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Trade Shocks and Social Mobility: The Intergenerational Effect of Import Competition in Brazil*

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This paper investigates whether the impact of trade shocks on employment and wages persists across generations. Using survey data with retrospective information on parental employment and instrumental variables, we study the effect of increased Chinese import competition in Brazilian industries on individuals with differently exposed fathers. Results show that several years after the shock, children of more exposed fathers have lower education and earnings, lower chances of formal jobs, and are more likely to rely on social assistance. These effects are substantially stronger for children from disadvantaged background, indicating that the shock had a negative impact on intergenerational mobility.

JEL codes: I24, J62, F14, F16, J23.

Keywords: Import competition, Education, Social Mobility, Incomes, Brazil.

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1 Introduction

Local labor markets have been disrupted in recent decades as a result of increasing globalization and trade liberalization. The resulting trade-induced contraction of local labor demand has received significant attention in the literature, both in developed and developing economies, and has resulted in negative socioeconomic outcomes for workers in industries that have been suddenly exposed to global supply shocks. There is a large body of literature on the immediate impact of trade shocks on labor income and employment, which typically shows job and wage losses among workers who are more exposed to rising import competition (e.g. Topalova, 2010; Autor et al., 2013; Kovak, 2013; Hakobyan and McLaren, 2016; Caliendo et al., 2019). Recent contributions supplement these findings by focusing on the long-run effects of these shocks on local labor markets, yielding mixed results (e.g. Dix-Carneiro and Kovak, 2017; Utar, 2018; Autor et al., 2021; Kovak and Morrow, 2022). However, little is known about how trade shocks affect the next generation, i.e. the children of affected parents.

Our focus is on investigating the effects of competitive trade shocks across generations. Specifically, we aim to examine whether children's long-run outcomes are influenced by their parents' exposure to such shocks. The intergenerational impact of a competitive trade shock–namely the rapid rise of Chinese imports, particularly of labor-intensive manufacturing goods–in Brazil, one of the most unequal countries globally, is the laboratory of our study. Previous contributions have systematically identified the negative effects of growing Chinese import competition on labor market outcomes (e.g. Autor et al., 2013; Caliendo et al., 2019), with labor informality being a relevant margin of adjustment particularly in developing countries (Costa et al., 2016; César et al., 2021). In this context, the so-called "China shock" represents a unique opportunity to evaluate whether these well-documented effects are passed down to future generations.

Our research involves the use of various datasets, including trade data from UN-COMTRADE, and a specific module of the Brazilian national household survey (PNAD). The PNAD data includes crucial retrospective information on parental employment and education, as well as other relevant characteristics of the respondents, such as place of birth, education, income, migration, and first and current employment information. This information allows us to assign an

indicator for the exposure to import competition in childhood to each individual based on their parents' sector of employment during key stages of their lives. To mitigate any potential endogenous relationship between parental sector of employment and children's outcomes, we instrument for Chinese import penetration in Brazil using Chinese imports in other groups of countries.

Our results show that children whose fathers were more affected by the competitive import shock have lower levels of education and earnings in their adulthood. Specifically, an increase of one percentage point in Chinese import competition within the father's sector when the child was an adolescent causes a reduction of 0.37 years in education, a decrease of 3.3 and 2.9 percentage points in the likelihood of completing secondary education or pursuing tertiary studies, respectively, and a 0.3% reduction in hourly wages. Furthermore, our estimates show a one percentage point increase in labor informality and in the likelihood of receiving social assistance, which is often considered an indicator of poverty, although these results are not statistically significant for the entire sample.

However, we also find that these effects were not uniformly distributed among individuals. Children of low-educated parents experienced considerably stronger effects. This suggests that an increase in import competition may negatively impact social mobility, potentially exacerbating poverty traps. Because of the increasing trend of Chinese import competition, we find that younger cohorts are more negatively impacted. Our results are not influenced by migration-related issues or labor participation decisions, and they remain robust to different measures of import competition and the timing of parental exposure to the trade shock.

Our study contributes to the growing body of literature exploring the impact of parental job or wage loss on their children's human capital accumulation and future earnings. While some studies suggest that short-term effects can be mitigated by labor market reallocation and migration (e.g. Kovak and Morrow, 2022), and that adverse local economic conditions can encourage formal education (e.g. Greenland and Lopresti, 2016), others have found that exposure to parental unemployment during children's formative years can have long-term consequences, hindering educational investments (e.g. Kaila et al., 2021; Stuart, 2022; Britto et al., 2022b) and future employment opportunities (e.g. Britto et al., 2022a; Leites et al., 2022). However, our research is unique in that we examine the specific intergenerational transmission of an exogenous trade shock

and its consequences on children's outcomes in their adulthood. Moreover, we use household survey data, which allows us to consider informality as a buffer to employment shocks, a factor that recent literature has identified as important in developing countries (e.g. Costa et al., 2016; César et al., 2021). Our findings shed light on the intergenerational consequences of this shock and provide insight into the potential long-term harm it can cause, particularly for children from low socioeconomic backgrounds.

This paper is also related to recent research on: the impact of the Chinese trade shock in Latin American countries (see Costa et al., 2016; César et al., 2021; Connolly, 2022); the persistence of the China shock (e.g. Autor et al., 2021); and the effects of Chinese import competition in general (Autor et al., 2013; Acemoglu et al., 2016; Caliendo et al., 2019; Caliendo and Parro, 2022, among others). It also contributes new evidence to the literature on poverty traps and inequality of opportunity (Azariadis and Stachurski, 2005; Bourguignon et al., 2007). Our work considers adverse shocks at critical ages, such as parental job or wage losses due to import competition, which can hinder social upward mobility of poor children, hereby perpetuating poverty (Ferreira and Schady, 2009). Understanding these mechanisms is crucial both for equity concerns and for promoting sustainable economic development (Hsieh et al., 2019; Neidhöfer et al., 2021).

The remainder of this paper is organized as follows: Section 2 describes the Brazilian social context and the increasing importance of Chinese import competition, Section 3 details the sources of data and explains our identification strategy. Section 4 presents and discusses the results of the paper, and Section 5 concludes.

2 Context

Brazil represents an interesting case study to examine the intergenerational impacts of trade shocks on developing countries for several reasons. The country is among the most unequal and impoverished in Latin America, a region already characterized by high levels of inequality and poverty (Alvaredo and Gasparini, 2015). Not only present inequalities are significant in Brazil but the country also has one of the lowest levels of social mobility in the region (Neidhöfer et al., 2018, 2021; Britto et al., 2022b). This means that opportunities to reverse

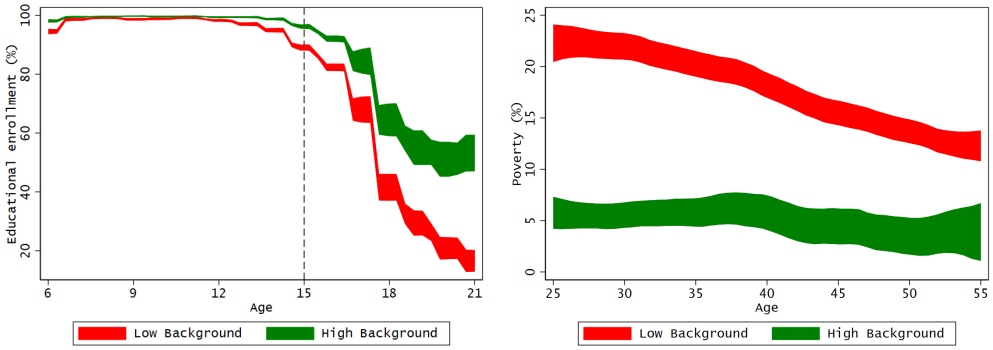
the effects of adverse household income shocks at critical educational ages are unevenly distributed among individuals, with children from low socioeconomic backgrounds struggling to break out of the poverty circle. Another distinctive feature of the Brazilian context is the high level of labor informality. As demonstrated in recent contributions, informality in developing countries provides an important margin of adjustment to trade shocks (Ulyssea, 2020; César et al., 2021).

The socioeconomic context in Brazil is illustrated in Figure 1. Panel A depicts educational enrollment (left) and poverty (right) patterns by age and socioeconomic background, measured by parental education. The figure on the left shows that the age of 15 is critical in terms of educational outcomes. Enrollment is nearly universal for children under the age of 15, but educational dropout rates for older students in Brazil are dramatically higher. This is especially important for people from low-income families. Rates of school enrollment of children from low background households fall by about 50 percentage points on average between the ages of 15 and 18, while among high background families enrollment falls by around 30 percentage points. As expected, these different educational opportunities have a direct impact on future incomes. The right figure in Panel A shows that the future incidence of poverty is substantially higher for people from disadvantaged backgrounds. For example, the poverty rate among individuals aged 25 to 40 with high educated parents is about 8%, while for those with low educated parents it raises to 22%. Accordingly, Panel B from Figure 1 shows the evolution of hourly wages and labor informality for the two groups considered. While the incidence of informality is approximately 20 percentage points higher for individuals from low socioeconomic backgrounds across all age groups, the wage disparity grows over time. At their prime age, individuals with high educated parents earn about 3.5 times more than those with low educated parents, on average.

