SAVED BY THE BELL? THE EFFECT OF SCHOOLING ON CRIME AGAINST WOMEN

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Abstract
Brazil has a female homicides rate of 4.8 homicides per 100,000 female population, about a third of the female homicides occur inside their household. Lower levels of education are listed by WHO as a risk factor for women, increasing her probability of suffering violence from their partner. Increasing female schooling helps to improve women's access to paid employment and to have access to and knowledge of their rights. The relationship between education and criminality has been investigated from the criminal's point of view: the effect of education has on the decision to commit a crime. Alternatively, this paper highlights the male and female education effects on female homicides rate. The most desegregated level of data available on female homicides is at the municipality's level. We conduct a panel analysis with the 645 municipalities of São Paulo state from 2003 to 2018. Our estimative shows that an increase of one percentage point on the male schooling decrease 0.27 percentual points the female homicide rate, while female schooling decrease 0.21 percentual points the female homicide rate. These results support the importance of greater access to education.

Keywords: Crime; Female Homicide; Education
JEL: K42; O12; J16
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RESUMO
O Brasil possui uma taxa de homicídios de 4,8 homicídios femininos a cada 100.000 mulheres e aproximadamente um terço destes homicídios ocorrem dentro de suas casas. Baixos níveis de educação são listados pela OMS como um fator de risco para as mulheres, aumentando sua probabilidade de sofrer violência por parte do parceiro. O aumento da escolaridade da população feminina melhora o acesso das mulheres ao emprego e aos de seus direitos. O estudo da relação entre educação e criminalidade foca no ponto de vista do criminoso: o efeito da educação na decisão de cometer um crime. Alternativamente, este artigo destaca o efeito da educação de homens e mulheres na taxa de homicídios femininos. Municipalidade é o nível mais desagregado de dados disponíveis sobre homicídios femininos. Nós fazemos uma análise de dados em painel com os 645 municípios do estado de São Paulo de 2003 a 2018. Nossos resultados mostram que um aumento de um ponto percentual na escolaridade masculina reduz em 0,27 pontos percentuais a taxa de homicídios femininos, enquanto a escolaridade feminina reduz em 0,21 pontos percentuais a taxa de homicídios femininos. Estes resultados suportam a importância de um maior acesso à educação.

Palavras-Chave: Crime; Homicídios Femininos; Educação
JEL: K42; O12; J16

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1. INTRODUCTION

Brazil is among the five countries with higher female homicide rates among the 83 countries studied by the World Health Organization (WHO). The country has a female homicide rate of 4.8 homicides per 100,000 female population, and about a third of them occur inside the women's household. Aggressions, deaths, and violence against women have recurred throughout history in virtually every country and some cases, even supported by structures and legislation. The murder of women motivated by adultery was considered legitimate by law in the earlier years of the Brazilian Republic. Meanwhile, the male adultery was constituted as ordinary concubinage. The legislation was changed by the Civil Code (1916), however, it took more time to social norms and customs to change (BLAY, 2003). For that reason, new laws to protect women against domestic violence were adopted: 2006 Maria da Penha Law and 2015 Feminicide Law.

According to Waiselfisz (2012), among men's homicides, only 14.3% of incidents occur in the residence or housing, while for women this proportion reaches 41%. While men are more likely to experience situations of armed conflict and criminal activity, women are more susceptible to injuries from people close to them, such as partners.

While there is a field of study in the economics of crime, little attention has been given to understand the reason and determine the causes of violence against women and, more specifically, about female homicides. Despite the importance of this type of crime, empirical studies are still scarce. To our knowledge, this work fills the gap in the literature by examining the impact of male and female education on female homicides in a country that has exhibited a high female homicide rate. Moreover, Brazil is an emerging economy that has invested resources in mitigating poverty with cash transfer programs that are conditional to children's school frequency, and the adoption of mandatory basic education (PIRES, 2013).

The theoretical models developed by Becker (1968) and Ehrlich (1975) prompted the emergence of new lines of empirical research whose main purposes were to investigate the socioeconomic determinants of crime, as well as their impacts on economic development. In these economics of crime models, an individual will commit a crime if the expected benefit is greater than the cost. The literature in the field has explored the impact of different socioeconomic statuses on the benefit and cost of crime to propose policies to reduce crime rates.

Ehrlich (1975) is the first author to emphasize the relationship between education and crime. He found a statistically significant and positive relationship between the average number of completed years in school by the adult population over 25 and crimes committed against property in the United States in 1960. Other contributors to the quest for understanding the relationship between crime and education are Lochner (1999), Lochner (2004), and Lochner and Moretti (2004).

Lochner (2004) promoted great advances in the theoretical literature of the relationship between education and crime and Lochner and Moretti (2004) for empirical literature. The empirical novelty was the identification strategy adopted. The authors used changes over time in the education laws of each American State on the mandatory minimum age to attend

classrooms as an instrumental variable for education. Their identification strategy allowed him to overcome the endogeneity of schooling, getting causal effects of education on crime.

Lochner (2007) describe four distinct channels that education reduces expected benefit or rise expected cost from crime: (i) to raise the opportunity cost to commit crimes by increase expected wages; (ii) may directly affect the financial or psychological returns of the crime; (iii) may change risk preference; (iv) can affect people's social networks and friendship circles. However, the effect of education on crime can be ambiguous. Lochner (2007; 2011) identifies that education has the potential to increase the productivity of the individual in committing a crime, increasing the expected benefit, and lowering the expected cost form crime.

