Parents' entrepreneurial attitude and its influence on children's educational choices: evidence from Brazil

Área ANPEC: Área 12 – Economia Social e Demografia Econômica

Bruno Benevit[1] Daniel de Abreu Pereira Uhr[2] Júlia Gallego Ziero Uhr[3]

Abstract

This study utilizes the propensity score matching method with survey weights adjustment to identify the effects of the parents' entrepreneurial attitude in children's years of schooling, probability of studying at private schools, and probability of studying at a university (general, public and private). The micro data employed is from the National Household Sample Survey of 2015. The study also presents a series of robustness strategies and heterogeneous treatment effect analysis. Our findings suggests that entrepreneurial parents are more willing to enroll their children in private schools. These effects are greater when both parents are entrepreneurs. The results also indicates that children of entrepreneurial parents are more likely to study at universities, and this effect is mainly directed to private universities. The heterogeneous treatment effect analysis highlights that the gender of the children and entrepreneurial parent impacts the magnitude of the treatment.

Keywords: family structure, human capital, intra-household allocation, entrepreneurship, propensity score matching

Resumo

Este estudo utiliza o método de pareamento por escore de propensão com ajuste de pesos amostrais para identificar os efeitos da atitude empreendedora dos pais nos anos de escolaridade, probabilidade de estudar em escolas particulares e probabilidade de estudar em universidade (geral, pública e privada) dos filhos. Os microdados utilizados são da Pesquisa Nacional por Amostra de Domicílios de 2015. O estudo também apresenta uma série de estratégias de robustez e análise dos efeitos heterogêneos do tratamento. Nossos resultados sugerem que os pais empreendedores estão mais dispostos a matricular seus filhos em escolas particulares. Esses efeitos são maiores quando ambos os pais são empreendedores. Os resultados também indicam que os filhos de pais empreendedores são mais propensos a estudar em universidades, e este efeito é direcionado principalmente para universidades privadas. A análise do efeito do tratamento heterogêneo destaca que o gênero dos filhos e do pai empreendedor impacta na magnitude do tratamento.

Palavras-chave: estrutura familiar, capital humano, alocação intrafamiliar, empreendedorismo, pareamento por escore de propensão

JEL: J12, J24, L26

Authors are grateful to Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) of Brazil for providing partial financial support for this study.

[1] Department of Economics, Federal University of Pelotas - UFPel. Address: Street Gomes Carneiro, 1, Campus Porto, Pelotas, RS, Brazil, ZIP code: 96010-610. E-mail: bruno.benevit@gmail.com, https://orcid.org/0000-0002-6234-6491.
[2] Department of Economics, Federal University of Pelotas - UFPel. Address: Street Gomes Carneiro, 1, Campus Porto, Pelotas, RS, Brazil, ZIP code: 96010-610. E-mail: daniel.uhr@gmail.com, https://orcid.org/0000-0001-8370-0317.
[3] Department of Economics, Federal University of Pelotas - UFPel. Address: Street Gomes Carneiro, 1, Campus Porto, Pelotas, RS, Brazil, ZIP code: 96010-610. E-mail: zierouhr@gmail.com, https://orcid.org/0000-0003-4981-848X.

1. Introduction

Entrepreneurship is understood as a determining factor for the economic development of society, driving the creation of jobs, innovation, and reduction of inequalities (Gries and Naudé, 2010; Kimhi, 2010; Naudé, 2010). However, the flourishing of initiatives of this nature depends on the quality of institutions, credit lines, reduction of bureaucracy, and social context (Anderson and Jack, 2002; Bosma *et al.*, 2018; Elam and Terjesen, 2010; Terjesen and Amorós, 2010). Individual preferences explain part of the choice to undertake a business, where the profile of entrepreneurs is usually less averse to risk (Brachert, Hyll, and Sadrieh, 2020; Caliendo, Fossen and Kritikos, 2009; Wickstrøm, Klyver, and Cheraghi-Madsen, 2020). Depending on the gender of the individual, the entrepreneurial attitude may be motivated by different reasons (Bönte and Piegeler, 2013; Caliendo *et al.*, 2014; Fossen, 2012). The social context of individuals is an essential aspect of entrepreneurship (Anderson and Jack, 2002; Korsgaard and Anderson, 2011). At the same time, the social background is also a relevant factor in the accumulation of human capital (Guimarães and Sampaio 2013; Heckman 2008; O. A. Johnson and Heringer 2015; Sahoo 2017), potentially affecting both cognitive and noncognitive skills (Cunha, Heckman, and Schennach, 2010).

In this sense, the entrepreneurial attitude of the heads of a family can affect other family members in various ways, for example, regarding the children's choice of undertaking the family business (Caballero, 2017; Honig and Davidsson, 2000; Parker, 2004), and also the level of the children's human capital (Brandt *et al.*, 2017; Gevrek and Gevrek, 2010; Parikh and Sadoulet, 2005; Randerson *et al.*, 2015). This study aims to evaluate the impact of parents' entrepreneurial attitude on their children's education. With the development of new ethical and work values arising from their employment status (Anderson and Smith, 2007; Korsgaard and Anderson, 2011), the entrepreneurial experience can potentially influence the noncognitive skills of parents and, consequently, their children (M. K. Johnson 2002; Mortimer and Kumka 1982; Cunha, Heckman, and Schennach 2010; Heckman 2008). Thus, we analyze whether children of entrepreneurs reach higher levels of education and if there is a predilection for public or private education.

We employed microdata from the National Household Sample Survey (PNAD) of the Brazilian Institute of Geography and Statistics (IBGE) for 2015. This dataset allows us to identify the characteristics of Brazilian families. We identify each member of the household, whether the heads of the family are entrepreneurs and the educational situation of the children. The 2015 PNAD is a secondary database with a complex sample structure. Thus, to achieve our goal, we employ the *propensity score matching* (PSM) method utilizing the sample weights adjustment for complex samples (Austin, Jembere, and Chiu, 2016). We estimate the influence of parents' entrepreneurial attitude on different educational metrics of the children, considering the presence of an entrepreneurial head of the family or entrepreneurial spouse of the head of the family as the treatment. As a robustness strategy, we conduct the Placebo test, Propensity Score Weighting (PSW), Entropy Balancing, Heterogeneous Treatment Effect (HTE) analysis, and the Rosenbaum sensitivity analysis.

The results indicate that underage children of entrepreneurial parents are more likely to attend private schools, but no impact is identified on those children's schooling years. Children of entrepreneurial parents are also more likely to study at universities, which is majorly driven by enrollment at private universities. The robustness strategies corroborate the results found. This study is important for at least three reasons. First, due to the gap and dissident evidence that relates the parents' entrepreneurial labor conditions and the children's human capital in the literature. Second, this study provides evidence of the influence of parents' work background in deciding which type of school their children are enrolled in. Third, the results can help develop future public policies for educational and entrepreneurial areas.

The remainder of this paper is organized as follows. Section two reviews the literature. Section three presents the database and the variables' construction details. Section four depicts the method utilized. Section five presents the results. Section six describes the robustness strategy and presents its results. Finally, section seven concludes this study.

2. Literature Review

2.1. Entrepreneurship in emerging economies and its social framework

Entrepreneurship is a means for economic growth and social transformation for countries and families (Bosma *et al.*, 2018; Coulibaly, Erbao, and Metuge Mekongcho, 2018; Naudé, 2010). The literature also highlights that entrepreneurship can impact different magnitudes depending on the countries' per capita income and development. (Stel, Carree, and Thurik, 2005; Wennekers *et al.*, 2005).

There are several perspectives on understanding the term entrepreneur in the literature: analyzing what motivates the decision to undertake a business, dividing them into entrepreneurs by opportunity and entrepreneurs by necessity (Elam and Terjesen, 2010; Terjesen and Amorós, 2010), or observing potential entrepreneurs as nascent entrepreneurs (Bönte and Piegeler, 2013; Verheul *et al.*, 2012; Wennekers *et al.*, 2005). According to Cressy (1992), entrepreneurs by opportunity follow a line of analysis of costs and gains along with entrepreneurial activity, which is associated with a learning process through experience. The concept of entrepreneurship by necessity can be understood as an entrepreneurial attitude on the part of the individual driven by survival in response to some kind of economic insufficiency (Fajnzylber, Maloney and Rojas, 2006; Gries and Naudé, 2010; Larsson and Thulin, 2019; Terjesen and Amorós, 2010). In a less restricted way, other authors consider self-employed workers as entrepreneurs, differentiating those from waged and salaried employees (Caliendo et al. 2014; Fossen 2012; Gindling and Newhouse 2014; Verheul et al. 2012).

The literature shows that entrepreneurship by opportunity, focused on resolving a specific market problem, tends to occur more frequently in developed economies (Fajnzylber, Maloney, and Rojas, 2006; Terjesen and Amorós, 2010). On the other hand, developing countries commonly report higher rates of entrepreneurs compared to developed countries (Amorós and Cristi, 2011; Larsson and Thulin, 2019; Terjesen and Amorós, 2010), establishing a solid relationship with activities with lower industrial productivity (Fajnzylber, Maloney and Rojas, 2006; Terjesen and Amorós, 2010). According to the report conducted by GEM[4] in 2012, total entrepreneurial activity (TEA) rates for the Latin American region have a 15% share for women and 19% for men, while the rates in the developed European countries and the USA are 5% and 10% for women, and 9% and 15% for men, respectively. Other authors point out that women's lower preference for becoming entrepreneurs may be related to discrimination or unfavorable initial conditions (Terjesen and Amorós, 2010; Verheul *et al.*, 2012).

The difference between entrepreneurs and other groups may be related to risk aversion, with the lower risk aversion of the entrepreneurs being one of their most established characteristics in the literature (Bönte and Piegeler, 2013; Brachert, Hyll and Sadrieh, 2020; Caliendo *et al.*, 2014; Fossen, 2012; Mahfud *et al.*, 2020). Risk aversion is also related to the gender of the entrepreneurial person (Bönte and Piegeler, 2013; Caliendo *et al.* , 2014; Fossen, 2012; Verheul *et al.* , 2012). While entrepreneurs commonly devote more hours in the workday (Binder and Coad 2013), they present greater commitment to their current form of employment and demonstrate more appreciation for autonomy and competence. The entrepreneurial activity can also develop specific management and sector activities skills, potentially enhancing behaviors such as proactive attitude, responsible behavior, and task monitoring (Anderson, Drakopoulou-Dodd, and Scott 2000; Anderson and Smith 2007; Dunn and Holtz-Eakin 2000; Korsgaard and Anderson 2011). According to Anderson and Jack (2002), a process develops social capital through entrepreneurship through rules and labels that form and facilitate the functioning of social network structures. Additionally, entrepreneurs must develop social proficiencies to build high levels of trust and credibility with influential social ties and develop personal ties into firm-level relationships and negotiating (Anderson and Jack, 2002; Tocher *et al.*, 2012).