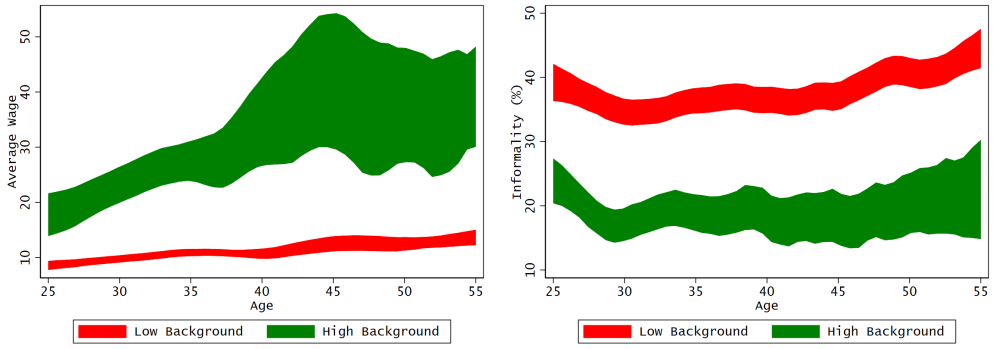
Aside from its socioeconomic characteristics, Brazil provides an excellent opportunity to study the effects of trade shocks due to China's spectacular rise in importance in Brazilian trade. Common to most developing countries, Figure 2 depicts the outstandingly increased participation of China in Brazil's total imports: from around zero in the early 1990's to 15% in more recent years.

Figure 1: The Brazilian socioeconomic context

Panel A – *Education and poverty*



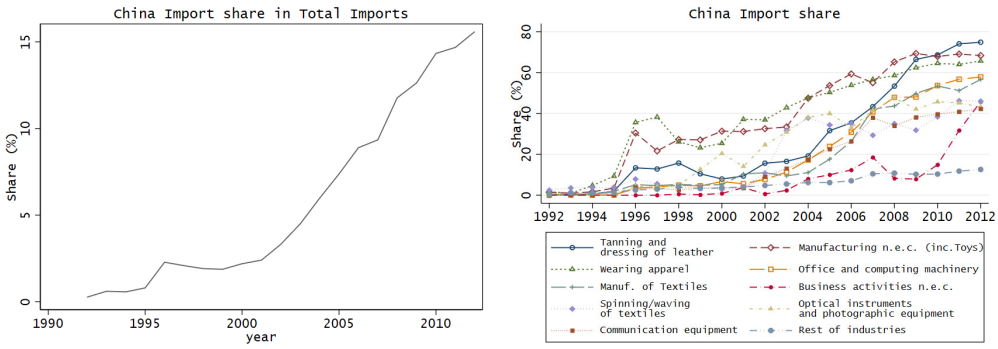
Panel B – Wage and informality



Source: Own elaboration based on *Pesquisa Nacional por Amostra de Domicílios* (PNAD) 2014.

Notes: Areas represent 95% confidence intervals. Socioeconomic background is defined as high if individual's parents have, at least, complete secondary education and low if not. Poverty rates computed using a USD-5.5-a-day poverty line (2011 PPP). Wage is defined as hourly wages. Informality is defined as unregistered workers without rights to social security benefits linked to their jobs.

Figure 2: Chinese participation in Brazilian trade



Source: Own elaboration based on Comtrade (United Nations).

Notably, the increased Chinese share of imports was highly variable across economic sectors. Manufacturers, particularly those involved in textiles, toys, clothing, and equipment, were particularly vulnerable to increased Chinese competition. According to own estimates based on the United Nations Classification of Broad Economic Categories (BEC), approximately 91% of goods imported from China in higher exposed sectors were final or consumption goods.

3 Data and Empirical Strategy

3.1 Data

Our analysis requires information about children and their parents. Despite the fact that the majority of household surveys include this information for individuals living in the same household, it is not useful for our analysis for two reasons: First, we want to observe children's adult outcomes; then, the sample would be severely limited to adults who still live with their parents. Second, it has been demonstrated that co-residency is a significant source of bias in intergenerational mobility estimates (Emran et al., 2018; Emran and Shilpi, 2021). Furthermore, longitudinal data on parents and children is scarce, particularly in developing countries, which is one of the reasons why studies on the effects of trade shocks are typically limited to the short or medium run. To overcome these limitations, we use the 2014 wave of the *Pesquisa Nacional por Amostra de Domicilios* (PNAD), the main household survey in Brazil conducted

by the *Instituto Brasileiro de Geografia e Estatistica* (IBGE). Besides including the standard questions regarding interviewee's socioeconomic and employment characteristics, it contains an specific survey module of retrospective questions about parental employment and education, as well as interviewee's place of birth and first job characteristics. Parental information refers to the period when the interviewee was 15 years old, which, as shown in Section 2, is a critical age in terms of educational enrollment in Brazil.[1] Most importantly, information on parental employment is precise and detailed: sector of employment and occupation are coded at the 5-digit level.[2] This is a unique feature of the survey that provides us with an excellent opportunity to conduct our analysis. Table A.1 from the Appendix Section A provides educational and labor market statistics for parents and children in our sample.

To construct the measure of Chinese import competition at the 3-digit ISIC level, we use Comtrade (United Nations) data on international trade flows, UNIDO (United Nations) data on sector-level output, and World Bank national accounts data, all expressed in current dollars, for the 1992-2012 period. Our analysis centers on individuals aged 18-38 at the time of the interview, who were born between 1977 and 1997 and were 15 years old between 1992 and 2012. We use only the father's employment sector, assigning each individual the degree of import competition that their father's sector faced at age 15. We do not use information on mothers, as roughly half were not employed when their child was 15, which could bias our results due to selection into employment. Previous research on the effects of the China shock in Brazil has found that male wage losses explain a disproportionate share of household income shocks (Connolly, 2022). Furthermore, recent evidence suggest that fathers' occupation remain more important than mothers' to explain children's socioeconomic background (Ciaschi et al., 2021).

[1] As shown by Edo et al. (2017); Marchionni et al. (2019) this applies also to other Latin American countries. Furthermore, recent contributions for developed countries shown that parental displacement episodes during children's teenage years have the largest effects on their human capital accumulation (Carneiro et al., 2022).

[2] We created a concordance table that assigns each 5-digit industry CNAE-Domiciliar classification reported in the PNAD to a single 3-digit industry of the International Standard Industrial Classification (Rev. 3).

3.2 Empirical strategy

Our empirical analysis compares the relevant outcomes of children whose parents were more or less exposed to the Chinese import competition shock at the time they were 15 years old. To investigate the impact of the trade shock on the outcomes of children of exposed fathers, we estimate the following equation:

$$Y^{ch}_{i,c,r} = \alpha^{ch}_{i,c} + \beta CIC^{P}_{s,c+15} + \gamma X^{ch}_{i,c} + \phi C^{ch}_{c} + \rho R^{ch}_{r} + \delta S^{p}_{s} + \varepsilon_{i,c,r} \quad (1)$$

where $Y^{ch}_{i,c,r}$ represents, for child i born in year c and region r, different outcomes of interest such as education, wages (in logs), job characteristics, and social assistance reception. $CIC^{P}_{s,c+15}$ is our measure of Chinese import competition in the parental sector of employment s in time $c+15$, which represents the year when the child was 15 years old. It is computed at the 3-digit ISIC level and, following the literature, as the total value of Chinese exports to Brazil ($M^{China}_{s,c+15}$) divided by sectoral output ($Q^{p}_{s,c+15}$), both at the sector (s) level:[3]

$$CIC^{P}_{s,c+15} = \frac{M^{China}_{s,c+15}}{Q^{p}_{s,c+15}} \quad (2)$$

The CIC variable is potentially endogenous, for example in presence of specific demand or supply shocks unrelated to the Chinese import competition. This is particularly problematic if the shocks occurred in sectors where Chinese import competition has increased the most, confounding the effects. Furthermore, changes in local sector employment may be driven by changes in global prices unrelated to the China shock, representing another confounding factor. To address these potential issues, we follow the extensive literature on the China shock and employ an instrumental variables approach (Autor et al., 2013; Acemoglu et al., 2016; Costa et al., 2016, among others). We instrument $CIC^{P}_{s,c+15}$ with the Chinese global supply shock measured by China's average participation in imports at the sector level across all countries in the world (j) except Brazil (Bra):

$$CIS^{P}_{s,c+15} = \frac{1}{J} \sum_{j-Bra} \frac{M^{China}_{s,c+15}}{M^{Total}_{s,c+15}} \quad (3)$$

Intuitively, CIS serves as instrument for CIC if capable of capturing the supply-driven shock inherent to Chinese economic forces and institutions that

[3] In the Appendix Section A, Figure A.1 shows the distribution of the CIC variable at the individual level.

allowed China to gain market share in the global supply of different products within specific industries over time. We use CIS to predict CIC in Brazilian industries. These variables are exogenous as they do not depend on local decisions in Brazil.

