.256***	−0.278***	−0.281***	0.031	−0.105*	−0.243***	−0.173***	−0.239***
	(0.042)	(0.070)	(0.067)	(0.071)	(0.062)	(0.054)	(0.067)	(0.061)
$\Delta Tariff_m^{Child}$	−6.052***	−5.103***	−5.066***	−5.152***	−1.086	−4.672***	−6.873***	−6.154***
	(2.222)	(1.956)	(1.919)	(1.408)	(1.954)	(1.643)	(1.635)	(1.854)
Share female		1.218***	1.220***	1.017***	0.901***	1.067***	1.081***	1.136***
		(0.263)	(0.265)	(0.270)	(0.287)	(0.249)	(0.253)	(0.248)
Share high-skilled		−0.318***	−0.318***	−0.281***	−0.357***	−0.318***	−0.361***	−0.355***
		(0.057)	(0.057)	(0.066)	(0.059)	(0.056)	(0.062)	(0.059)
Gini inequality index		−0.143***	−0.142***	−0.098**	−0.058	−0.151***	−0.151***	−0.130***
		(0.042)	(0.041)	(0.039)	(0.052)	(0.039)	(0.044)	(0.043)
Logarithm of the population		0.004***	0.004***	0.004***	0.007***	0.005***	0.005***	0.005***
		(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
workstudy pretrend, 1980-1991		0.021		0.116	0.080	0.007	0.158*	0.151*
		(0.112)		(0.085)	(0.122)	(0.091)	(0.094)	(0.090)
workstudy pretrend, 1970-1980		−0.144*						
		(0.086)						
1980 workstudy			−0.152**					
			(0.069)					
Share urban				−0.086***				
				(0.023)				
Log gov. spending per capita				−0.000				
				(0.003)				
Post liberalization tariff shock						−2.747***		
						(0.650)		
Import real exchange rate							0.119**	
							(0.048)	
Export real exchange rate							−0.025	
							(0.054)	
Commodity price shock								0.101**
								(0.049)
R-squared	0.66	0.73	0.73	0.77	0.76	0.75	0.74	0.74
B. 1991-2010								
$\Delta Tariff_m^{Adult}$	−0.156***	−0.205***	−0.137**	0.288***	0.031	−0.018	0.022	−0.006
	(0.044)	(0.058)	(0.057)	(0.063)	(0.062)	(0.056)	(0.053)	(0.071)
$\Delta Tariff_m^{Child}$	−6.975***	−4.489**	−5.220***	−6.568***	−3.023	−7.115***	−6.098***	−7.325***
	(2.419)	(1.916)	(1.940)	(1.370)	(2.210)	(1.875)	(1.831)	(1.918)
Share female		0.986***	0.962***	0.629**	0.908***	0.960***	0.844***	0.985***
		(0.237)	(0.235)	(0.249)	(0.275)	(0.239)	(0.185)	(0.243)
Share high-skilled		−0.373***	−0.381***	−0.431***	−0.402***	−0.444***	−0.442***	−0.446***
		(0.053)	(0.055)	(0.064)	(0.062)	(0.063)	(0.061)	(0.064)
Gini inequality index		−0.118***	−0.128***	−0.083**	−0.047	−0.129***	−0.082**	−0.129***
		(0.038)	(0.039)	(0.036)	(0.053)	(0.041)	(0.039)	(0.042)
Logarithm of the population		0.005***	0.006***	0.005***	0.007***	0.006***	0.007***	0.006***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
workstudy pretrend, 1980-1991		−0.401***		−0.087	0.137	−0.065	−0.067	−0.055
		(0.108)		(0.086)	(0.109)	(0.099)	(0.089)	(0.098)
workstudy pretrend, 1970-1980		−0.422***						
		(0.079)						
1980 workstudy			−0.266***					
			(0.063)					
Share urban				−0.091***				
				(0.019)				
Log gov. spending per capita				−0.007**				
				(0.003)				
Post liberalization tariff shock						−0.072		
						(0.178)		
Import real exchange rate							−0.079***	
							(0.019)	
Export real exchange rate							0.149***	
							(0.031)	
Commodity price shock								0.009
								(0.029)
R-squared	0.61	0.75	0.73	0.78	0.73	0.71	0.74	0.71

Notes: This table complements Figure 4 by checking the robustness of the main results to alternative specifications and to confounding effects from other shocks to local labor markets. Panel A presents the results for changes in the dependent variable between 1991 and 2000. Panel B exhibits the results for the period between 1991 and 2010. All regressions follow the specification in Equation (5). Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C4: Robustness: Effects of Tariff Shocks on Child Labor and Schooling