[4] Global entrepreneurship monitor 2012 women's report.

2.2. Human capital, parents, and educational institutes in Brazil

The importance of human capital for developing wealth and social and cognitive capabilities are vastly documented across the literature (Curi and Menezes-Filho 2014; Hansen, Heckman, and Mullen 2004; Cunha, Heckman, and Schennach 2010; Dizon-Ross 2019). Human capital inequality exerts a direct positive effect on income inequality (Castelló-Climent and Doménech, 2021). Further, several economic and social problems are linked with low levels of human capital, entailing crime, teenage pregnancy, high school dropout, and adverse health conditions (Heckman 2008).

Heckman (2008) addresses human capital as a set of cognitive (IQ and test scores) and noncognitive abilities (perseverance, motivation, time preference, risk aversion, self-esteem, self-control, and preference for leisure). The author emphasizes the importance of family background in human capital development and highlights that children's early environments are critical to their adulthood outcomes. The parents' education, time involvement, and marital status are determinants of the formation of individuals' human capital (Heckman 2008; Hansen, Heckman, and Mullen 2004; Dizon-Ross 2019; Brandt et al. 2017; Guryan, Hurst, and Kearney 2008). Dizon-Ross *et al*. (2018) demonstrate that parents with better socioeconomic means have a better perception regarding investing in their children's education. Ural Marchand *et al.* (2013) show that an increase in the number of working hours of mothers in India causes an increase in the education of their children between 7 and 10.

Education metrics such as years of schooling or the highest education degree completed (primary, secondary or tertiary education) are standardly utilized to quantify the human capital of individuals (Castelló-Climent and Doménech 2021; Castelló-Climent and Doménech 2021; Psacharopoulos and Patrinos 2018; Heckman 2008; Hansen, Heckman, and Mullen 2004). Controlled by individuals' latent level of ability, Hansen, Heckman, and Mullen (2004) identifies that schooling increases achievement test scores and is approximately linear across schooling levels. The returns associated with education in low-income and middle-income countries are generally high (Psacharopoulos and Patrinos, 2018; Manacorda, Sanchez-Paramo, and Schady, 2010). At the same time, such countries present high child labor rates (Brandt et al. 2017; Kis-Katos 2012; de Carvalho Filho 2012).

According to Psacharopoulos and Patrinos (2018), Latin America has the world's highest average private education returns. Utilizing microdata from five Latin American countries over the 1980s and 1990s, Manacorda, Sanchez-Paramo, and Schady (2010) identify that each additional year of schooling incurs a 10 to 20 percent increase in wages and that individuals that completed secondary education are 83% higher than those having completed primary education. In contrast, the school enrollment for children in Brazil is historically low, strongly correlated with high child labor rates, and presents worse child labor statistics than in other Latin American countries (de Carvalho Filho 2012).

As education provides long-term returns, parents face an investment decision when choosing which school to enroll their children in (Dizon-Ross 2019; Cunha, Heckman, and Schennach 2010). Therefore, the quality of the school is an essential factor in this investment decision-making (Sahoo 2017; Hanushek et al. 2007). Developing countries present significant differences in educational achievements between public and private schools (Cox and Jimenez, 1990; Fuchs and Wößmann, 2007; Singh, 2015). This difference is also perceived in Brazil (Cavalcanti, Guimaraes, and Sampaio 2010; Oliveira, Belluzzo, and Pazello 2013; Curi and Menezes-Filho 2013). Curi and Menezes-Filho (2010) identify that the mother's education, family income, the provision of public schools, the cost of education in the state, and the region where they live are the main factors that motivate parents to enroll their children in private schools in Brazil. In a survey conducted for schools in the state of São Paulo, Curi and Filho (2013) show that a 10% increase in the monthly fees of private schools represents a 1.1% improvement in students' National High School Exam (ENEM)[5] scores. Cavalcanti, Guimaraes and Sampaio (2010) identifies that students from private schools perform better in public university admission tests, plus identifying even greater difficulties in entering highly competitive courses for students from public schools.

[5] Similarly to Scholastic Aptitude Test (SAT), ENEM is widely used as a university admission test in Brazil.

Regarding the higher education institutes (HEI) in Brazil, public institutes present better quality indicators than private institutes on average, while private institutes present a higher dispersion of their quality indicators (Hoffmann et al. 2014; O. A. Johnson and Heringer 2015). Such logic is different when only considering business courses[6]. Moreover, public universities tend to be located in capital cities or metropolitan areas, while private universities are more dispersed[7], especially in countryside municipalities. Although public universities in Brazil have no tuition fees, historically, the students of these HEIs were majorly high-income white individuals (O. A. Johnson and Heringer 2015). However, adopting affirmative actions and fellowship programs for low-income students drastically changed this scenario (O. A. Johnson and Heringer 2015).

2.3. Parents' entrepreneurial attitude on children's human capital

Several authors demonstrate that the parents' occupational choice can potentially influence the investment in their children's education (Heckman 2008; Mortimer and Kumka 1982; Dunn and Holtz-Eakin 2000). The entrepreneurial attitude could influence the parents' perception of education returns through new values from their employment status and work background (Anderson and Smith, 2007; Johnson, 2002; Korsgaard and Anderson, 2011; Mortimer and Kumka, 1982). For example, the noncognitive skills of entrepreneurial parents could potentially affect children's education in two ways: i) through the personality of parents (Checchi, Fiorio, and Leonardi, 2014), where parents who are more risk averse have a lower propensity to invest in the higher education of their dependent children; and ii) through risk aversion of the children themselves (Belzil and Leonardi, 2007, 2013), granted that parents shape their children's noncognitive preferences (Heckman 2008), they could be more likely to attend higher education.

The evidence related to the effects of entrepreneurial parents on the accumulation of children's human capital is divergent. Regarding the human capital of school-age children, Parikh & Sadoulet (2005) identified that, in Brazil, children of self-employed parents in urban areas are more likely to work. However, no reduction in school attendance was identified. Analyzing family businesses, Marchisio *et al.* (2010) indicate that corporate business initiatives increase the human capital of family members of the next generation.

Brandt *et al*. (2017) found positive effects on attending the school of daughters of non-agricultural entrepreneurs in a study conducted in Tanzania, indicating heterogeneous effects based on children's gender. However, Gevrek and Gevrek (2010) identify that children of self-employed workers in Turkey showed a reduction in both intention and finishing of their college studies.

3. Data

The database used is the National Household Sample Survey (IBGE/PNAD) for 2015. The PNAD-2015[8] presents 356,904 observations, distributed in 117,939 households throughout Brazil, and contains demographic and socioeconomic variables. The database is representative of the Brazilian population through a complex survey design. Complex surveys employ a stratified cluster sampling technique. The target population is split into mutually exclusive strata, and each stratum is divided into clusters. In the case of nationally representative surveys, such strata can represent geographical regions of the country, while each stratum may represent municipalities or other geographic regions.

---

[6] According to the Preliminary Course Concept of 2018 ("*Conceito Preliminar de Curso contínuo para 2018"* – CPC 2018), the nine best rated courses in administration and economic sciences in Brazil were in private education institutions. In addition, 46 of the top 50 rated management courses in Brazil are also taught by private education institutions.

[7] According to CPC 2018, there are 381 municipalities in Brazil with public education institutions and 665 municipalities with private education institutions.

[8] The microdata from PNAD 2015 can be obtained directly from the website:
https://www.ibge.gov.br/estatisticas/sociais/rendimento-despesa-e-consumo/9127-pesquisa-nacional-por-amostra-de-domicilios.html?=&t=downloads

Regarding the sample of subjects, they are randomly selected from each cluster, which is randomly selected from each stratum. A sampling weight is related to each sampled subject and indicates the number of subjects in the target population represented by the sampled subject. Thus, it is required to incorporate the sampling weights into the analyses to estimate population standard errors and confidence intervals (Austin, Jembere, and Chiu, 2016). In order to homogenize our sample, we removed from the sample households where at least one of the parents was a statutory civil servant[9] or in the armed forces. We constructed two samples, one for children under 18 and another for children between 18 and 30 years old.

The five outcome variables were constructed as follows: (i) *YearsSchooling* indicates the years of schooling of the children; (ii) *PrivateSchool* indicates if the child studies at a private school (primary or secondary education); (iii) *AnyUniversity* indicates if the children studies at a university; (iv) *PublicUniversity* indicates if the children studies at a public university; and (v) *PrivateUniversity* indicates if the children studies at a private university. The variables (i) and (ii) were constructed for the sample with children aged under 18 years, while the variables (ii), (iv), and (v) were constructed for the sample with children aged between 18 and 30 years.

We consider entrepreneur employers and self-employed workers with active company registration (*"Cadastro Nacional de Pessoas Jurídicas"* - CNPJ) (Caliendo et al. 2014; Fossen 2012; Verheul et al. 2012; Gindling and Newhouse 2014). We create one treatment variable that indicates whether there is at least one entrepreneur in the reference couple of the household (*EntrepreneurialParent*). PNAD individuals are identified by kinship with the head of the family. We consider the head of the family and the spouse of the head of the family (reference couple) as parents.

Regarding the covariates, we create specific variables for children and households. For the children's covariates: *Gender* assumes a value of 1 for men and 0 for women; *Age* indicates the age; *Race* assumes a value of 1 if the individual is white or yellow, and zero otherwise; *Marriage* indicates if the individual lives with a spouse; *Migration* indicates if the individual was born in the municipality of the household. The variables *Gender, Age, Race, Marriage,* and *Migration* follow the same logic for the characteristics of the head of the family (*HeadGender, HeadAge, HeadRace, HeadMarriage,* and *HeadMigration*). We create five education level covariates for the reference person: the covariable *HeadEducation1* indicates if the head of the family has not completed elementary school; the covariable *HeadEducation2* indicates if the head of the family has completed elementary school or not finished high school; the covariable *HeadEducation3* indicates if the head of the family has completed high school or incomplete higher education, and the covariable *HeadEducation4* indicates the head of the family has a complete higher education. Furthermore, we construct general household variables: *Siblings* indicates the number of siblings in the household; *Residents* indicates the number of people in the household; *OwnDweling* indicates if the dwelling is owned. We create four covariates to identify the household income level: the covariable *IncomeLevel1* indicates if the household income per person is equal to or below ½ minimum wage, the covariable *IncomeLevel2* indicates if the household income per person is between ½ and one minimum wage, the covariable *IncomeLevel3* indicates if the household income per person is between 1 and 3 minimum wage, and the covariable *IncomeLevel4* indicates if the household income per person is above three minimum wage. Finally, we consider the indicative variables: *Metropolitan* indicates if the household is in the metropolitan region; *Urban* indicates if the household is in the urban region; the geographical region of Brazil (*North, Northeast, Midwest, Southeast,* and *South*); and the 27 federal units of Brazil (*FederalUnit*).