Our regression models also include controls for children's characteristics such as gender, migration and parental education ($X_{i,c}^{ch}$) as well as fixed effects by children's birth cohort (C_c^{ch}), birth region (R_r^{ch}) and parental sector of employment (S_s^p) at the 2-digit ISIC level. When we consider children's employment outcomes, we also include fixed effects by children sector of employment. By doing so, we compare individuals with similar demographic and employment characteristics whose households were exposed to different levels of Chinese import competition when they were 15 years old.

Appendix Section B.1 (Table A.2) shows the effects of the trade shock on fathers' employment and wages. Results are consistent with previous findings for Latin American countries (Costa et al., 2016; César et al., 2021), indicating that Chinese import competition reduced earnings and increased labor informality. Furthermore, parents with lower education were more affected by the trade shock as previous contributions also suggest (Adão, 2015; Adao et al., 2022). These estimates suggest that our identification strategy is helpful to capture the adverse effects of the trade shock at the years when children were about 15 years old and lived with their parents. To evaluate the robustness of our strategy, in the Appendix Section D we present our main results considering different timing of the parental job loss and using an alternative import competition (the share of China in Brazilian imports) and instrumental variables measures. We also show that our results are not sensitive to the existence of outliers or educational decisions when considering non-educational outcomes, and that Chinese import competition does not predict changes in children's outcomes for earlier cohorts whose parents were not directly exposed.

4 Results

In this section, we report our results. In Section 4.1 we present estimates of the effect of the trade shock affecting parents on their offspring's education and labor market outcomes in adulthood. Our estimates implicitly compare children from workers with similar demographic characteristics and fathers' employ-

ment sectors, whose fathers faced varying levels of Chinese import competition. Then, in Section 4.2 we discuss possible heterogeneous effects by gender, birth cohort and, importantly, socioeconomic background. Following that, in Section 4.3 we study potential drivers of the effects on earnings: education, informality, labor participation, job choices, and migration.

4.1 Baseline results

Table 1 shows the effects of Chinese import competition on children's education, employment, and earnings.[4] The outcome variables are: years of education, likelihood to complete secondary education, likelihood to attend or having attended tertiary education, wage, likelihood to be employed in an informal occupation, likelihood of CCT (conditional cash transfers) reception. Two columns show the results for each outcome. The first column shows the OLS coefficient of fathers' CIC, and the second column the instrumented estimate. In all specifications, the F-statistic indicates that the instrument has a high predictive power; we present the Kleibergen-Paap (KP) (Kleibergen and Paap, 2006) and the Sanderson-Windmeijer (SW) (Sanderson and Windmeijer, 2016) statistics for especifications including one or more than one instruments, respectively.[5]

The results in Panel A of Table 1 show that the trade shock affected children's human capital accumulation persistently: on average, a one percentage point increase in Chinese import competition in the father's sector resulted in a decrease by 0.37 years in the child's education and by 3.3 and 2.9 percentage points in the likelihood of completing secondary education or pursuing tertiary studies, respectively. This is substantial, given the remarkable rise in Chinese participation in Brazilian trade, as highlighted in Figure 2.

Furthermore, the results in Panel B of Table 1 show that Chinese import competition in the father's sector had a negative impact on children's earnings and job quality in adulthood.[6] We show the estimates including fixed effects by children's sector of employment except when considering the effect on CCT

[4] In the Appendix, Table A.10 shows that the results presented here are not sensitive to the presence of outliers in the endogenous and instrumental variables.

[5] Table A.3 and Figure A.2 in the Appendix present the first stage regressions at the individual and industry level, respectively, showing a positive and strongly significant relationship between the instruments and the endogenous variables.

[6] To account for joint educational and labor decisions, Table A.11 in the Appendix shows estimates of non-educational outcomes for people over the age of 25. This analysis produces similar results.

reception since the sample includes both employed and non-employed individuals. Columns (2), (4) and (6) show that, on average, a one percentage point increase in parental exposure to the shock reduces hourly wages by about 0.3% while increasing the likelihood of receiving social assistance (CCT) by around 0.4 percentage points. Additionally, as previous contributions that focused on the short-run effects of trade shocks (Costa et al., 2016; César et al., 2021), we find that labor informality may represent a relevant channel through which labor adjustments materialize, a distinct feature of labor markets in developing countries. A one percentage point increase in import competition increases labor informality by 0.3 percentage points, on average. However, the latter two estimates are not statistically significant.[7]

Robustness In the Appendix Section D we provide a battery of robustness checks to prove the consistency of our main results. One potential caveat in our identification strategy is related to the accuracy of timing in retrospective answers about parental employment when the children were 15 years old. While our strategy assigns them the shock they would be exposed to when they are exactly 15 years old, individuals may recall parental employment information at some age close to 15. In Section D.1, we show that considering an average exposure of one or two years around the year the interviewee was 15 years old does not significantly change our results. Furthermore, despite the fact that our CIC variable is a well-established measure of the trade shock in the literature, allowing us to compute the import shock relative to sectoral production, in Section D.2 we show that the results presented above hold when an alternative CIC measure based on China's share of total sectoral imports is used. These results also hold when considering the Chinese import competition as an ongoing process and computing our CIC variable in each year as its change from 1992.

In Section D.3 we show that outliers do not influence our results by windsorizing the endogenous and instrumental variables and limiting them to their 10th to 90th percentile values. Furthermore, estimates of non-educational outcomes hold when the sample is restricted to individuals aged 25 or older to avoid biases related to educational decisions.

[7] Estimations excluding children's sector of employment fixed effects yield similar results.

Table 1: Effects on children's education, employment and wage

Panel A – *Education*

	Education (years)		Prob. Secondary (%)		Prob. Tertiary (%)	
	(1)	(2)	(3)	(4)	(5)	(6)
Father CIC	-0.066***	-0.370***	-0.438*	-3.301***	-0.486*	-2.858***
	(0.019)	(0.126)	(0.236)	(1.169)	(0.245)	(1.016)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6107	6107	6107	6107	6107	6107
F-Stat(KP)	.	18.6	.	18.6	.	18.6

Panel B – *Labor*

	Wage (log.)		Informality (%)		CCT Reception (%)	
	(1)	(2)	(3)	(4)	(5)	(6)
Father CIC	-0.014**	-0.032**	0.217	0.285	0.020	0.390
	(0.006)	(0.014)	(0.162)	(0.928)	(0.119)	(0.244)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	Yes	Yes	Yes	Yes	No	No
Observations	4022	4022	4022	4022	6125	6125
F-Stat(KP)	.	20.41	.	20.41	.	18.66

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Robust standard errors clustered at the sector level indicated in parentheses. ** p < 0.10, ** p < 0.05, *** p < 0.01*. Informality refers to unregistered workers without rights to social security benefits linked to their jobs. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status.

We initially considered all countries in the world except Brazil when constructing the CIS variable to provide exogenous variations of CIC. In Section D.4, we show that the main results presented above do not change significantly when different groups of countries are considered: high or middle income, and OECD countries. Finally, following Autor et al. (2014) we perform a placebo test by assessing the impact of the Chinese import shock on children who were significantly older than 15 years old when the Chinese global supply shock began. To be more specific, we replicate the estimates from Table 1 for a sample of individuals born between 1949 and 1969. For all outcomes considered, the results are not statistically different from zero, demonstrating that our findings do not simply reflect existing outcome pre-trends but a period-specific effect of parental exposure to Chinese import competition.[8]

4.2 Heterogeneous results

In Figure 3 we show the heterogeneous effects of the trade shock on children's outcomes in their adulthood. In equation (1), we incorporate an interaction term between CIC and binary variables indicating children's gender, parental background (whether one of the parents completed secondary education), and birth cohort, in three different specifications.[9]

The results in Panel A of Figure 3 show that the impacts are particularly harmful for children of low-educated parents, altough the difference is not statistically significant for wages.[10] This suggest that the trade shock harmed educational and social mobility, contributing to the low levels of intergenerational mobility observed in Brazil over time (Neidhöfer et al., 2018, 2021; Britto et al., 2022a). This result is consistent with previous findings that trade shocks impose significant labor adjustment costs that are highly unequally distributed across workers based on their skill level: highly skilled workers are better able to move

[8]These findings are shown in Table A.15. It excludes the interaction effect with parental education because only 4% of this alternative sample of older individuals have parents with a complete secondary education degree.

[9]For instance, when estimating the effect of the shock by birth cohort, we estimatate:
$Y^{ch}_{i,c,r} = \alpha^{ch}_{i,c} + \beta CIC^{P}_{s,c+15} + \eta_c CIC^{P}_{s,c+15} * C^{ch}_{c} + \gamma X^{ch}_{i,c} + \phi C^{ch}_{c} + \rho R^{ch}_{r} + \delta S^{p}_{s} + \varepsilon_{i,c,r}$
We use CIS and its interactions with C_c as instruments for CIC and its interactions with each birth cohort. In this section we report the η_c coefficients for each birth cohort. Table A.5 in the Appendix show the estimation tables.