	Dep. variable: Idle							
	No controls (1)	Longer pre-trends (2)	Level in 1980 (3)	Non-agro regions (4)	Additional control (5)	Post-liberalization (6)	Exhange rates (7)	Commodity shock (8)
A. 1991-2000								
$\Delta Tariff_m^{Adult}$	0.830***	0.375***	0.071	0.136	0.200**	0.394***	0.420***	0.375***
	(0.080)	(0.098)	(0.055)	(0.118)	(0.082)	(0.093)	(0.100)	(0.098)
$\Delta Tariff_m^{Child}$	−0.595	1.544	3.491***	0.857	−3.591*	1.429	0.971	1.325
	(1.895)	(1.700)	(1.242)	(1.740)	(1.879)	(1.824)	(1.801)	(1.681)
Share female		0.421	−0.220	0.809**	0.184	0.466	0.399	0.415
		(0.395)	(0.291)	(0.371)	(0.519)	(0.409)	(0.402)	(0.369)
Share high-skilled		0.621***	0.112*	0.622***	0.406***	0.600***	0.592***	0.590***
		(0.122)	(0.060)	(0.132)	(0.074)	(0.121)	(0.116)	(0.116)
Gini inequality index		0.242***	0.180***	0.226***	−0.034	0.257***	0.253***	0.271***
		(0.069)	(0.041)	(0.068)	(0.062)	(0.069)	(0.067)	(0.066)
Logarithm of the population		−0.010***	−0.004***	−0.010***	−0.006***	−0.011***	−0.011***	−0.011***
		(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
idle pretrend, 1980-1991		−0.184**		−0.088	0.230**	−0.103*	−0.110*	−0.105*
		(0.073)		(0.055)	(0.105)	(0.061)	(0.061)	(0.060)
idle pretrend, 1970-1980		−0.154**						
		(0.062)						
1980 idle			−0.446***					
			(0.036)					
Share urban				0.064**				
				(0.032)				
Log gov. spending per capita				0.010*				
				(0.005)				
Post liberalization tariff shock						−0.064		
						(1.440)		
Import real exchange rate							0.059	
							(0.071)	
Export real exchange rate							−0.033	
							(0.090)	
Commodity price shock								0.079
								(0.083)
R-squared	0.79	0.85	0.92	0.86	0.85	0.85	0.85	0.85
B. 1991-2010								
$\Delta Tariff_m^{Adult}$	1.034***	0.469***	0.119*	0.196	0.290***	0.492***	0.516***	0.193
	(0.090)	(0.112)	(0.068)	(0.140)	(0.098)	(0.112)	(0.111)	(0.123)
$\Delta Tariff_m^{Child}$	−1.728	0.844	3.254**	0.209	−5.014**	0.126	1.038	−0.675
	(2.117)	(1.849)	(1.448)	(1.891)	(2.105)	(2.528)	(1.875)	(1.764)
Share female		0.716*	−0.106	1.186***	0.093	0.760*	0.912**	0.023
		(0.407)	(0.388)	(0.403)	(0.558)	(0.393)	(0.416)	(0.361)
Share high-skilled		0.712***	0.127*	0.735***	0.500***	0.684***	0.671***	0.719***
		(0.140)	(0.072)	(0.153)	(0.089)	(0.134)	(0.135)	(0.135)
Gini inequality index		0.237***	0.172***	0.226***	−0.074	0.253***	0.293***	0.234***
		(0.076)	(0.051)	(0.076)	(0.072)	(0.076)	(0.076)	(0.076)
Logarithm of the population		−0.011***	−0.004**	−0.010***	−0.006**	−0.012***	−0.013***	−0.010***
		(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
idle pretrend, 1980-1991		−0.239***		−0.118*	0.265**	−0.140**	−0.154**	−0.103*
		(0.083)		(0.061)	(0.120)	(0.067)	(0.068)	(0.061)
idle pretrend, 1970-1980		−0.195***						
		(0.068)						
1980 idle			−0.515***					
			(0.044)					
Share urban				0.068*				
				(0.037)				
Log gov. spending per capita				0.015**				
				(0.006)				
Post liberalization tariff shock						0.115		
						(0.391)		
Import real exchange rate							−0.010	
							(0.042)	
Export real exchange rate							0.132**	
							(0.067)	
Commodity price shock								−0.192***
								(0.039)
R-squared	0.81	0.87	0.93	0.88	0.87	0.87	0.87	0.88

Notes: This table complements Figure 4 by checking the robustness of the main results to alternative specifications and to confounding effects from other shocks to local labor markets. Panel A presents the results for changes in the dependent variable between 1991 and 2000. Panel B exhibits the results for the period between 1991 and 2010. All regressions follow the specification in Equation (5). Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C5: Robustness: Effects of Tariff Shocks on Child Labor and Schooling