The mean and the standard deviation of the variables used in this study are arranged in Table 1, considering the groups (treated and control) and the total samples. The sample weights weighted the covariate statistics. Observations with missing data on any of the covariates were disregarded. The sample for children under 18 years old has 69,212 observations, of which 6,302 are children of entrepreneurs (9.2%). The sample for children between 18 and 30 years old presents 2,878 children of entrepreneurs, representing 9.1% of the 31,445 total observations.

[9] Statutory civil service positions are permanent work posts in Brazil.

Table 1 – Descriptive Statistics

Variables	Children under 18 years old						Children between 18 and 30 years old					
	Treated		Control		Sample		Treated		Control		Sample	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Outcome Variables												
YearsSchooling	3.221	3.409	2.976	3.276	2.999	3.291						
PrivateSchool	0.265	0.432	0.069	0.254	0.088	0.283						
AnyUniversity							0.340	0.461	0.151	0.358	0.169	0.374
PublicUniversity							0.075	0.257	0.039	0.193	0.042	0.201
PrivateUniversity							0.265	0.430	0.112	0.315	0.127	0.332
Treatment Variable												
EntrepreneurialParent	1.000	0.000	0.000	0.000	0.095	0.294	1.000	0.000	0.000	0.000	0.096	0.293
Covariates												
Gender	0.515	0.490	0.513	0.502	0.513	0.501	0.553	0.484	0.567	0.495	0.565	0.494
Race	0.644	0.469	0.407	0.494	0.430	0.496	0.654	0.463	0.428	0.494	0.449	0.495
Age	9.132	5.022	9.207	5.141	9.200	5.130	22.461	3.385	22.700	3.634	22.677	3.610
Marriage	0.000	0.017	0.002	0.046	0.002	0.44	0.038	0.186	0.063	0.242	0.060	0.237
Migration	0.846	0.354	0.840	0.368	0.841	0.367	0.757	0.417	0.785	0.410	0.783	0.411
HeadGender	0.749	0.425	0.632	0.485	0.643	0.480	0.733	0.431	0.545	0.497	0.563	0.494
HeadRace	0.580	0.483	0.357	0.481	0.378	0.486	0.639	0.468	0.397	0.488	0.420	0.492
HeadAge	40.409	7.883	38.614	9.305	38.785	9.190	50.971	6.981	51.834	8.910	51.752	8.740
HeadMarriage	0.064	0.240	0.202	0.403	0.188	0.392	0.138	0.336	0.341	0.473	0.322	0.465
HeadMigration	0.497	0.490	0.534	0.501	0.530	0.500	0.431	0.482	0.459	0.498	0.457	0.496
HeadEducation1	0.172	0.370	0.452	0.500	0.425	0.496	0.253	0.423	0.558	0.496	0.529	0.497
HeadEducation2	0.146	0.346	0.193	0.397	0.189	0.392	0.152	0.350	0.148	0.354	0.148	0.354
HeadEducation3	0.451	0.487	0.298	0.460	0.313	0.465	0.385	0.474	0.229	0.419	0.244	0.428
HeadEducation4	0.230	0.412	0.057	0.232	0.073	0.261	0.210	0.396	0.066	0.248	0.080	0.270
Siblings	1.046	0.900	1.454	1.365	1.415	1.331	1.027	0.879	1.211	1.248	1.193	1.217
Residents	4.107	1.052	4.432	1.550	4.401	1.511	4.175	1.177	4.379	1.691	4.360	1.648
OwnDwelling	0.750	0.424	0.675	0.471	0.682	0.467	0.848	0.349	0.818	0.385	0.821	0.382
IncomeLevel1	0.094	0.286	0.528	0.502	0.487	0.501	0.040	0.192	0.289	0.454	0.266	0.441
IncomeLevel2	0.265	0.433	0.305	0.463	0.301	0.460	0.178	0.374	0.340	0.474	0.325	0.468
IncomeLevel3	0.474	0.490	0.150	0.359	0.180	0.386	0.537	0.488	0.331	0.471	0.350	0.476
IncomeLevel4	0.167	0.366	0.017	0.130	0.031	0.174	0.244	0.420	0.040	0.197	0.059	0.236

Note: This table reports the means and standard deviation of the treated, controls, and all observations from both samples. The sample weight adjusts all descriptive statistics. The first three columns report the sample's descriptive statistics for children under 18 years. The last three columns present the sample's descriptive statistics for children between 18 and 30. The variables of regions and federative units were omitted due to space.

4. Method

In this work, we want to test the effect of parents' entrepreneurial attitudes on their children's education in Brazil. We can model the relationship in the econometric specification as follows:

$$Y_i = \alpha + \beta T_i + \gamma X_i + \varepsilon_i \quad (1)$$

where Y_i represents one of the five possible outcome variables (*YearsSchooling*, *PrivateSchool*, *AnyUniversity*, *PublicUniversity*, *PrivateUniversity*). The treatment variable T_i represents the existence of an entrepreneurial parent (*EntrepreneurialParent)*, a binary variable that indicates if there is at least one entrepreneur on the household's reference couple. The vector X_i represents all covariates with characteristics of children, parents, and household. Finally, ε_i represents the stochastic term.

It is only possible to identify the influence of parents' entrepreneurial attitude on their children if we eliminate the sources of bias. The direct comparison between treatment and control groups would be enough under a random experiment. However, we cannot assume that the parents' entrepreneurship choice occurs randomly. Thus, the control group could not be comparable to the counterfactual group in observational studies, creating sources of bias in the estimates.

In order to approximate our analysis to a random experiment, we utilize the matching methods approach to eliminate any source bias. Consider the potential outcomes framework proposed by Rosenbaum and Rubin (1983). Each child *i* has a pair of possible outcomes, $Y_i(0)$ and $Y_i(1)$. The individual cannot be in both conditions at the same time. The influence of parents' entrepreneurial attitudes cannot be estimated directly at the individual level. Therefore, we estimate the Average Treatment Effect on Treated (ATT), $E[Y_i(1) - Y_i(0)|T_i = 1]$. The idea of a matching method is to construct a control group similar to the treatment group in the observable variables, and it has two assumptions. First, the observable selection hypothesis assumes that observable variables contain all the information participation in the treatment group. Second, the common support hypothesis asserts that individuals in the treatment group have at least one pair in the control group. Rosenbaum and Rubin (1983) suggest that a function of vector X can summarize all the information contained in vector X and maintain the orthogonality of the treatment variable. In formal terms:

$$(Y_i(1), Y_i(0)) \perp T_i|p(X) \quad (2)$$

Conditional on the propensity score $p(X)$By approximating the characteristics of children, parents, and household between the treatment and control groups, matching methods enables the identification of a proper counterfactual for children of entrepreneurial parents. Thus, only the treatment assignment will differentiate both groups.

As PNAD-2015 presents a complex sample structure, this study employs the sample weights in the analysis. Using the sample weights allows the estimation of the Populational Average Treatment Effect on Treated - PATT (DuGoff, Schuler, and Stuart, 2014; Ridgeway et al., 2015; Austin, Jembere, and Chiu, 2016). According to Ridgeway et al. (2015), using sample weights results in treatment effect estimates with the lowest root mean squared error and better fit regarding the balance of the covariates among various scenarios. The authors also warn of the risks of not incorporating the sample weights if they involve unavailable variables to estimate the propensity score. Therefore, this study follows the recommendations of Austin, Jembere, and Chiu (2016), who propose that the survey weights should weight propensity score methods on both treatment and control groups.

According to King and Nielsen (2019), the Propensity Score Methods (PSM) can provide non-robust estimates under certain circumstances, resulting in a "propensity score paradox." The authors recommend potentially more robust methods like Mahalanobis Distance Method (MDM) that directly approach the covariate difference between the treatment and control group. The MDM works by pairing nearby units based on the Mahalanobis distance, a non-scaling Euclidean distance. By finding control subjects close to the treated subjects within the Mahalanobis distance, each pair will have similar covariate values. Conversely, Ripollone et al. (2018) argue that the paradox may occur with some data, but it is not

problematic when the pre-matched sample presents a high imbalance. Additionally, while the PSM provided an excellent balance in the covariates, MDM produced a poor balance in the dataset tested by the authors. As there is no preferable method, we will test both MDM and PSM estimators.

5. Results

The analysis starts by estimating the propensity scores for both samples through a Probit model. The propensity scores are estimated considering the presence of an entrepreneurial parent on the reference couple of the household (*EntrepreneurialParent*) as a first stage function of the covariates[10]. The propensity score distribution for both samples was estimated to find a common support region[11]. The distribution of the propensity scores is in Table 2.

Table 2 – Distribution of propensity scores of children

Sample	Mean	Min.	Max.	Observ.	Off support	On support
A. Sample Children under 18						
Treated	0.250	0.001	0.746	6,084	10	6,070
Untreated	0.073	0.000	0.686	62,031	0	62,031
All children	0.089	0.000	0.746	68,115	10	724
B. Sample Children between 18-30						
Treated	0.228	0.001	0.744	2,730	4	2,726
Untreated	0.076	0.000	0.705	27,835	0	27,835
All children	0.090	0.000	0.744	30,561	4	30,561

Notes: Panel A presents the sample's propensity score distribution for children under 18. Panel B presents the sample's propensity score distribution for children between 18 and 30. The means, minimum and maximum values of propensity score distributions are reported in the first three columns. The last three columns present the number of children, the number of children off support region, and the number of children on support region in each sample group.

Table 2 shows that the region of common support for children under 18 sample lies within the interval 0.001 – 0.686, and for children between 18 and 30 lies in the interval 0.001 – 0.705. Thus, children whose propensity score is outside those intervals for their respective sample are not considered (off support) in the matching (Caliendo and Kopeinig 2008).