[10]When the sample is limited to children who are likely to have completed their education, based on their age (>24), the impact on salaries is stronger and statistically significant among children from low-educated families (see Table A.11 in the Appendix).

across employers and out of the most vulnerable sectors (Autor et al., 2014). In Section 4.3 we provide additional evidence for this hypothesis. Moreover, these heterogeneous effects are especially relevant for future inequality: individuals from low socioeconomic backgrounds are more vulnerable to incoming labor demand shocks due to lower education and job quality, as demonstrated by the recent automation process (Acemoglu and Autor, 2011; Gasparini et al., 2021). As Panel A also shows, results by child gender are not significantly different.

The unequal impact of the trade shock on children can be explained by both different levels of parental exposure to the shock based on their education and the role of parental education in insuring children's human capital accumulation. As shown in Table A.2, the shock had a stronger effect on lowering wages and increasing labor informality among low-educated workers in the father's generation, consistent with previous research on Latin America (Adão, 2015; Costa et al., 2016; Adao et al., 2022). This implies that a considerable portion of the effect on children comes from unequal exposure to parental job or wage losses based on parental education. However, we also find adverse income shocks among high-educated fathers, suggesting that the income effect was at least partially mitigated in these families through parental education, which acts as a form of insurance for children education. Further exploration of the channels through which these shocks affect future generations represents an interesting area for future research.

The results in Panel B of Figure 3 show the time pattern of the shock, displaying the effects by birth cohort. Given the previous finding that children of low-educated parents had a significantly greater impact, we concentrate on this group of children here.[11] The results indicate that children from younger cohorts were more negatively impacted, notably in terms of schooling and incomes. This difference is most noticeable for children born around the early 1990s, whose fathers' sector experienced greater increases in CIC when they were 15 years old, as seen in Figure 2. This finding is also in line with previous research that exploited longitudinal data showing an increasing pattern of the China shock effects (Autor et al., 2014).

[11] In the Appendix Section C we also show the results for children from high educated parents. Results show a similar effect across cohorts. Estimation tables for children from low educated parents are available in Table A.5 in the Appendix.

The interaction of various labor and educational reforms, along with the China shock, may have contributed to the findings presented in Panel B. In the early 2000s, Brazil implemented social security programs aimed at reducing poverty, including *Bolsa Familia*, which provided conditional cash transfers to low-income families based on school enrollment. Additionally, in 2009, a law was passed that made secondary education compulsory. These reforms may have helped reduce the number of dropouts (Fiszbein and Schady, 2009; Simoes and Sabates, 2014) and mitigate the negative effects of the China shock on education and future earnings, particularly for younger cohorts. In fact, the results presented in Panel B show that the negative trend on education was mitigated for exposed cohorts up to secondary education, but not for tertiary education, which was not affected by these reforms. However, the adverse effects of the China shock may have been deepened by the 2001/2003 labor reform, which increased flexibility and may have disproportionately affected low-skilled workers. This is consistent with the findings in Table A.2 which may also explain why younger cohorts were more affected as their parents were less experienced and more likely to have suffered wage or job losses at the time of their labor market entry given the unstable macroeconomic conditions in the 1980s and early 1990s (Duryea et al., 2007).

4.3 Channels

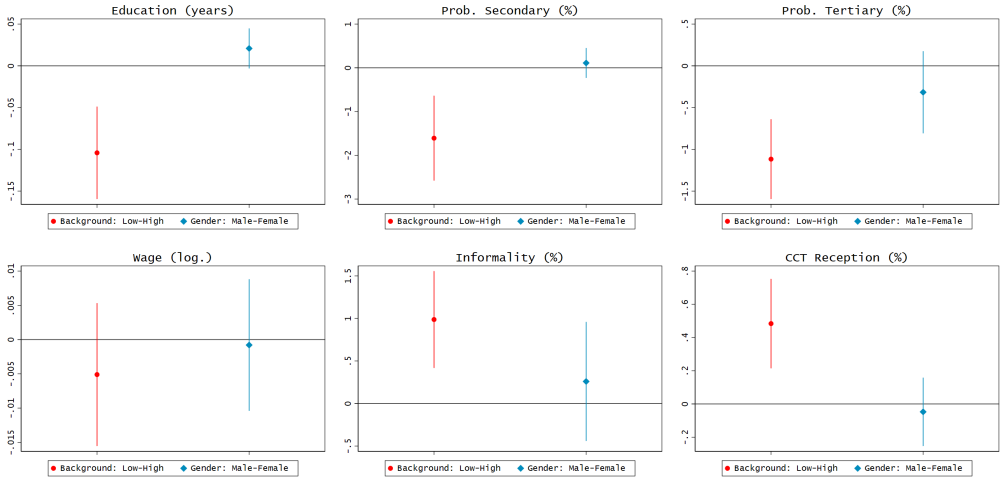
4.3.1 Education and Informality

In this section, we focus on the findings concerning children's wages in order to assess potential channels through which the shock affected earnings in adulthood. We are particularly interested in determining whether the entire effect on children's wages is dominated by the effects on education or whether other channels, such as employment quality, also explain it. To do so, we use the predicted effects of the import competition shock on education and labor informality to explain children's wages. In other words, we explain wages by estimating how children's average education or informality changed as a result of the trade shock on the parental sector.

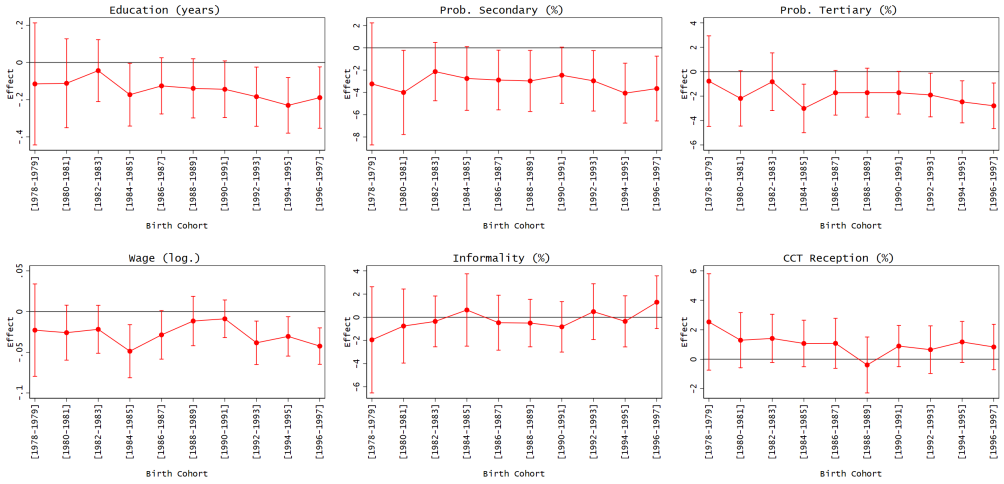
In Table 2 we use the predicted educational loss and informality increase based on the estimates shown in Table 1 to evaluate their effects on children's

Figure 3: Heterogeneous effects by parental background, children's gender and birth cohort

Panel A – *Parental background and gender*



Panel B – *Birth cohort*



Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).
Notes: 90% confidence intervals. Estimates controlling for parental education, child gender and migration status. Robust standard errors clustered at the sector level. Informality refers to unregistered workers without rights to social security benefits linked to their jobs. Estimates by birth cohort are focused on children from low socioeconomic background.

wages as separate channels. Columns (1) and (2) in Table 2 show that an additional year of education lost as a result of the trade shock reduces wages by about 5.5%; however, as shown in column (2) this effect is substantially lower for individuals with high parental background. This result is consistent with the lower effects on education and wages for children of highly educated parents found in Section 4.2. Given that column (2) from Table 1 shows that the shock reduced education by 0.38 years on average, this channel implies that each additional year of education lost accounts for approximately 2.1% of monthly wage decreases.

According to the findings in column (3) of Table 2, an additional percentage point of labor informality caused by the shock reduces wages by 0.7%. Importantly, we report for the first time in column (4) the significance of the transmission of labor informality across generations. According to our estimates, intergenerational persistence of informality accounts for roughly half of the informality channel. However, informality appears to play a more limited role than the educational channel in explaining children's adult wages. Since we estimated a 0.3 percentage point increase in informality due to the trade shock in Table 1, each additional predicted informality percentage point explains about a 0.1% of monthly wage reduction. Despite its relevance, it explains less than half of what the educational channel does.

4.3.2 Labor participation and migration

Our findings might be affected by children's migration and labor participation decisions. Migration can act as a buffer to adverse exogenous shocks in a traditional spatial equilibrium model, with children from the most affected parents moving to regions with better opportunities (Kovak and Morrow, 2022). Unfavorable local conditions may also discourage children's labor-market participation (Hardoy and Schøne, 2014) and encourage formal education (Greenland and Lopresti, 2016). Moreover, children may learn from their parents' exposure and attempt to avoid exposed sectors and operational occupations. These factors may result in selection into employment leading to biased estimates.