	Dep. variable: Paid employment							
	No controls (1)	Longer pre-trends (2)	Level in 1980 (3)	Non-agro regions (4)	Additional control (5)	Post-liberalization (6)	Exhange rates (7)	Commodity shock (8)
A. 1991-2000								
$\Delta Tariff_m^{Adult}$	0.217***	0.238***	0.128***	0.424***	0.350***	0.296***	0.326***	0.334***
	(0.033)	(0.040)	(0.031)	(0.054)	(0.051)	(0.047)	(0.054)	(0.047)
$\Delta Tariff_m^{Child}$	−9.647***	−5.455***	−3.037***	−8.131***	−8.482***	−7.528***	−8.885***	−8.471***
	(2.177)	(1.492)	(1.077)	(1.379)	(2.126)	(1.434)	(1.458)	(1.468)
Share female		0.351***	0.139	0.435***	0.635***	0.462***	0.497***	0.561***
		(0.133)	(0.101)	(0.158)	(0.224)	(0.148)	(0.143)	(0.158)
Share high-skilled		−0.242***	−0.146***	−0.299***	−0.298***	−0.298***	−0.322***	−0.303***
		(0.043)	(0.036)	(0.054)	(0.061)	(0.056)	(0.057)	(0.054)
Gini inequality index		0.067***	0.003	0.058*	−0.008	0.037	0.039	0.024
		(0.025)	(0.020)	(0.031)	(0.042)	(0.030)	(0.032)	(0.031)
Logarithm of the population		0.002**	0.002**	0.004***	0.003***	0.004***	0.004***	0.003***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
paid_emp pretrend, 1980-1991		0.016		0.214***	0.294***	0.194***	0.226***	0.243***
		(0.048)		(0.044)	(0.057)	(0.045)	(0.044)	(0.043)
paid_emp pretrend, 1970-1980		−0.325***						
		(0.042)						
1980 paid_emp			−0.381***					
			(0.022)					
Share urban				−0.035***				
				(0.013)				
Log gov. spending per capita				−0.001				
				(0.002)				
Post liberalization tariff shock						−1.696***		
						(0.550)		
Import real exchange rate							0.051	
							(0.032)	
Export real exchange rate							0.031	
							(0.043)	
Commodity price shock								−0.065**
								(0.032)
R-squared	0.54	0.72	0.82	0.67	0.79	0.67	0.66	0.66
B. 1991-2010								
$\Delta Tariff_m^{Adult}$	0.287***	0.295***	0.172***	0.561***	0.449***	0.397***	0.405***	0.399***
	(0.042)	(0.043)	(0.035)	(0.063)	(0.057)	(0.051)	(0.053)	(0.059)
$\Delta Tariff_m^{Child}$	−12.824***	−7.824***	−5.148***	−10.756***	−9.523***	−10.192***	−10.819***	−11.330***
	(2.564)	(1.786)	(1.247)	(1.514)	(2.214)	(1.798)	(1.774)	(1.786)
Share female		0.451***	0.196	0.526***	0.698***	0.686***	0.659***	0.660***
		(0.169)	(0.126)	(0.199)	(0.256)	(0.184)	(0.162)	(0.203)
Share high-skilled		−0.301***	−0.188***	−0.349***	−0.338***	−0.382***	−0.390***	−0.382***
		(0.046)	(0.040)	(0.058)	(0.064)	(0.058)	(0.058)	(0.059)
Gini inequality index		0.060*	−0.018	0.062*	−0.027	0.031	0.054	0.025
		(0.032)	(0.025)	(0.037)	(0.046)	(0.036)	(0.038)	(0.037)
Logarithm of the population		0.004***	0.003***	0.006***	0.005***	0.006***	0.005***	0.006***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
paid_emp pretrend, 1980-1991		−0.009		0.214***	0.299***	0.232***	0.225***	0.255***
		(0.056)		(0.051)	(0.068)	(0.052)	(0.055)	(0.052)
paid_emp pretrend, 1970-1980		−0.383***						
		(0.050)						
1980 paid_emp			−0.438***					
			(0.025)					
Share urban				−0.060***				
				(0.018)				
Log gov. spending per capita				−0.001				
				(0.003)				
Post liberalization tariff shock						−0.296*		
						(0.153)		
Import real exchange rate							−0.028	
							(0.022)	
Export real exchange rate							0.085***	
							(0.027)	
Commodity price shock								0.007
								(0.021)
R-squared	0.54	0.73	0.81	0.69	0.81	0.67	0.67	0.66

Notes: This table complements Figure 4 by checking the robustness of the main results to alternative specifications and to confounding effects from other shocks to local labor markets. Panel A presents the results for changes in the dependent variable between 1991 and 2000. Panel B exhibits the results for the period between 1991 and 2010. All regressions follow the specification in Equation (5). Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.