We analyze the MDM and the different metrics of the PSM matching algorisms. We adopted the selection criteria suggested by Dehejia and Wahba (2002) based on Pseudo-R2, the balancing test, and the size of the matched sample of each compatibility algorithm. Therefore, it is preferable to match algorisms with good balance in its covariates (low pseudo-R2) and a larger sample size. Finally, the likelihood ratio-Chi2 and its p-value[12] are also considered. Table 4 report such statistics for each matching algorism tested.

The p-value of the insignificant likelihood ratio test in Table 3 indicates that the PSM Kernel estimators present the best covariate balance for both samples, with the Kernel Epanechnikov algorithm presenting the best fit overall. To improve the robustness of the results, we utilize each kernel algorithm in the analysis: (i) Kernel Gaussian, (ii) Kernel Biweight, (iii) Kernel Tricube, (iv) Kernel Epanechnikov, and (vi) Kernel Uniform.

Table 4 presents the balance of the covariates between the treated and control groups for both samples (Kernel Epanechnikov algorithm). The balance of the covariates presents the means of treatment and control groups, the standardized percentage of bias between the means, the percentage of bias reduction (after the matching), and the p-value indicating the statistical difference between the groups' mean. The results for both samples before the matching show that most covariates are significantly different between groups (p-value<0.001), indicating that the control group is not comparable to the treatment group due to their difference in observable characteristics. Considering the sample of children under 18 years (Panel A), only the covariates Gender, Age, and Migration are similar in means before the matching (p-value>0.1. For

[10] The results of the Probit estimates are available upon request.

[11] Common support is the region where the propensity score of the treatment and control groups overlaps.

[12] The insignificant likelihood ratio test indicates if treated and untreated children have the same distribution in the covariates after matching.

the sample of children between 18 and 30 years (Panel B), only the covariates Gender and HeadEducation2 are similar in means before the matching (p-value>0.1). Therefore, it is not appropriate to analyze this case without considering such a source of bias in the econometric model.

Table 3 – Performance criteria of matching algorisms

Matching algorism	Pseudo-R2	Sample size	LR-Chi2	p>Chi2
A. Sample Children under 18				
Mahalanobis	0.020	68,115	331.66	0.000
Nearest neighbor	0.002	68,110	41.03	0.717
Caliper	0.002	68,110	41.03	0.717
Radius	0.002	68,110	26.01	0.994
Kernel – Gaussian	0.002	68,110	29.07	0.982
Kernel – Biweight	0.002	68,110	26.19	0.994
Kernel – Tricube	0.002	68,110	26.20	0.994
Kernel - Epanechnikov	0.002	68,110	26.07	0.994
Kernel – Uniform	0.002	68,110	26.01	0.994
B. Sample Children between 18-30				
Mahalanobis	0.020	30,565	154.08	0.000
Nearest neighbor	0.007	30,561	54.17	0.220
Caliper	0.007	30,560	54.15	0.220
Radius	0.002	30,560	13.59	1.000
Kernel - Gaussian	0.002	30,561	14.29	1.000
Kernel - Biweight	0.002	30,560	13.51	1.000
Kernel - Tricube	0.002	30,560	13.51	1.000
Kernel - Epanechnikov	0.002	30,560	13.45	1.000
Kernel - Uniform	0.002	30,560	13.59	1.000

Notes: This table reports the performance criteria for matching algorisms. All matching algorisms consider 58 covariates. All PSM models are weighted by sample weight during propensity score estimation. The nearest neighbor estimator considers one neighbor. The caliper estimator considers a caliper of 0.01. The Radius estimator considers a bandwidth of 0.01. The likelihood ratio test (LR-Chi2) and the p-value associated (p>Chi2) are calculated for the matched sample.

The results in Table 4 show that after applying the PSM Kernel (Epanechnikov) method, the majority of the covariates in both samples are similar in means (p-value>0.1). Every covariate in the sample for children under 18 years shows no statistical difference in the means between the treated and control groups (p-value>0.1), except for HeadEducation2 (p-value>0.08). The same occurs for children between 18 and 30 years, with only the covariate HeadEducation4 presenting a p-value<0.1 (p-value>0.09). Thus, the treated and control groups are comparable in both samples as all of the observable characteristics present a p-value>0.05 after the matching procedure.

Table 4 – Covariates balance test

Covariates	Before matching			After matching		
	Mean		P-value	Mean		P-value
	Treated	Control		Treated	Control	
A. Sample children under 18						
Gender	0.513	0.513	0.904	0.517	0.514	0.723
Race	0.639	0.406	0.000	0.609	0.615	0.531
Age	9.094	9.200	0.162	9.177	9.097	0.393
Marriage	0.000	0.002	0.000	0.000	0.000	0.712
Migration	0.848	0.840	0.164	0.843	0.839	0.486
HeadGender	0.750	0.631	0.000	0.733	0.741	0.356
HeadRace	0.573	0.356	0.000	0.549	0.551	0.818
HeadAge	40.320	38.588	0.000	40.328	40.386	0.709
HeadMarriage	0.064	0.202	0.000	0.069	0.068	0.790
HeadMigration	0.494	0.534	0.000	0.485	0.475	0.250
HeadEducation1	0.176	0.452	0.000	0.172	0.172	0.985
HeadEducation2	0.148	0.194	0.000	0.153	0.141	0.081

HeadEducation3	0.454	0.298	0.000	0.453	0.459	0.506
HeadEducation4	0.222	0.056	0.000	0.222	0.227	0.502
Siblings	1.043	1.450	0.000	1.042	1.018	0.179
Residents	4.100	4.425	0.000	4.101	4.084	0.392
OwnDwelling	0.746	0.673	0.000	0.754	0.753	0.943
IncomeLevel1	0.094	0.528	0.000	0.098	0.100	0.689
IncomeLevel2	0.266	0.305	0.000	0.268	0.263	0.529
IncomeLevel3	0.474	0.150	0.000	0.463	0.471	0.380
IncomeLevel4	0.166	0.017	0.000	0.171	0.166	0.455
B. Sample children between 18 and 30						
Gender	0.557	0.567	0.358	0.557	0.559	0.855
Race	0.649	0.423	0.000	0.610	0.623	0.352
Age	22.686	22.433	0.001	22.463	22.443	0.828
Marriage	0.038	0.062	0.000	0.042	0.043	0.850
Migration	0.757	0.786	0.003	0.756	0.744	0.315
HeadGender	0.739	0.545	0.000	0.727	0.731	0.706
HeadRace	0.631	0.392	0.000	0.591	0.606	0.267
HeadAge	50.883	51.768	0.000	50.935	50.902	0.873
HeadMarriage	0.134	0.342	0.000	0.143	0.141	0.760
HeadMigration	0.427	0.461	0.002	0.409	0.405	0.782
HeadEducation1	0.258	0.560	0.000	0.246	0.250	0.737
HeadEducation2	0.155	0.148	0.378	0.153	0.145	0.404
HeadEducation3	0.385	0.228	0.000	0.403	0.389	0.282
HeadEducation4	0.202	0.064	0.000	0.197	0.216	0.094
Siblings	1.025	1.209	0.000	1.014	1.001	0.628
Residents	4.177	4.373	0.000	4.169	4.171	0.970
OwnDwelling	0.847	0.818	0.000	0.847	0.850	0.737
IncomeLevel1	0.040	0.289	0.000	0.046	0.047	0.826
IncomeLevel2	0.178	0.340	0.000	0.175	0.180	0.661
IncomeLevel3	0.538	0.331	0.000	0.531	0.535	0.817
IncomeLevel4	0.243	0.040	0.000	0.247	0.238	0.442

Notes: This table reports the means of treatment and control groups before and after matching for PSM (Kernel Epanechnikov) and the p-value for the mean difference test. The first three columns report the results before matching. The last three columns report the results after matching. Panel A presents the covariates balance of the sample for children under 18 years. Panel B presents the covariates balance of the sample for children aged between 18 and 30 years. The samples before matching, consider the sample weights. The variables of regions and federative units were omitted for space considerations.

The magnitude of parents' entrepreneurial attitude toward children's education is reported in Table 5. Column 1 presents the results for the years of schooling for children aged under 18 years for all models. None of the coefficients are statistically significant for this outcome variable, indicating an absence of effect of the parents' entrepreneurial occupational choice in children's years of schooling. Column 2 presents the results for the probability of studying in a private school for children under 18 years. Under-age children of entrepreneurial parents present an increase between 5.3 and 5.7 percentage points (p.p.) in the probability of studying at a private school (p-value<0.01). Column 3 presents the probability of studying at any university for children aged between 18 and 30 years. The results of all models present a five p.p. increase in the probability of studying at a university (p-value<0.01). Columns 4 and 5 present the results for the probability of studying at a public and a private university for children aged between 18 and 30 years, respectively. The probability of studying at a private university is responsible for a 4.3 p.p. increase (p-value<0.01) of the chance of studying at any university. The results also present no statistically significant influence on the probability of studying at a public university.

Compared to the average outcome variable for children in the control group, children of entrepreneurial parents show a probability of studying approximately 25% higher. Children of entrepreneurial parents present a statistically significant increase of approximately 17% and 20% in the probabilities of studying at any university compared to the children in the control group.

There are several possible theoretical explanations for the results found. Entrepreneurial parents could have a distinct perception of the returns of the investment in their children's education (Dizon-Ross, 2019), resulting in a higher probability of their children studying in private schools. This behavior may be related to values developed during their professional trajectory (Anderson and Jack, 2002; Johnson, 2002; Mortimer and Kumka, 1982), resulting in noncognitive skills developed through the entrepreneurial career of the parents. Further, it could be argued that 'by necessity' entrepreneurs' may value education more due to their low satisfaction with their careers (Block and Koellinger, 2009). Thus, the higher enrollment rates in private schools could be related to a more significant concern with their children's career options and higher education ambitions. Another possibility would be related to entrepreneurial parents' degree of risk aversion (Checchi, Fiorio, and Leonardi, 2014), given entrepreneurs' lower risk aversion (Brachert, Hyll, and Sadrieh, 2020; Caliendo *et al.*, 2014; Wickstrøm, Klyver, and Cheraghi-Madsen, 2020).