We investigate the effects of increased Chinese competition on children's migration and labor participation in Table 3. The results show that the effects of

Table 2: Effects on children's wages. Educational and informality channel

	Education Channel		Informality Channel	
	(1)	(2)	(3)	(4)
Predicted Educational Loss	-0.054***	-0.050***		
	(0.004)	(0.003)		
Predicted Educ. Loss*Parental Secondary		0.031***		
		(0.011)		
Predicted Informality Increase (p.p.)			-0.003***	-0.001**
			(0.001)	(0.001)
Predicted Inform. Increase*Father Inform.				-0.002***
				(0.000)
Controls	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes
Own Sector FE	Yes	Yes	Yes	Yes
Observations	4013	4013	4022	3986

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Robust standard errors clustered at the sector level indicated in parentheses. ** $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$*. Informality refers to unregistered workers without rights to social security benefits linked to their jobs. Informal fathers are unregistered employees without rights to social security benefits linked to their jobs, unwaged or domestic workers and low skilled (less than secondary education) self employers. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher. Estimates controlling for parental education, child gender and migration status.

Table 3: Effects on children's migration and employment

	Migration (municipality) (%)		Migration (state) (%)		Labor Participation (%)		Employment (%)		Unemployment (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Father CIC	-1.094	-1.169	0.531	0.566	-0.683	-0.461	-0.916	-0.884	0.233	0.423
	(0.695)	(0.771)	(0.335)	(0.366)	(0.968)	(0.956)	(1.092)	(1.035)	(0.342)	(0.349)
Father CIC*Parental Secondary		0.035		-0.023		-0.278		-0.041		-0.237
		(0.244)		(0.084)		(0.240)		(0.265)		(0.150)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6935	6125	6935	6125	6125	6125	6125	6125	6125	6125
F-Stat(KP)	21.54	.	21.54	.	18.66	.	18.66	.	18.66	.
F(SW)-Father CIC		29.14		29.14		32.76		32.76		32.76
F(SW)-Father CIC*Parental Secondary		66.46		66.46		94.68		94.68		94.68

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).
Notes: Robust standard errors clustered at the sector level indicated in parentheses. $* p < 0.10$, $** p < 0.05$, $*** p < 0.01$. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

the trade shock on migration, labor market participation, and employment are not significant.[12] As previous contributions have demonstrated, there is little evidence that geographic mobility serves as a mechanism for labor adjustment following a trade shock (Autor et al., 2013, 2014; Dix-Carneiro and Kovak, 2017; Autor et al., 2021, 2023). This imperfect worker mobility gradually amplifies initial negative labor demand shocks, which helps to explain how they are passed down to future generations.

Table 4, instead, illustrates the effects of trade shocks experienced by fathers on potential protective reactions to future trade shocks by their children. Our results indicate that children of highly exposed fathers whose parents are low-educated are more likely to have an operational job and less likely to be employed in the non-tradable sector. These findings suggest that children of low-educated parents are more susceptible to future job or wage losses resulting from trade shocks or automation processes. Therefore, the occupational characteristics of children from different backgrounds represent another means by which inequality is transmitted to future generations.

[12] We base these estimates on variables indicating actual migration of individuals rather than predicted migration or population change at the regional level, as previous contributions have done. This allows us to abstract from potential misspecifications due to the bilateral nature of location choices (Borusyak et al., 2022).

Table 4: Effects on children's employment sector and occupation

	First job				Current job			
	Operational (%)		NT Sector (%)		Operational (%)		NT Sector (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father CIC	-0.196	0.519	-1.003	-1.527**	0.935	1.269*	0.232	-0.183
	(0.616)	(0.591)	(0.778)	(0.702)	(0.657)	(0.648)	(0.942)	(0.950)
Father CIC*Parental Secondary		-0.941**		0.691**		-0.518		0.597*
		(0.406)		(0.350)		(0.619)		(0.354)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5361	5361	5374	5374	3998	3998	4022	4022
F-Stat(KP)	21.05	.	21.3	.	20.1	.	20.48	.
F(SW)-Father CIC		33.52		33.87		25.49		25.38
F(SW)-Father CIC*Parental Secondary		79.82		78.63		72.11		76.12

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Robust standard errors clustered at the sector level indicated in parentheses. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$. "NT Sector" refers to Non-Tradable sector. Occupation is considered as "Operational" for 7, 8 and 9 1-digit ISCO (International Standard Classification of Occupations). Estimates controlling for parental education, child gender and migration status. Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

5 Conclusions

In this paper, we evaluated the intergenerational effects of a trade shock in Brazil. We contribute to the literature, which has mostly focused on the direct effects of trade-induced contractions in local labor demand on worker wages and employment, by investigating whether parental exposure to these shocks affected children's outcomes in adulthood. To accomplish this, we exploited the well-documented effects of the increased Chinese import competition on workers as a case study and a specific household survey module that includes precise retrospective questions on parental employment and education, among other factors.

We find that children of most exposed parents have lower education and earnings in their adulthood. We also find suggestive evidence for a higher likelihood of labor informality and dependence on social assistance. Importantly,

our results show that these effects are considerably larger for children from low socioeconomic backgrounds, suggesting that the trade shock harmed social mobility and exacerbated poverty traps. Younger cohorts are also more negatively affected as a result of the growing trend of Chinese import competition. Furthermore, the negative effect on earnings is caused primarily by educational channels, but also by job quality mechanisms, i.e. labor informality. These findings are robust and unaffected by migration and labor participation decisions, different measures of trade shock exposure, and parental job loss timing.

To the best of our knowledge, our study is the first to investigate the intergenerational impact of an exogenous trade shock. Our data takes into account informality as a buffer against employment shocks, a crucial factor in Latin American countries. Our findings emphasize the long-lasting harm that this shock can provoke, especially on children from disadvantaged socioeconomic backgrounds. From a policy perspective, our results have significant implications. They indicate that income shocks do not dissipate over time as labor markets adjust, following a trade-induced decrease in labor demand. Instead, they pass down to the next generation, hampering social mobility. Additionally, the adverse effects on children's education and job quality render them vulnerable to future labor demand shocks, such as those caused by automation and robotization processes. Therefore, policies should focus on preventing disruptions in human capital formation and promoting formal jobs to mitigate the long-term negative effects of future shocks.

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Online Appendix

Trade Shocks and Social Mobility: The Intergenerational Effect of Import Competition in Brazil

A Descriptive statistics

Table A.1: Descriptive statistics for parental and children generations

Panel A – *Parents*

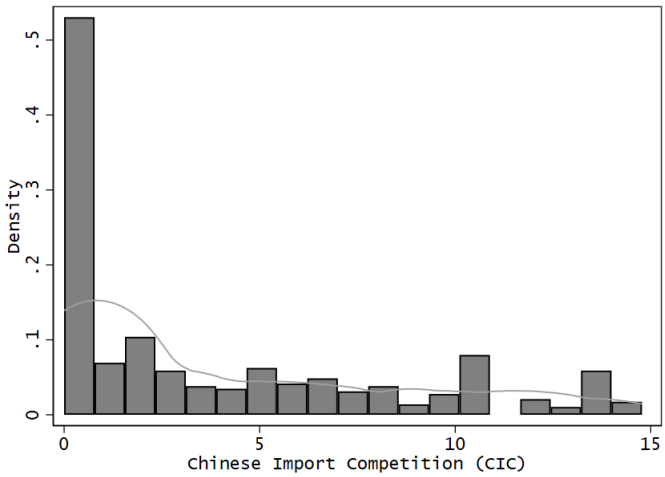
	Education (years)	Secondary Educ. (%)	Tertiary Educ. (%)	Informality (%)	Primary sector (%)	Manufacturing sector (%)	Services sector (%)	Employment (%)
	4.526	17.290	4.636	67.588	73.839	20.305	5.856	100.000
	(0.056)	(0.483)	(0.269)	(0.590)	(0.528)	(0.483)	(0.282)	(.)
Observations	6008	6125	6125	6297	6935	6935	6935	6935

Panel B – *Children*

	Education (years)	Secondary Educ. (%)	Tertiary Educ. (%)	Informality (%)	Primary sector (%)	Manufacturing sector (%)	Services sector (%)	Employment (%)
	8.802	47.044	17.344	41.183	22.877	14.203	56.817	74.109
	(0.046)	(0.600)	(0.455)	(0.688)	(0.588)	(0.488)	(0.693)	(0.526)
Observations	6912	6912	6912	5112	5111	5111	5111	6935

Source: Own elaboration based on PNAD 2014.
Notes: Informality refers to unregistered workers without rights to social security benefits linked to their jobs.

Figure A.1: Chinese import competition (CIC) distribution at the sector level.



Source: Own elaboration based on UNIDO and Comtrade (United Nations).

B Additional results

B.1 The effects on parents

Table A.2: Effects on parent's generation informality and wage. Individual level

	Wages (log.)						Informality (%)					
	All	All	Low Educated	Low Educated	High Educated	High Educated	All	(All)	Low Educated	Low Educated	High Educated	High Educated
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father CIC	-0.008***	-0.017**	-0.008***	-0.018**	-0.007***	-0.009***	0.390***	0.740***	0.458***	0.913***	0.060	0.152
	(0.002)	(0.007)	(0.002)	(0.008)	(0.002)	(0.002)	(0.071)	(0.220)	(0.073)	(0.238)	(0.104)	(0.100)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	773761	773761	553247	553247	220514	220514	814074	814074	583541	583541	230533	230533
F-Stat(KP)	.	154.93	.	123.04	.	299.67	.	147.86	.	117.78	.	291.93

Source: Own elaboration based on PNAD 1992-2012, UNIDO and Comtrade (United Nations). PNAD surveys were not collected in 1994, 2000 and 2010.
Notes: Robust standard errors clustered at the sector level indicated in parentheses. ** p < 0.10, ** p < 0.05, *** p < 0.01*. Informal fathers includes unregistered employees without rights to social security benefits linked to their jobs, unwaged or domestic workers and low skilled (less than secondary education) self employers. Regression includes only men and control for migration status. "High Educated" indicates whether the father has completed secondary education or higher.