Table 5 – Results – PSM for Kernel matching algorisms

	(1) Years Schooling[a]	(2) Private School[a]	(3) Any University[b]	(4) Public University[b]	(5) Private University[b]
A. Kernel Gaussian					
Entrepreneur. Parents	0.047	0.057***	0.050***	0.007	0.043***
t-stat	(0.91)	(9.46)	(5.01)	(1.22)	(4.71)
N. on support	68,110	68,110	30,561	30,561	30,561
Average outcome var. for control units	3.182	0.208	0.290	0.072	0.218
B. Kernel Biweight					
Entrepreneur. Parents	0.046	0.053***	0.050***	0.006	0.043***
t-stat	(0.89)	(8.79)	(4.95)	(1.10)	(4.72)
N. on support	68,110	68,110	30,560	30,560	30,560
Average outcome var. for control units	3.183	0.211	0.290	0.072	0.217
C. Kernel Tricube					
Entrepreneur. Parents	0.046	0.053***	0.050***	0.006	0.043***
t-stat	(0.88)	(8.79)	(4.96)	(1.10)	(4.73)
N. on support	68,110	68,110	30,560	30,560	30,560
Average outcome var. for control units	3.183	0.211	0.290	0.072	0.217
D. Kernel Epanechnikov					
Entrepreneur. Parents	0.047	0.053***	0.050***	0.006	0.043***
t-stat	(0.91)	(8.83)	(4.96)	(1.10)	(4.72)
N. on support	68,110	68,110	30,560	30,560	30,560
Average outcome var. for control units	3.182	0.211	0.290	0.072	0.217
E. Kernel Uniform					
Entrepreneur. Parents	0.048	0.054***	0.050***	0.006	0.043***
t-stat	(0.92)	(8.93)	(4.97)	(1.14)	(4.71)
N. on support	68,110	68,110	30,560	30,560	30,560
Average outcome var. for control units	3.181	0.211	0.290	0.072	0.218

Notes: This table reports estimates of the influence of the entrepreneurial attitude of parents on children's education. The superscript *a* indicates that Columns 1 and 2 considered the sample for children aged under 18 years. The superscript *b* indicates that columns 3, 4, and 5 considered the sample for children aged 18 and 30. The estimates consider propensity score matching with kernel matching estimator. Panel A presents the Gaussian Kernel results. Panel B presents the Biweight Kernel results. Panel C presents the Tricube Kernel results. Panel D presents the Epanechnikov Kernel results. Panel E presents the Uniform Kernel results. Covariables were omitted for space considerations. The symbols *, ** and *** represent statistical significance of 10%, 5% and 1%, respectively. The values in parentheses are t-student statistics.

The results show that entrepreneurial parents are more willing to enroll their children in private schools. Such behavior could be related to a change in the education returns perception (Dizon-Ross, 2019) due to different work values (Tocher et al., 2012; Anderson and Jack, 2002) and noncognitive skills (Cunha, Heckman, and Schennach, 2010) developed through entrepreneurial activities. The results also suggest that entrepreneurs' children over 18 value more human capital accumulation. Additionally, the results indicate that entrepreneurial parents' risk aversion could be an influential factor, as Checchi et al. (2014) argued.

The reasons that define which type of university children choose are not trivial to explain. The intention of children to follow their parents' career choices could justify the choice of countryside private universities (Kyrö, 2015; Li, Qu, and Huang, 2018).

Moreover, considering the results of university admission tests of private schools students in Brazil (Curi and Menezes-Filho 2010; Cavalcanti, Guimaraes and Sampaio 2010), it is acceptable to assume that children of entrepreneurial parents would seek a higher quality of education. Parents might be willing to finance their children's expenses instead of bearing the costs of keeping them in other cities. The effects on admission to public universities can be underestimated due to the limitations in database identification of children who do not live with their parents in the same household.

6. Robustness Analysis

We conducted a series of five robustness tests to verify the strength of the results found in the previous section. First, we propose the placebo test. The placebo test aims to verify whether the results were due to chance. In other words, if the results of Table 5 were type I errors. This test is a routine for PSM (Cole 2017; Karhunen and Huovari 2015; Srhoj, Škrinjarić, and Radas 2021). Therefore, we must create placebo treatments. We generate random variables with mean and standard deviation similar to the original treatment variables. In addition, the procedure is to re-estimate the first equation of the PSM with the placebo treatments. The balance of the covariates for the placebo test indicate that the observable variables have similar means between the treatment and control groups after the matching procedure[13]. The panels in Table 6 presents the results of different robustness analysis, and their columns report the treatment coefficients for the outcome variables in the same order as in Table 5. The results of the placebo test are reported in Panel A. All coefficients presented in Panel A are not statistically significant (p-value>0.1). Thus, the results of the placebo test reinforce that our previous estimates are robust and are no Type-I errors.

Our second robustness test consists of the Propensity Score Weighting (PSW) method. This method approximates the treated and control groups using the propensity score as a weight: each subject in the control group is weighted by the inverse probability of not receiving treatment. Further, the PSW utilizes the whole sample to consider subjects outside the common support area. We use the sample weight in both stages of the procedure: first, as a weight in the propensity score model, and second, by multiplying the propensity score weight in the outcome analysis (Ridgeway et al. 2015). The balance of covariates after applying PSW indicate no difference in the means of each covariate between the groups, implying that the groups are comparable[14]. The results of the PSW estimator are reported in Panel B of Table 6. The results in Column 1 demonstrate that the PSW estimator yields a significant increase of 0.869 (p-value<0.01) in the years of schooling of under-age children, representing an increase of approximately 37% compared to the control group. Column 2 results indicate that entrepreneurial parents present an increase of 9 p.p. in the probability of children under 18 studying at a private school (p-value<0.01), presenting a probability 53% higher in comparison to the average outcome of the control group. Results in Columns 3 and 5 present similar coefficients to those found in Table 5, demonstrating that the influence of entrepreneurial parents increases the probability of children studying at university (Column 3) by 5.3 p.p. (p-value<0.01), specifically at a private university (Column 5) by 4.3 p.p. (p-value<0.01). Column 4 shows no statistically significant coefficients regarding the influence on the probability of studying at a public university. The results support the evidence of the positive influence of parents' entrepreneurial attitude on the children's human capital accumulation in the previous section.

In the third robustness strategy, we estimate the influence of the parents' entrepreneurial on children's education with an Entropy Balancing procedure (Hainmueller 2012). The Entropy Balancing enables the balance of covariates in observational studies with binary treatments through pre-processing data. The method utilizes a maximum entropy reweighting procedure that calibrates the unit weights such that the reweighted treatment and control group satisfy a large set of pre-specified equilibrium conditions that incorporate information about the first, second, or higher moments of the covariate distribution. This recalibration effectively adjusts for systematic and random inequalities in representation. Additionally, the

[13] The results of the covariates balance are available upon request.
[14] The results of the covariates balance are available upon request.

Entropy Balancing utilizes the whole sample. We use the sample weights and calibrate the unit weights for both groups to construct entropy weights for the first, second, and third moments (respectively, mean, variance, and skewness of the covariates). Thus, we create three models weighted by each of the entropy weights to estimate the influence of the entrepreneurial attitude of parents on the education binary outcome variables. The covariates balance between the treated and control groups before and after applying the entropy weights indicate no differences between groups in the means of each covariate after the entropy weighting balancing[15]. The results of the Entropy Balancing estimators are reported in Panel C, D, and E of Table 6. The results of the entropy models for all outcome variables are similar in magnitude to those found in Table 5. Column 2 results indicate that children under 18 with entrepreneurial parents increase between 5.3 and 5.5 p.p. in the probability of studying at a private school (p-value<0.01). Results in Columns 3 and 5 demonstrate that children of entrepreneurial parents are between 4.8 and 5.1 p.p. likely to study at a university (p-value<0.01), mainly at private universities with a coefficient between 4 and 4.2 p.p. (p-value<0.01). Column 4 presents no statistically significant influence of entrepreneurial parents on the children's probability of studying at a public university. The results indicate that the entrepreneurial attitude of parents positively influences the children's human capital accumulation.

Table 6 – Results – Robustness tests

	(1) Years Schooling[a]	(2) Private School[a]	(3) Any University[b]	(4) Public University[b]	(5) Private University[b]
A. Placebo Test					
Placebo Entrepreneur. Parents	0.000	-0.001	0.001	0.024	-0.003
t-stat	(0.03)	(0.20)	(0.09)	(0.55)	(0.79)
N.	30,565	30,565	30,565	68,115	68,115
Average outcome var. for control units	0.172	0.045	0.126	2.984	0.089
B. Propensity Score Weighting					
Entrepreneur. Parents	0.869***	0.090***	0.053***	0.010	0.043***
t-stat	(15.60)	(12.18)	(4.44)	(1.44)	(3.89)
N.	68,115	68,115	30,565	30,565	30,565
Average outcome var. for control units	2.327	0.171	0.288	0.067	0.220
C. Entropy Balancing 1st moment					
Entrepreneur. Parents		0.055***	0.051***	0.009	0.042***
t-stat		(7.18)	(4.27)	(1.38)	(3.74)
N.		68,115	30,565	30,565	30,565
Average outcome var. for control units		0.206	0.289	0.068	0.222
D. Entropy Balancing 2nd moment					
Entrepreneur. Parents		0.053***	0.048***	0.008	0.040***
t-stat		(6.78)	(3.99)	(1.18)	(3.56)
N.		68,115	30,565	30,565	30,565
Average outcome var. for control units		0.209	0.292	0.069	0.223
E. Entropy Balancing 3rd moment					
Entrepreneur. Parents		0.053***	0.048***	0.008	0.040***
t-stat		(6.82)	(4.00)	(1.20)	(3.56)
N.		68,115	30,565	30,565	30,565
Average outcome var. for control units		0.208	0.292	0.069	0.223

Notes: This table reports estimates of the influence of the entrepreneurial attitude of parents on children's education. The superscript *a* indicates that columns 1 and 2 considered the sample for children under 18 years old. The superscript *b* indicates that columns 3, 4, and 5 considered the sample for children between 18 and 30. Panel A considers a placebo test with a random treatment variable utilizing a PSM with Kernel (Biweight) estimator. Panel B considers a propensity score weighting estimator. Panels C, D, and E consider an entropy balancing estimator for the first and second moments, respectively. Covariables were omitted for space considerations. The symbols *, ** and *** represent statistical significance of 10%, 5% and 1%, respectively. The values in parentheses are t-student statistics.

[15] The results of the covariates balance are available upon request.

As a fourth robustness strategy, we test whether there are heterogeneous treatment effects (HTE) on the entrepreneurial attitude of parents. Therefore, we establish five restricted subsamples: (i) a sample considering only boys for the HTE analysis on boys; (ii) a sample considering only girls for the HTE analysis on girls; (iii) a sample considering only households with at least one man in the reference couple for the HTE analysis when only the father is an entrepreneur; (iv) a sample considering only households with at least one woman in the reference couple for the HTE analysis when only the mother is an entrepreneur; and (v) a sample considering only households with the presence of a spouse in the reference couple for the HTE analysis when both parents are entrepreneurs. Then, we disaggregate the treatment variable into three specific groups: (a) only the man of the reference couple is an entrepreneur, (b) only the woman of the reference couple is an entrepreneur, and (c) both parties in the couple are entrepreneurs. The analysis for the subsamples (i) and (ii) considers the presence of an entrepreneurial parent in the reference couple of the household as the treatment variable (*EntrepreneurialParent*). The analysis for the subsamples (iii), (iv), and (v) considers the disaggregated treatment variables (a), (b), and (c), respectively. We use the PSM with Epanechnikov Kernel type for all heterogeneous treatment effect analyses. All models present appropriate covariates balance between groups after the matching procedure[16]. The results are reported in Table 7. Panels A to E presents the results of the HTE analysis in the same order of subsamples (i) to (v), and the columns report the treatment coefficients for outcome variables in the same order as in Table 5.

Table 7 – Heterogeneous analysis of the influence of entrepreneurial parents

	(1) Years Schooling[a]	(2) Private School[a]	(3) Any University[b]	(4) Public University[b]	(5) Private University[b]
A. Influence on sons					
Entrepreneur. Parents	0.094	0.061***	0.038***	0.008	0.030**
t-stat	(1.30)	(7.21)	(2.92)	(1.09)	(2.55)
N. on support	35,116	35,116	17,239	17,239	17,239
Average outcome var. for control units	3.155	0.202	0.257	0.064	0.193
B. Influence on daughters					
Entrepreneur. Parents	-0.002	0.045***	0.063***	0.006	0.057***
t-stat	(0.03)	(5.08)	(3.99)	(0.69)	(3.86)
N. on support	32,992	32,992	13,314	13,314	13,314
Average outcome var. for control units	3.208	0.223	0.330	0.081	0.250
C. Only father entrepreneur					
Only Father Entrep.	-0.009	0.053***	0.036***	0.004	0.032***
t-stat	(0.14)	(8.83)	(2.82)	(0.52)	(2.76)
N. on support	54,144	54,144	20,761	20,761	20,761
Average outcome var. for control units	3.076	0.211	0.284	0.073	0.211
D. Only mother entrepreneur					
Only Mother Entrep.	0.100	0.025**	0.082***	0.017*	0.064***
t-stat	(1.04)	(2.23)	(4.60)	(1.67)	(3.92)
N. on support	62,271	62,271	27,477	27,477	27,477
Average outcome var. for control units	3.423	0.213	0.275	0.070	0.205
E. Both parents entrepreneurs					
Both Parents Entrep.	0.093	0.088***	0.042 [θ]	-0.015	0.057**
t-stat	(0.71)	(5.20)	(1.62)	(1.07)	(2.31)
N. on support	50,065	50,065	18,113	18,113	18,113
Average outcome var. for control units	3.349	0.304	0.347	0.089	0.258

Notes: This table reports estimates of the analysis of the heterogeneous influence of the entrepreneurial attitude of parents on children's education. The superscript *a* indicates that columns 1 and 2 considered the sample for children under 18 years. The superscript *b* indicates that columns 3, 4, and 5 considered the sample for children between 18 and 30. All estimates consider propensity score matching with an Epanechnikov kernel matching estimator. Panel A presents the coefficient of the influence of the entrepreneurial attitude of parents on sons (boys). Panel B presents the coefficient of the influence of the entrepreneurial attitude of parents on daughters (girls). Panel C presents the coefficient of the influence

[16] The results of the covariates balance are available upon request.

of entrepreneurial attitude when only the father is an entrepreneur. Panel D presents the coefficient of the influence of entrepreneurial attitude when only the mother is an entrepreneur. Panel E presents the coefficient of the influence of entrepreneurial attitude when both parents are entrepreneurs. Covariates were omitted for space considerations. The symbols *, ** and *** represent statistical significance of 10%, 5% and 1%, respectively. The superscript θ represents a statistical significance of 11%. The values in parentheses are t-student statistics.

The results in Panel A and B indicate the presence of heterogeneity in the influence of entrepreneurial parents related to the children's gender. Column 2 results demonstrate that the treatment coefficient for the boys' probability of studying at a private school is 1.5 p.p. higher than for girls (6.1% for boys and 4.5% for girls, p-value <0.01). Compared to the control units' average outcome, the treatment incurs an increase of approximately 30% for boys and 20% for girls. Columns 3 and 5 demonstrate that the treatment coefficients for girls are 2.5 p.p. higher for the probability of studying at a university and 2.7 p.p. higher for the probability of studying at a private university. Column 2 shows that children of households where only the father is an entrepreneur present a treatment coefficient of 2.8 p.p. higher for the probability of studying at a private school than when only the mother is an entrepreneur (5.3% for fathers and 2.5% for mothers).

Conversely, the results in Columns 3, 4, and 5 show a greater effect on the probability of studying at a university when only the mother is an entrepreneur, presenting treatment coefficients of at least twice the magnitude of those estimated when only the father is an entrepreneur. Further, the treatment considering only the mother as an entrepreneur is the only specification that presented a statistically significant coefficient on the probability of studying at a public university (an increase of 1.7 p.p., p-value<0.1). Lastly, Panel E presents the results for the HTE analysis when both parents are entrepreneurs. Column 2 results indicate that children of entrepreneur couples have an increase of 8.8 p.p. (p-value<0.01) in the probability of studying at a private school, an increase of approximately 28% compared to the average probability of the control group children. Column 3 presents an increase of 4.2 p.p. (p-value<0.11) in the probability of studying at a university. Column 5 shows an increase of 5.7 p.p. in the probability of studying at a private university. All panel results in Column 1 report no statistically significant coefficients for the years of the schooling outcome variable.

Finally, our last robustness strategy relies on Rosenbaum's sensitivity analysis. This analysis is not definitive regarding the existence of unobservable confounding variables. However, it indicates how close the estimates of a pairing method are to violating the assumption of selection in observables. The test establishes the critical point for the null hypothesis of the randomness of treatment (*EntrepreneurialParent*) after pairing. The sensitivity parameter gamma (Γ) is considered to represent the degree of distance from the randomness of the treatment, wherein Γ=1, the effect of treatment is free of bias.

Table 7 – Rosenbound sensibility analysis

Outcome variable	Bound	Γ = 1	Γ = 1.15	Γ = 1.3	Γ = 1.45	Γ = 1.6	Γ = 1.75
YearsSchooling	Upper	0.927	1.000	1.000	1.000	1.000	1.000
YearsSchooling	Lower	0.927	0.001	0.000	0.000	0.000	0.000
PrivateSchool	Upper	0.000	0.000	0.000	0.000	0.000	0.000
PrivateSchool	Lower	0.000	0.000	0.000	0.000	0.000	0.000
AnyUniversity	Upper	0.000	0.000	0.000	0.000	0.000	0.000
AnyUniversity	Lower	0.000	0.000	0.000	0.000	0.000	0.000
PublicUniversity	Upper	0.000	0.000	0.000	0.000	0.004	0.072
PublicUniversity	Lower	0.000	0.000	0.000	0.000	0.000	0.000
PrivateUniversity	Upper	0.000	0.000	0.000	0.000	0.000	0.000
PrivateUniversity	Lower	0.000	0.000	0.000	0.000	0.000	0.000

Notes: This table reports the p-values of the Rosenbound test for hidden bias due to unobservable confounding variables. The Wilcoxon statistic test analyzes the *YearsSchooling* outcome variable. The Mantel-Haenszel statistic test analyzes the *PrivateSchool*, *AnyUniversity*, *PublicUniversity*, and *PrivateUniversity*.

The p-value indicates the rejection of the null hypothesis. We applied two Rosenbaum test methods. We conducted the Wilcoxon test (DiPrete and Gangl, 2004) for the continuous outcome variable *YearsSchooling*. Regarding the binary outcome variables (*PrivateSchool*, *AnyUniversity*, *PublicUniversity*,

and *PrivateUniversity*), we follow the recommendations of Becker and Caliendo (2007) to conduct the Mantel–Haenszel test. The sensitivity analysis results are presented in Table 8. The Wilcoxon test indicates that *YearsSchooling* is sensitive to unobservable confounding variables (Γ=1). The Mantel-Haenszel test for the binary outcome variables indicates that *PrivateSchool*, *AnyUniversity* and *PrivateUniversity* results are strongly robust at 75% hidden bias (Γ=1.75, p-value<0.001), while the *PublicUniversity* results presents robustness with p-value<0.1 until Γ=1.75. In general, the sensitivity analysis results demonstrates that the statistically significant estimates identified in Table 5 presents low sensitivity for unobservable confounding variables and reinforce their robustness.

7. Discussion and Final Remarks

This study aimed to analyze the influence of parents' entrepreneurial attitude on the educational decisions of their children related to the likelihood of studying at private schools and attending a university (general, public, and private). We used a matching procedure to utilize the micro data complex sample from PNAD 2015. After testing the goodness of fit of the models, we employed a PSM Kernel of Epanechnikov type with sample weights adjustment.

Our findings provide new evidence for the interactions between parents' work decisions and their children's education. The results indicate that the parents' entrepreneurial attitude positively affects their children's chances of studying at private schools. These results can happen through a change in parents' perception regarding the returns associated with their children's education, reflected in the search for better quality schools in the private sector. Further, the results show that entrepreneurial parents' children have more chances of studying at universities, especially at private universities. Such results could be related to the intergenerational transmission of values that can encourage the children of entrepreneurs to value higher education. All robustness strategies strengthen the results identified. The HTE analysis highlights the existence of heterogeneous magnitudes for the influence of the parents' entrepreneurial attitude related to the children's and entrepreneurial parent's gender and indicates that when both parents are entrepreneurs, the magnitude of the treatment increases.

The results must be carefully analyzed. First, as the microdata is a cross-section, applying fixed effect control methods is impossible. Additionally, the database restricts the analysis to children who live in the same household. Although private schools provide better academic results in Brazil, our study cannot state whether entrepreneurs allocate more financial resources to their children's education and do not consider the number of public and private schools near the households. Another important question concerns the graduation rate and children's performance in different universities and graduate majors. Answers to these questions would provide a better understanding of the academic performance of entrepreneurs' children and information to guide future public policies that incentivize entrepreneurial activity while looking for educational spillovers, as well as policies that aim for better usage of resources in the development of human capital.