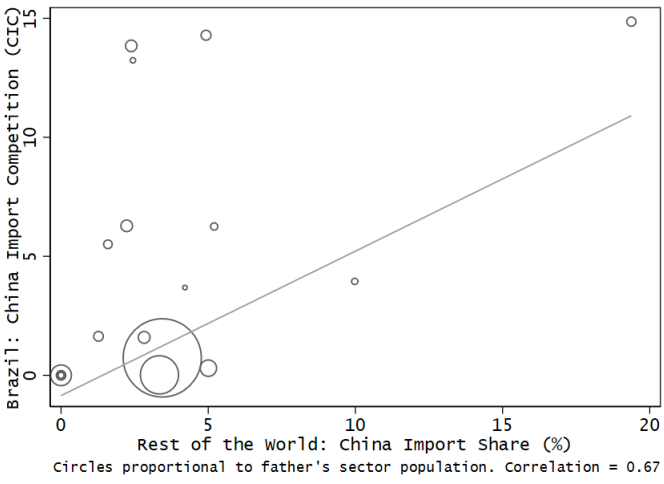
B.2 First stage estimations

Table A.3: First stage estimations

	Educational			Laboral		
	(1) Father CIC	(2) Father CIC	(3) Father CIC*Parental Sec.	(4) Father CIC	(5) Father CIC	(6) Father CIC*Parental Sec.
CIC (ROW)	0.302***	0.316***	-0.168***	0.343***	0.355***	-0.186***
	(0.070)	(0.069)	(0.049)	(0.076)	(0.078)	(0.054)
CIC (ROW)*Parental Sec.		-0.029	0.856***		-0.026	0.877***
		(0.021)	(0.095)		(0.025)	(0.105)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	Yes	No	No
Observations	6107	6107	6107	4022	4023	4023
F-Stat(KP)	18.6	.	.	20.41	.	.
F-Stat(SW)	.	32.7	94.7	.	23.9	76.1

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).
Notes: Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimates controlling for parental education, child gender and migration status. "ROW" refers to all countries in the world except Brazil. "Parental Sec." refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

Figure A.2: First stage estimation. Industry-level.



Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).
Notes: Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C Heterogeneous results

C.1 Effects by children's gender and parental background

Table A.4: Heterogeneous effects on children's education, employment and wage. Gender and parental background

	Education (years)		Prob. Secondary (%)		Prob. Tertiary (%)		Wage (log.)		Informality (%)		CCT Reception (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father CIC	-0.350***	-0.381***	-2.987**	-3.359***	-2.639**	-2.692***	-0.031**	-0.032**	-0.127	0.003	0.294	0.414
	(0.134)	(0.125)	(1.228)	(1.131)	(1.127)	(1.024)	(0.015)	(0.013)	(0.974)	(0.882)	(0.247)	(0.258)
Father CIC*Parental Secondary=0	-0.104***		-1.608***		-1.117***		-0.005		0.987***		0.484***	
	(0.034)		(0.590)		(0.291)		(0.006)		(0.346)		(0.164)	
Father CIC*Male=1		0.021		0.111		-0.316		-0.001		0.259		-0.047
		(0.015)		(0.208)		(0.299)		(0.006)		(0.425)		(0.125)
Parents: incomplete primary	1.735***	1.735***	18.752***	18.762***	6.355***	6.385***	0.089***	0.089***	-4.713***	-4.654***	0.532*	0.532*
	(0.091)	(0.085)	(1.414)	(1.364)	(1.077)	(1.013)	(0.015)	(0.014)	(0.829)	(0.868)	(0.305)	(0.298)
Parents: complete primary	2.715***	2.612***	31.929***	30.368***	16.286***	15.244***	0.209***	0.204***	-5.396***	-4.413***	-2.746***	-2.277***
	(0.177)	(0.180)	(3.562)	(3.679)	(2.535)	(2.496)	(0.072)	(0.071)	(1.586)	(1.604)	(0.857)	(0.847)
Parents: incomplete secondary	3.210***	3.080***	34.803***	32.802***	16.077***	14.705***	0.122**	0.113**	-4.609	-3.036	-5.356***	-4.751***
	(0.264)	(0.251)	(4.872)	(4.860)	(4.735)	(4.615)	(0.056)	(0.054)	(5.814)	(5.975)	(1.523)	(1.480)
Parents: complete secondary	3.008***	3.763***	30.614***	42.260***	27.585***	35.649***	0.354***	0.391***	1.586	-5.330**	-0.991	-4.493***
	(0.204)	(0.195)	(3.482)	(2.336)	(2.948)	(2.512)	(0.058)	(0.051)	(3.360)	(2.158)	(2.029)	(1.169)
Parents: incomplete tertiary	4.297***	4.864***	45.274***	54.275***	47.832***	54.543***	0.331**	0.366***	-3.133	-9.690	-5.249***	-7.939***
	(0.352)	(0.372)	(4.785)	(5.125)	(6.751)	(7.059)	(0.149)	(0.141)	(10.498)	(9.316)	(1.760)	(1.107)
Parents: complete tertiary	4.730***	5.401***	39.996***	50.511***	57.013***	64.595***	0.704***	0.740***	6.798	-0.075	-3.636*	-6.787***
	(0.271)	(0.263)	(4.374)	(2.907)	(3.939)	(3.427)	(0.121)	(0.103)	(4.837)	(3.850)	(2.138)	(1.311)
Male=1	-1.105***	-1.166***	-11.307***	-11.425***	-7.170***	-5.722***	0.231***	0.235***	-6.782***	-7.969***	-2.675***	-2.584***
	(0.129)	(0.123)	(1.401)	(1.561)	(0.973)	(1.652)	(0.023)	(0.033)	(1.707)	(2.361)	(0.389)	(0.598)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Observations	6107	6107	6107	6107	6107	6107	4022	4022	4468	4468	6125	6125
F(SW)-Father CIC	19.42	22.43	19.42	22.43	19.42	22.43	25.71	23.49	27.7	27.01	19.48	22.49
F(SW)-Father CIC*Parental Secondary=0	94.79		94.79		94.79		76.09		76.09		94.68	
F(SW)-Father CIC*Male		61.54		61.54		61.54		51.41		54.28		61.92

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Robust standard errors clustered at the sector level indicated in parentheses. ** p < 0.10, ** p < 0.05, *** p < 0.01*. Informality refers to unregistered workers without rights to social security benefits linked to their jobs. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

C.2 Effects by birth cohort. Low background children

Table A.5: Heterogeneous effects on children's education, employment and wage by cohorts