References

Amorós, José E., and Oscar Cristi. 2011. "Poverty and Entrepreneurship in Developing Countries." In *The Dynamics of Entrepreneurship: Evidence from Global Entrepreneurship Monitor*, 1st ed., 209–230. Oxford University Press. doi:10.1093/acprof:oso/9780199580866.001.0001.

Anderson, Alistair R., Sarah L. Drakopoulou-Dodd, and Michael G. Scott. 2000. "Religion as an Environmental Influence on Enterprise Culture – The Case of Britain in the 1980s." *International Journal of Entrepreneurial Behavior & Research* 6 (1): 5–20. doi:10.1108/13552550010323050.

Anderson, Alistair R., and Sarah L. Jack. 2002. "The Articulation of Social Capital in Entrepreneurial Networks: A Glue or a Lubricant?" *Entrepreneurship & Regional Development* 14 (3): 193–210. doi:10.1080/08985620110112079.

Anderson, Alistair R., and Robert Smith. 2007. "The Moral Space in Entrepreneurship: An Exploration of Ethical Imperatives and the Moral Legitimacy of Being Enterprising." *Entrepreneurship & Regional Development* 19 (6): 479–497. doi:10.1080/08985620701672377.

Austin, Peter C, Nathaniel Jembere, and Maria Chiu. 2016. "Propensity Score Matching and Complex Surveys." *Statistical Methods in Medical Research* 27 (4): 1240–1257. doi:10.1177/0962280216658920.

Becker, Sascha O., and Marco Caliendo. 2007. “Sensitivity Analysis for Average Treatment Effects.” *The Stata Journal: Promoting Communications on Statistics and Stata* 7 (1): 71–83. doi:10.1177/1536867X0700700104.
Belzil, Christian, and Marco Leonardi. 2007. “Can Risk Aversion Explain Schooling Attainments? Evidence from Italy.” *Labour Economics* 14 (6): 957–970. doi:10.1016/j.labeco.2007.06.005.
Belzil, Christian, and Marco Leonardi. 2013. “Risk Aversion and Schooling Decisions.” *Annals of Economics and Statistics*, no. 111/112: 35. doi:10.2307/23646326.
Binder, Martin, and Alex Coad. 2013. “Life Satisfaction and Self-Employment: A Matching Approach.” *Small Business Economics* 40 (4): 1009–1033. doi:10.1007/s11187-011-9413-9.
Block, Joern, and Philipp Koellinger. 2009. “I Can’t Get No Satisfaction-Necessity Entrepreneurship and Procedural Utility.” *Kyklos* 62 (2): 191–209. doi:10.1111/j.1467-6435.2009.00431.x.
Bönte, Werner, and Monika Piegeler. 2013. “Gender Gap in Latent and Nascent Entrepreneurship: Driven by Competitiveness.” *Small Business Economics* 41 (4): 961–987. doi:10.1007/s11187-012-9459-3.
Bosma, Niels, Jeroen Content, Mark Sanders, and Erik Stam. 2018. “Institutions, Entrepreneurship, and Economic Growth in Europe.” *Small Business Economics* 51 (2): 483–499. doi:10.1007/s11187-018-0012-x.
Brachert, Matthias, Walter Hyll, and Abdolkarim Sadrieh. 2020. “Entry into Self-Employment and Individuals’ Risk-Taking Propensities.” *Small Business Economics* 55 (4): 1057–1074. doi:10.1007/s11187-019-00173-6.
Brandt, Kasper, Longinus Rutasitara, Onesmo Selejio, Neda Trifkovic, and UNU-WIDER. 2017. *Entrepreneurship and Human Capital Development in Children*. 198th ed. Vol. 2017. WIDER Working Paper. UNU-WIDER. doi:10.35188/UNU-WIDER/2017/424-7.
Caballero, Gustavo A. 2017. “Responsibility or Autonomy: Children and the Probability of Self-Employment in the USA.” *Small Business Economics* 49 (2): 493–512. doi:10.1007/s11187-017-9840-3.
Caliendo, Marco, Frank Fossen, Alexander Kritikos, and Miriam Wetter. 2014. “The Gender Gap in Entrepreneurship: Not Just a Matter of Personality,” no. CESIFO WORKING PAPER NO. 4803. https://ssrn.com/abstract=2457841.
Caliendo, Marco, Frank M. Fossen, and Alexander S. Kritikos. 2009. “Risk Attitudes of Nascent Entrepreneurs–New Evidence from an Experimentally Validated Survey.” *Small Business Economics* 32 (2): 153–167. doi:10.1007/s11187-007-9078-6.
Caliendo, Marco, and Sabine Kopeinig. 2008. “Some Practical Guidance for the Implementation of Propensity Score Matching.” *Journal of Economic Surveys* 22 (1): 31–72. doi:10.1111/j.1467-6419.2007.00527.x.
Castelló-Climent, Amparo, and Rafael Doménech. 2021. “Human Capital and Income Inequality Revisited.” *Education Economics* 29 (2): 194–212. doi:10.1080/09645292.2020.1870936.
Cavalcanti, Tiago, Juliana Guimaraes, and Breno Sampaio. 2010. “Barriers to Skill Acquisition in Brazil: Public and Private School Students Performance in a Public University Entrance Exam.” *The Quarterly Review of Economics and Finance* 50 (4): 395–407. doi:10.1016/j.qref.2010.08.001.
Checchi, Daniele, Carlo V. Fiorio, and Marco Leonardi. 2014. “Parents’ Risk Aversion and Children’s Educational Attainment.” *Labour Economics* 30 (October): 164–175. doi:10.1016/j.labeco.2014.04.001.
Cole, Rachel. 2017. “Estimating the Impact of Private Tutoring on Academic Performance: Primary Students in Sri Lanka.” *Education Economics* 25 (2): 142–157. doi:10.1080/09645292.2016.1196163.
Coulibaly, Salifou K., Cao Erbao, and T. Metuge Mekongcho. 2018. “Economic Globalization, Entrepreneurship, and Development.” *Technological Forecasting and Social Change* 127 (February): 271–280. doi:10.1016/j.techfore.2017.09.028.
Cox, Donald, and Emmanuel Jimenez. 1990. “The Relative Effectiveness of Private and Public Schools.” *Journal of Development Economics* 34 (1–2): 99–121. doi:10.1016/0304-3878(90)90078-P.
Cressy, Robert. 1992. “The Theory of the Opportunistic Entrepreneur.” *Small Business Economics* 4 (4): 267–271. doi:10.1007/BF00388622.
Cunha, Flavio, James J. Heckman, and Susanne M. Schennach. 2010. “Estimating the Technology of Cognitive and Noncognitive Skill Formation.” *Econometrica* 78 (3): 883–931. doi:10.3982/ECTA6551.
Curi, Andréa Zaitune, and Naercio Menezes-Filho. 2014. “The Relationship between School Performance and Future Wages in Brazil.” *EconomiA* 15 (3): 261–274. doi:10.1016/j.econ.2014.08.001.
Curi, Andréa Zaitune, and Naércio Aquino Menezes-Filho. 2010. “Os determinantes dos gastos com educação no Brasil.” *Pesquisa e Planejamento Econômico - PPE, Instituto de Pesquisa Econômica Aplicada* 40 (1).
Curi, Andréa Zaitune, and Naércio Aquino Menezes-Filho. 2013. “Mensalidade escolar, background familiar e os resultados do Exame Nacional do Ensino Médio (ENEM).” *Pesquisa e Planejamento Econômico - PPE, Instituto de Pesquisa Econômica Aplicada* 43 (2): 223–254.
de Carvalho Filho, Irineu Evangelista. 2012. “Household Income as a Determinant of Child Labor and School Enrollment in Brazil: Evidence from a Social Security Reform.” *Economic Development and Cultural Change* 60 (2): 399–435. doi:10.1086/662576.
DiPrete, Thomas A., and Markus Gangl. 2004. “7. Assessing Bias in the Estimation of Causal Effects: Rosenbaum Bounds on Matching Estimators and Instrumental Variables Estimation with Imperfect Instruments.” *Sociological Methodology* 34 (1): 271–310. doi:10.1111/j.0081-1750.2004.00154.x.

Dizon-Ross, Rebecca. 2019. “Parents’ Perceptions and Children’s Education: Experimental Evidence from Malawi.” *American Economic Review* 109 (8): 2728–2765.
DuGoff, Eva H., Megan Schuler, and Elizabeth A. Stuart. 2014. “Generalizing Observational Study Results: Applying Propensity Score Methods to Complex Surveys.” *Health Services Research* 49 (1): 284–303. doi:10.1111/1475-6773.12090.
Dunn, Thomas, and Douglas Holtz-Eakin. 2000. “Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links.” *Journal of Labor Economics* 18 (2): 282–305. doi:10.1086/209959.
Elam, Amanda, and Siri Terjesen. 2010. “Gendered Institutions and Cross-National Patterns of Business Creation for Men and Women.” *The European Journal of Development Research* 22 (3): 331–348. doi:10.1057/ejdr.2010.19.
Fajnzylber, Pablo, William Maloney, and Gabriel Montes Rojas. 2006. “Microenterprise Dynamics in Developing Countries: How Similar Are They to Those in the Industrialized World? Evidence from Mexico.” *The World Bank Economic Review* 20 (3): 389–419. doi:10.1093/wber/lhl005.
Fossen, Frank M. 2012. “Gender Differences in Entrepreneurial Choice and Risk Aversion – a Decomposition Based on a Microeconometric Model.” *Applied Economics* 44 (14): 1795–1812. doi:10.1080/00036846.2011.554377.
Fuchs, Thomas, and Ludger Wößmann. 2007. “What Accounts for International Differences in Student Performance? A Re-Examination Using PISA Data.” *Empirical Economics* 32 (2–3): 433–464. doi:10.1007/s00181-006-0087-0.
Gevrek, Deniz, and Z. Eylem Gevrek. 2010. “Nepotism, Incentives and the Academic Success of College Students.” *Labour Economics* 17 (3): 581–591. doi:10.1016/j.labeco.2009.11.001.
Gindling, T.H., and David Newhouse. 2014. “Self-Employment in the Developing World.” *World Development* 56 (April): 313–331. doi:10.1016/j.worlddev.2013.03.003.
Gries, Thomas, and Wim Naudé. 2010. “Entrepreneurship and Structural Economic Transformation.” *Small Business Economics* 34 (1): 13–29. doi:10.1007/s11187-009-9192-8.
Guimarães, Juliana, and Breno Sampaio. 2013. “Family Background and Students’ Achievement on a University Entrance Exam in Brazil.” *Education Economics* 21 (1): 38–59. doi:10.1080/09645292.2010.545528.
Guryan, Jonathan, Erik Hurst, and Melissa Kearney. 2008. “Parental Education and Parental Time with Children.” *Journal of Economic Perspectives* 22 (3): 23–46. doi:10.1257/jep.22.3.23.
Hainmueller, Jens. 2012. “Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies.” *Political Analysis* 20 (1): 25–46. doi:10.1093/pan/mpr025.
Hansen, Karsten T., James J. Heckman, and Kathleen J. Mullen. 2004. “The Effect of Schooling and Ability on Achievement Test Scores.” *Journal of Econometrics* 121 (1–2): 39–98. doi:10.1016/j.jeconom.2003.10.011.
Hanushek, Eric A., John F. Kain, Steven G. Rivkin, and Gregory F. Branch. 2007. “Charter School Quality and Parental Decision Making with School Choice.” *Journal of Public Economics* 91 (5–6): 823–848. doi:10.1016/j.jpubeco.2006.09.014.
Heckman, James. 2008. *Schools, Skills, and Synapses*. w14064. Cambridge, MA: National Bureau of Economic Research. doi:10.3386/w14064.
Hoffmann, Celina, Roselaine Ruviaro Zanini, Ângela Cristina Corrêa, Julio Cezar Mairesse Siluk, Vitor Francisco Schuch Júnior, and Lucas Veiga Ávila. 2014. “O desempenho das universidades brasileiras na perspectiva do Índice Geral de Cursos (IGC).” *Educação e Pesquisa* 40 (3): 651–665. doi:10.1590/s1517-97022014041491.
Honig, Benson, and Per Davidsson. 2000. “THE ROLE OF SOCIAL AND HUMAN CAPITAL AMONG NASCENT ENTREPRENEURS.” *Academy of Management Proceedings* 2000 (1): B1–B6. doi:10.5465/apbpp.2000.5438611.
Johnson, M. K. 2002. “Social Origins, Adolescent Experiences, and Work Value Trajectories during the Transition to Adulthood.” *Social Forces* 80 (4): 1307–1340. doi:10.1353/sof.2002.0028.
Johnson, Ollie A., and Rosana Heringer, eds. 2015. *Race, Politics, and Education in Brazil: Affirmative Action in Higher Education*. New York: Palgrave Macmillan US. doi:10.1057/9781137485151.
Karhunen, Hannu, and Janne Huovari. 2015. “R&D Subsidies and Productivity in SMEs.” *Small Business Economics* 45 (4): 805–823. doi:10.1007/s11187-015-9658-9.
Kelley, D.J., C.G. Brush, P.G. Greene, and Y. Litovsky. 2013. *Global Entrepreneurship Monitor: 2012 Women’s Report.* London: Babson College and London Business.
Kimhi, Ayal. 2010. “Entrepreneurship and Income Inequality in Southern Ethiopia.” *Small Business Economics* 34 (1): 81–91. doi:10.1007/s11187-009-9196-4.
King, Gary, and Richard Nielsen. 2019. “Why Propensity Scores Should Not Be Used for Matching.” *Political Analysis* 27 (4): 435–454. doi:10.1017/pan.2019.11.
Kis-Katos, Krisztina. 2012. “Gender Differences in Work-Schooling Decisions in Rural North India.” *Review of Economics of the Household* 10 (4): 491–519. doi:10.1007/s11150-012-9153-x.
Korsgaard, Steffen, and Alistair R. Anderson. 2011. “Enacting Entrepreneurship as Social Value Creation.” *International Small Business Journal: Researching Entrepreneurship* 29 (2): 135–151. doi:10.1177/0266242610391936.
Kyrö, Paula. 2015. “The Conceptual Contribution of Education to Research on Entrepreneurship Education.” *Entrepreneurship & Regional Development* 27 (9–10): 599–618. doi:10.1080/08985626.2015.1085726.

Larsson, Johan P., and Per Thulin. 2019. “Independent by Necessity? The Life Satisfaction of Necessity and Opportunity Entrepreneurs in 70 Countries.” *Small Business Economics* 53 (4): 921–934. doi:10.1007/s11187-018-0110-9.
Li, Jun, Jingjing Qu, and Qihai Huang. 2018. “Why Are Some Graduate Entrepreneurs More Innovative than Others? The Effect of Human Capital, Psychological Factor and Entrepreneurial Rewards on Entrepreneurial Innovativeness.” *Entrepreneurship & Regional Development* 30 (5–6): 479–501. doi:10.1080/08985626.2017.1406540.
Mahfud, Tuatul, Mochamad Bruri Triyono, Putu Sudira, and Yogiana Mulyani. 2020. “The Influence of Social Capital and Entrepreneurial Attitude Orientation on Entrepreneurial Intentions: The Mediating Role of Psychological Capital.” *European Research on Management and Business Economics* 26 (1): 33–39. doi:10.1016/j.iedeen.2019.12.005.
Manacorda, Marco, Carolina Sanchez-Paramo, and Norbert Schady. 2010. “Changes in Returns to Education in Latin America: The Role of Demand and Supply of Skills.” *ILR Review* 63 (2): 307–326. doi:10.1177/001979391006300207.
Marchisio, G., P. Mazzola, S. Sciascia, M. Miles, and J. Astrachan. 2010. “Corporate Venturing in Family Business: The Effects on the Family and Its Members.” *Entrepreneurship & Regional Development* 22 (3–4): 349–377. doi:10.1080/08985621003726168.
Mortimer, Jeylan T., and Donald Kumka. 1982. “A Further Examination of the ‘Occupational Linkage Hypothesis.’” *The Sociological Quarterly* 23 (1): 3–16. doi:10.2307/4106349.
Naudé, Wim. 2010. “Entrepreneurship, Developing Countries, and Development Economics: New Approaches and Insights.” *Small Business Economics* 34 (1): 1–12. doi:10.1007/s11187-009-9198-2.
Oliveira, Pedro Rodrigues de, Walter Belluzzo, and Elaine Toldo Pazello. 2013. “The Public–Private Test Score Gap in Brazil.” *Economics of Education Review* 35 (August): 120–133. doi:10.1016/j.econedurev.2013.04.003.
Parikh, Anokhi, and Elisabeth Sadoulet. 2005. “The Effect of Parents’ Occupation on Child Labor and School Attendance in Brazil.” *UC Berkeley Working Paper 1000.* Available at: https://are.berkeley.edu/~esadoulet/papers/ChildLabor.pdf.
Parker, Simon C. 2004. *The Economics of Self-Employment and Entrepreneurship*. Cambridge University Press.
Psacharopoulos, George, and Harry Anthony Patrinos. 2018. “Returns to Investment in Education: A Decennial Review of the Global Literature.” *Education Economics* 26 (5): 445–458. doi:10.1080/09645292.2018.1484426.
Randerson, Kathleen, Cristina Bettinelli, Alain Fayolle, and Alistair Anderson. 2015. “Family Entrepreneurship as a Field of Research: Exploring Its Contours and Contents.” *Journal of Family Business Strategy* 6 (3): 143–154. doi:10.1016/j.jfbs.2015.08.002.
Ridgeway, Greg, Stephanie Ann Kovalchik, Beth Ann Griffin, and Mohammed U. Kabeto. 2015. “Propensity Score Analysis with Survey Weighted Data.” *Journal of Causal Inference* 3 (2): 237–249. doi:10.1515/jci-2014-0039.
Ripollone, John E, Krista F Huybrechts, Kenneth J Rothman, Ryan E Ferguson, and Jessica M Franklin. 2018. “Implications of the Propensity Score Matching Paradox in Pharmacoepidemiology.” *American Journal of Epidemiology* 187 (9): 1951–1961. doi:10.1093/aje/kwy078.
Rosenbaum, Paul R., and Donald B. Rubin. 1983. “The Central Role of the Propensity Score in Observational Studies for Causal Effects.” *Biometrika* 70 (1): 41–55. doi:10.1093/biomet/70.1.41.
Sahoo, Soham. 2017. “Intra-Household Gender Disparity in School Choice: Evidence from Private Schooling in India.” *The Journal of Development Studies* 53 (10): 1714–1730. doi:10.1080/00220388.2016.1265943.
Singh, Abhijeet. 2015. “Private School Effects in Urban and Rural India: Panel Estimates at Primary and Secondary School Ages.” *Journal of Development Economics* 113 (March): 16–32. doi:10.1016/j.jdeveco.2014.10.004.
Srhoj, Stjepan, Bruno Škrinjarić, and Sonja Radas. 2021. “Bidding against the Odds? The Impact Evaluation of Grants for Young Micro and Small Firms during the Recession.” *Small Business Economics* 56 (1): 83–103. doi:10.1007/s11187-019-00200-6.
Stel, André van, Martin Carree, and Roy Thurik. 2005. “The Effect of Entrepreneurial Activity on National Economic Growth.” *Small Business Economics* 24 (3): 311–321. doi:10.1007/s11187-005-1996-6.
Terjesen, Siri, and José Ernesto Amorós. 2010. “Female Entrepreneurship in Latin America and the Caribbean: Characteristics, Drivers and Relationship to Economic Development.” *The European Journal of Development Research* 22 (3): 313–330. doi:10.1057/ejdr.2010.13.
Tocher, Neil, Sharon L. Oswald, Christopher L. Shook, and Garry Adams. 2012. “Entrepreneur Political Skill and New Venture Performance: Extending the Social Competence Perspective.” *Entrepreneurship & Regional Development* 24 (5–6): 283–305. doi:10.1080/08985626.2010.535856.
Verheul, Ingrid, Roy Thurik, Isabel Grilo, and Peter van der Zwan. 2012. “Explaining Preferences and Actual Involvement in Self-Employment: Gender and the Entrepreneurial Personality.” *Journal of Economic Psychology* 33 (2): 325–341. doi:10.1016/j.joep.2011.02.009.
Wennekers, Sander, André van Wennekers, Roy Thurik, and Paul Reynolds. 2005. “Nascent Entrepreneurship and the Level of Economic Development.” *Small Business Economics* 24 (3): 293–309. doi:10.1007/s11187-005-1994-8.
Wickstrøm, Kent Adsbøll, Kim Klyver, and Maryam Cheraghi-Madsen. 2020. “Age Effect on Entry to Entrepreneurship: Embedded in Life Expectancy.” *Small Business Economics*, August. doi:10.1007/s11187-020-00398-w.