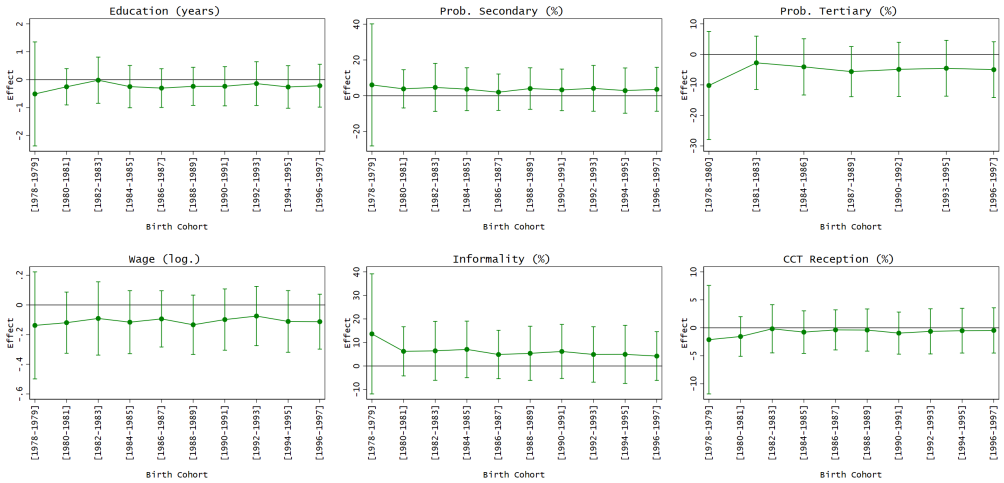
	Education (years)	Prob. Secondary (%)	Prob. Tertiary (%)	Wage (log.)	Informality (%)	CCT Reception (%)
	(1)	(2)	(3)	(4)	(5)	(6)
Father CIC	-0.115	-3.236	-0.773	-0.023	-1.948	2.532
	(0.199)	(3.328)	(2.257)	(0.035)	(2.784)	(1.991)
Cohort [1980-1981] × Father CIC	0.003	-0.767	-1.415	-0.003	1.190	-1.242
	(0.108)	(1.745)	(1.586)	(0.022)	(1.253)	(1.087)
Cohort [1982-1983] × Father CIC	0.071	1.105	-0.051	0.001	1.592	-1.121
	(0.148)	(2.082)	(2.060)	(0.029)	(1.777)	(1.102)
Cohort [1984-1985] × Father CIC	-0.058	0.486	-2.236	-0.026	2.576**	-1.463
	(0.122)	(1.792)	(1.720)	(0.025)	(1.282)	(1.281)
Cohort [1986-1987] × Father CIC	-0.011	0.349	-0.953	-0.006	1.478	-1.454
	(0.124)	(1.947)	(1.540)	(0.021)	(1.577)	(1.081)
Cohort [1988-1989] × Father CIC	-0.024	0.264	-0.945	0.011	1.448	-2.924**
	(0.129)	(1.995)	(1.640)	(0.027)	(1.802)	(1.227)
Cohort [1990-1991] × Father CIC	-0.029	0.777	-0.948	0.014	1.123	-1.639
	(0.134)	(2.132)	(1.656)	(0.028)	(1.598)	(1.322)
Cohort [1992-1993] × Father CIC	-0.069	0.276	-1.136	-0.016	2.431	-1.884
	(0.132)	(2.062)	(1.556)	(0.025)	(1.545)	(1.174)
Cohort [1994-1995] × Father CIC	-0.115	-0.829	-1.697	-0.008	1.596	-1.360
	(0.129)	(2.003)	(1.619)	(0.023)	(1.636)	(1.289)
Cohort [1996-1997] × Father CIC	-0.074	-0.417	-2.022	-0.020	3.246	-1.703
	(0.134)	(2.138)	(1.603)	(0.025)	(2.397)	(1.240)
Cohort [1980-1981]	0.051	3.407	4.152	0.001	-6.494***	-1.447
	(0.227)	(3.053)	(3.045)	(0.044)	(1.886)	(1.797)
Cohort [1982-1983]	-0.089	1.021	-2.465	-0.090	-6.033**	-2.434
	(0.238)	(3.320)	(4.053)	(0.073)	(2.763)	(2.499)
Cohort [1984-1985]	0.917***	9.385***	2.449	0.015	-10.652***	-0.538
	(0.154)	(2.194)	(4.672)	(0.102)	(2.944)	(2.213)
Cohort [1986-1987]	1.021***	9.416***	5.276*	-0.040	-3.409*	-5.186***
	(0.137)	(2.269)	(3.199)	(0.059)	(1.758)	(1.254)
Cohort [1988-1989]	1.265***	13.626***	0.783	-0.241***	-0.368	2.844*
	(0.309)	(2.325)	(2.937)	(0.060)	(2.430)	(1.622)
Cohort [1990-1991]	1.240***	9.440***	2.374	-0.277***	0.471	-5.634***
	(0.286)	(2.667)	(2.547)	(0.043)	(2.152)	(1.363)
Cohort [1992-1993]	1.171***	9.797**	-0.898	-0.257***	-2.851	1.185
	(0.349)	(4.439)	(2.316)	(0.043)	(2.839)	(2.846)
Cohort [1994-1995]	1.352***	6.555***	2.107	-0.315***	3.814	-9.853***
	(0.240)	(2.518)	(2.498)	(0.036)	(3.731)	(1.273)
Cohort [1996-1997]	0.738**	-14.723***	-2.346	-0.343***	17.582***	2.069
	(0.313)	(3.863)	(3.292)	(0.027)	(4.643)	(2.801)
Observations	4776	4776	4776	3127	3512	4794
F(SW)-Father CIC	14.15	14.15	14.15	14.02	12.91	13.37
F(SW)-Father CIC*Cohort2	50.25	50.25	50.25	41.4	38.27	48.72
F(SW)-Father CIC*Cohort3	42.3	42.3	42.3	19.84	13.62	41.08
F(SW)-Father CIC*Cohort4	74.96	74.96	74.96	65.17	61.1	73.88
F(SW)-Father CIC*Cohort5	198.19	198.19	198.19	70.75	59.14	198.58
F(SW)-Father CIC*Cohort6	102.9	102.9	102.9	117.94	86.06	103.79
F(SW)-Father CIC*Cohort7	18.48	18.48	18.48	23.87	20.09	17.96
F(SW)-Father CIC*Cohort8	48.47	48.47	48.47	31.13	28.27	47.91
F(SW)-Father CIC*Cohort9	129.92	129.92	129.92	254.6	156.82	125.95
F(SW)-Father CIC*Cohort10	52.33	52.33	52.33	109.11	87.37	50.56

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Robust standard errors clustered at the sector level indicated in parentheses. ** p < 0.10, ** p < 0.05, *** p < 0.01*. Informality refers to unregistered workers without rights to social security benefits linked to their jobs. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

C.3 Effects by birth cohort. High background children

Figure A.3: Heterogeneous effects on children's education, employment and wage. High background children



Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).
Notes: 90% confidence intervals. Estimates controlling for parental education, child gender and migration status. Robust standard errors clustered at the sector level. Informality refers to unregistered workers without rights to social security benefits linked to their jobs. Birth cohort estimates focused on children from low socioeconomic background.

D Robustness checks

D.1 Parental exposure timing

Table A.6: Effects on children's outcomes. 1-year window

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Father CIC	-0.074***	-0.434***	-0.523***	-0.503**	-3.828***	-5.205***	-0.544**	-3.411***	-4.420***	-0.017**	-0.041***	-0.045***	0.298*	0.308	1.089	0.001	0.005*	0.009***
	(0.019)	(0.157)	(0.170)	(0.230)	(1.379)	(1.776)	(0.242)	(1.254)	(1.392)	(0.007)	(0.016)	(0.015)	(0.156)	(1.038)	(0.931)	(0.001)	(0.003)	(0.003)
Father CIC*Parental Secondary			0.097**			1.499***			1.098***			0.005			-0.982***			-0.005***
			(0.031)			(0.537)			(0.273)			(0.006)			(0.344)			(0.002)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4022	4022	4022	4022	4022	6125	6125	6125
F-Stat(KP)	.	14.87	.	.	14.87	.	.	14.87	.	.	15.99	.	.	15.99	.	.	14.91	.
F(SW)-Father CIC			27.76			27.76			27.76			20.06			20.06			27.77
F(SW)-Father CIC*Parental Secondary			95.51			95.51			95.51			77.38			77.38			95.47

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).*Notes*: Estimates considering a 1-year rolling window average of CIC. Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

Table A.7: Effects on children's outcomes. 2-year window

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Father CIC	-0.074***	-0.523***	-0.623***	-0.498*	-4.618***	-6.171***	-0.557**	-4.115***	-5.250***	-0.019**	-0.049***	-0.053***	0.364**	0.366	1.239	0.001	0.006*	0.011***
	(0.020)	(0.199)	(0.214)	(0.246)	(1.736)	(2.198)	(0.235)	(1.576)	(1.735)	(0.007)	(0.019)	(0.018)	(0.173)	(1.234)	(1.108)	(0.001)	(0.003)	(0.004)
Father CIC*Parental Secondary			0.095***			1.481***			1.082***			0.004			-0.980***			-0.005***
			(0.031)			(0.535)			(0.277)			(0.006)			(0.345)			(0.002)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4022	4022	4022	4022	4022	6125	6125	6125
F-Stat(KP)	.	13.14	.	.	13.14	.	.	13.14	.	.	14.3	.	.	14.3	.	.	13.18	.
F(SW)-Father CIC			24.95			24.95			24.95			17.7			17.7			24.97
F(SW)-Father CIC*Parental Secondary			93.8			93.8			93.8			76.48			76.48			93.71

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates considering a 2-year rolling window average of CIC. Robust standard errors clustered at the sector level indicated in parentheses. $* p < 0.10$, $** p < 0.05$, $*** p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary " refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

D.2 Alternative CIC measure

Table A.8: Effects on children's education and earnings. Alternative CIC measure: China share in Brazilian imports

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Father CIC (share)	-0.040**	-0.078***	-0.127***	-0.278	-0.696***	-1.387***	-0.305**	-0.602***	-1.096***	-0.007**	-0.008**	-0.011**	0.011	0.069	0.522**	0.085*	0.082*	0.276**
	(0.016)	(0.023)	(0.035)	(0.187)	(0.245)	(0.455)	(0.131)	(0.181)	(0.290)	(0.003)	(0.004)	(0.004)	(0.136)	(0.232)	(0.255)	(0.044)	(0.045)	(0.076)
endo_inter_share			0.094***			1.340**			0.956***			0.006			-0.815***			-0.375***
			(0.031)			(0.497)			(0.296)			(0.005)			(0.208)			(0.114)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4022	4022	4022	4022	4022	6125	6125	6125
F-Stat(KP)	.	41.21	.	.	41.21	.	.	41.21	.	.	33.96	.	.	33.96	.	.	41.31	.
F(SW)-Father CIC			64.15			64.15			64.15			75.31			75.31			64.2
F(SW)-Father CIC*Parental Secondary			76.71			76.71			76.71			72.23			72.23			76.71

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates considering CIC as percentage share of China in Brazilian imports. Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

Table A.9: Effects on children's education and earnings. Alternative CIC measure: change since 1992

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)				Informality (%)				CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Father CIC change	-0.055***	-0.405**	-0.486***	-0.356	-3.650**	-5.028***	-0.383	-3.021**	-4.116***	-0.009*	-0.040	-0.041*	-0.047**	-0.017	-0.080	0.383	1.365	0.026	0.398	0.718*
	(0.019)	(0.161)	(0.170)	(0.223)	(1.512)	(1.902)	(0.237)	(1.265)	(1.414)	(0.005)	(0.025)	(0.024)	(0.023)	(0.164)	(1.327)	(1.186)	(1.107)	(0.093)	(0.312)	(0.370)
Father CIC*Secondary Educ.			0.110***			1.860**			1.477***				0.009				-1.248***			-0.434**
			(0.041)			(0.764)			(0.396)				(0.009)				(0.474)			(0.177)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4023	4022	4022	4022	4023	4022	4022	6125	6125	6125
F-Stat(KP)	.	7.44	.	.	7.44	.	.	7.44	.	.	4.15	4.15	.	.	4.15	4.15	.	.	7.48	.
F(SW)-Father CIC			25.42			25.42			25.42				17.82				17.82			25.42
F(SW)-Father CIC*Parental Secondary			41.74			41.74			41.74				36.99				36.99			41.76

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates considering the CIC change since 1992. Robust standard errors clustered at the sector level indicated in parentheses. ** p < 0.10, ** p < 0.05, *** p < 0.01*. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

D.3 Outliers and educational decisions

Table A.10: Effects on children's outcomes. Outliers sensibility

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Father CIC	-0.073***	-0.289***	-0.383***	-0.480**	-3.003***	-4.387***	-0.347	-2.105***	-3.013***	-0.008	-0.024**	-0.026**	0.173	0.493	1.071*	0.080	0.267	0.658**
	(0.016)	(0.061)	(0.080)	(0.191)	(0.614)	(1.020)	(0.221)	(0.573)	(0.669)	(0.005)	(0.011)	(0.011)	(0.141)	(0.626)	(0.585)	(0.093)	(0.192)	(0.277)
Father CIC*Parental Secondary			0.139**			2.053**			1.347***			0.004			-0.956***			-0.583***
			(0.055)			(0.839)			(0.396)			(0.007)			(0.351)			(0.201)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4022	4022	4022	4022	4022	6125	6125	6125
F-Stat(KP)	.	177.61	.	.	177.61	.	.	177.61	.	.	161.38	.	.	161.38	.	.	178.7	.
F(SW)-Father CIC			278.86			278.86			278.86			207.94			207.94			276.87
F(SW)-Father CIC*Parental Secondary			186.62			186.62			186.62			131.83			131.83			186.34

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates winsorizing endogenous and instrumental variables. Extreme values of both endogenous and instrumental variables were limited to 10th to 90th percentiles. Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status.

Table A.11: Effects on children's non-educational outcomes. Educational decisions sensibility

	Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Father CIC	-0.010	-0.020**	-0.024**	0.027	-0.903	-0.484	-0.041	1.099	1.316
	(0.007)	(0.010)	(0.010)	(0.149)	(0.780)	(0.863)	(0.144)	(0.723)	(0.811)
Father CIC (share)*Parental Secondary			0.012**			-0.890**			-0.542
			(0.005)			(0.390)			(0.350)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	3112	3112	3112	3112	3112	3112	4337	4337	4337
F-Stat(KP)	.	12.96	.	.	12.96	.	.	13.14	.
F(SW)-Father CIC			12.49			12.49			13.67
F(SW)-Father CIC*Parental Secondary			39.1			39.1			36.79

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates only considering individuals aged 25 or more. Robust standard errors clustered at the sector level indicated in parentheses. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

D.4 Alternative instrumental variables

Table A.12: Effects on children's education, employment and wage

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Father CIC	-0.066***	-0.334***	-0.402***	-0.438*	-2.951***	-4.008***	-0.486*	-2.418**	-3.215***	-0.014**	-0.026**	-0.027**	0.217	0.001	0.653	0.020	0.214	0.522*
	(0.019)	(0.121)	(0.125)	(0.236)	(1.099)	(1.349)	(0.245)	(0.974)	(1.045)	(0.006)	(0.013)	(0.012)	(0.162)	(0.957)	(0.828)	(0.119)	(0.252)	(0.286)
Father CIC (share)*Parental Secondary			0.084***			1.306***			0.983***			0.001			-0.917***			-0.381***
			(0.025)			(0.484)			(0.254)			(0.006)			(0.354)			(0.144)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4022	4022	4022	4022	4022	6125	6125	6125
F-Stat(KP)	.	18	.	.	18	.	.	18	.	.	20.23	.	.	20.23	.	.	18.06	.
F(SW)-Father CIC			30.97			30.97			30.97			22.98			22.98			31.04
F(SW)-Father CIC*Parental Secondary			67.56			67.56			67.56			54.96			54.96			67.54

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates instrumenting by the share of chinese imports in high income countries (World Bank definition). Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

Table A.13: Effects on children's education, employment and wage

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Father CIC	-0.066***	-0.349***	-0.417***	-0.438*	-3.267***	-4.369***	-0.486*	-2.590***	-3.336***	-0.014**	-0.031**	-0.033**	0.217	0.165	0.780	0.020	0.648**	1.036***
	(0.019)	(0.115)	(0.123)	(0.236)	(1.096)	(1.411)	(0.245)	(0.908)	(0.969)	(0.006)	(0.014)	(0.014)	(0.162)	(0.944)	(0.855)	(0.119)	(0.304)	(0.340)
Father CIC (share)*Parental Secondary			0.088***			1.450***			0.981***			0.003			-0.932***			-0.512***
			(0.031)			(0.556)			(0.274)			(0.007)			(0.344)			(0.158)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4022	4022	4022	4022	4022	6125	6125	6125
F-Stat(KP)	.	18.54	.	.	18.54	.	.	18.54	.	.	18.46	.	.	18.46	.	.	18.58	.
F(SW)-Father CIC			30.54			30.54			30.54			21.79			21.79			30.57
F(SW)-Father CIC*Parental Secondary			90.51			90.51			90.51			74.66			74.66			90.44

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates instrumenting by the share of chinese imports in middle income countries (World Bank definition). Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

Table A.14: Effects on children's education, employment and wage

	Education (years)			Prob. Secondary (%)			Prob. Tertiary (%)			Wage (log.)			Informality (%)			CCT Reception (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Father CIC	-0.066***	-0.298***	-0.352***	-0.438*	-2.599***	-3.408***	-0.486*	-2.189***	-2.884***	-0.014**	-0.028**	-0.026**	0.217	0.317	0.838	0.020	0.030	0.286
	(0.019)	(0.105)	(0.105)	(0.236)	(0.977)	(1.165)	(0.245)	(0.767)	(0.804)	(0.006)	(0.012)	(0.010)	(0.162)	(0.753)	(0.641)	(0.119)	(0.294)	(0.312)
Father CIC (share)*Parental Secondary			0.079***			1.182**			1.017***			-0.003			-0.822**			-0.376**
			(0.023)			(0.494)			(0.261)			(0.007)			(0.406)			(0.161)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Observations	6107	6107	6107	6107	6107	6107	6107	6107	6107	4022	4022	4022	4022	4022	4022	6125	6125	6125
F-Stat(KP)	.	21.45	.	.	21.45	.	.	21.45	.	.	23.39	.	.	23.39	.	.	21.5	.
F(SW)-Father CIC			29.73			29.73			29.73			27.98			27.98			29.42
F(SW)-Father CIC*Parental Secondary			6.72			6.72			6.72			19.99			19.99			6.45

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates instrumenting by the share of chinese imports in OECD countries. Robust standard errors clustered at the sector level indicated in parentheses. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status. "Parental Secondary" refers to a dummy variable indicating whether the higher educated parent has completed secondary education or higher.

D.5 Children from earlier cohorts

Table A.15: Effects on children's education, employment and wage. Earlier cohorts

	Education (years)		Prob. Secondary (%)		Prob. Tertiary (%)		Wage (log.)		Informality (%)		CCT Reception (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father CIC	0.023	-0.149*	0.425	-1.317	-0.009	-0.164	-0.006	-0.003	-0.393	3.202*	-0.123	0.138
	(0.026)	(0.079)	(0.302)	(1.032)	(0.246)	(0.590)	(0.007)	(0.031)	(0.357)	(1.758)	(0.126)	(0.350)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Born Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Own Sector FE	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Observations	6487	6487	6487	6487	6487	6487	3668	3668	3668	3668	6505	6505
F-Stat(KP)	.	26.53	.	26.53	.	26.53	.	11.92	.	11.92	.	26.45

Source: Own elaboration based on PNAD, UNIDO and Comtrade (United Nations).

Notes: Estimates considering individuals born between 1949 and 1969. Robust standard errors clustered at the sector level indicated in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Tertiary education considers enrollment or completion. Estimates controlling for parental education, child gender and migration status.