Would education affect the risk of a woman be a victim? Education empowers women by increasing employment opportunities, knowledge, and access to women's rights. Nevertheless, education would not only be an investment in human capital but a requirement for expanding opportunities. -Women's access to education reduces the deprivation of women and raises their agency in society (SEN, 2000; ROBEYNS, 2006; NUSSBAUM, 2011). With higher education, women enjoy agency, reducing their vulnerability.

Urbina and Lochner (2019) found that the effects of education on female crime are related to changes in marital opportunities and family formation. They found that increases in mandatory schooling laws and school quality can lead to significant reductions in female crime and the probability of incarceration, except for white-collar crimes.

The relationship between education and criminal activity has been investigated focusing on the criminal's point of view seeking what the effect of education has on the decision to commit a crime. Alternatively, this paper highlights the different education effects on men and women.

To verify the effects of male and female education on female homicides, we construct a panel analysis with the 645 municipalities of São Paulo state from 2003 to 2018. Municipalities are the most desegregated level of data available on crime. The impact of education on female homicide rates is studied controlling for the inherited characteristic of each municipality along with following measures: the municipality economic performance, employment opportunities, level of urbanization, the percentage of youth on population, crime level, and the probability to be caught (incarceration rate). By controlling for the municipality´s economic performance, we are avoiding bias on the results that may rising from the correlation of education and income (FAJNZLBER; ARAÚJO JUNIOR., 2001). Although, the positive relationship is associated with property crimes, which are more demanding in terms of criminal skill.

Our results show that rising male and female education has the potential to reduce female homicides rate. We contribute to the literature on crime by providing evidence on the effect of male and female education on female homicides that corroborate the importance of education as a factor reducing crime. Previous studies about Brazil using aggregate information showed that the measures of education of the population are inversely related to crime rates (BECKER, 2012; FAJNZLBER; ARAÚJO JUNIOR, 2001; SCOZARFAVE; SOARES, 2009). But we could show, by separating male and female education, that education reduction effect works from the offender and the victim side.

2. THE RELATIONSHIP BETWEEN EDUCATION AND CRIME

The human capital approach has been used as a reference to analyze the impact that education in an individual's life. The Theory of Human Capital (MINCER, 1958; SCHULTZ, 1988) considers education as an investment that increases the productivity of the individual, also can make a difference in the standard of living of the population. The premise is that the capital invested in education would guarantee better opportunities in the labor market, and assuring better remuneration.

Becker's (1968) approach assumes that individuals with higher levels of formal education are less prone to criminal involvement. The idea that education is one of the determinants of crime is not new. Becker (1968), Ehrlich (1973), and Ehrlich (1975) are examples of Economic Crime Theory seminal papers in which education was already present in the modeling of criminal behavior.

Education could affect crime rates by many channels like the effect of income, available time, aversion risk, social interactions, economic and psychological returns. Impact channels can be direct or indirect (SILVA, 2014), the first acting directly on actions, modifying individual behavior, modifying preferences, and indirectly when changing individuals' opportunities. Education can also change preference rates over time, increasing patience and risk aversion (BECKER; MULLIGAN, 1997). The more patient and risk-averse individuals would find wrongdoing's punishments more costly. However, the literature recognizes the ambiguous effect that education can have on individual decision making.

Lochner (2004) central argument is that, since the human capital increases the work marginal returns more than those from the crimes, investments in human capital such as education, should reduce crime rates. According to this argument, public policies aimed at increasing the educational level of the population could minimize certain types of crimes.

So, a higher educational level would increase the opportunity cost of committing a crime, an individual with higher levels of education tend to have better returns in the labor market than on crime, therefore the opportunity cost of committing crime increases. The incarceration for this individual can be more costly because could keep the criminals out of the legal labor market for a long time.

The negative effect of education on crime is also identified in Calvó-Armengol and Zenou (2004). The authors develop a model based on the theory of crime decision games, assuming there is a peer effect on learning crime. In that case, through peer-centered analysis, they show that education generates social connections such as schooling, learning, and the labor market. The authors argue that social networks connect people. These connections discourage crime and encourage social networks without criminals.

The positive relationship is related to the cost of planning and execution of the criminal activity (BECKER; KASSOUF, 2017), whereas higher education level increases, greater will be the individual's efficiency in the planning and execution, and hence lower will be the cost. In aggregate terms, a region with higher education generally has the highest per capita income, making it potentially more attractive to the criminal action (FAJNZYLBER; ARAUJO JUNIOR, 2001). The positive relationship would be associated with crimes against property (LOCHNER, 2004; SOARES, 2007). It is noteworthy that the positive relationship between education and crime is found in empirical studies that verify the impact on thefts and robberies or white-collar crimes. Furthermore, before any statement, the possibility of endogeneity involved in the model should be checked.

Urbina and Lochner (2019) point out that there are reasons to believe that the education has a different impact on men and women on the opportunity cost of engaging in criminal activity: (i) crime tends to be more personal nature for women; (ii) the women are more involved in domestic activities than in the labor market, with lower labor force participation rate, and so they have a lower opportunity cost of educating themselves; (iii) Women's low employment rates suggest that the return on education may be less relevant in deciding to engage in crime.

According to Robeyns (2006), education can assume a greater role than simply increasing returns in the labor market, as suggests the human capital approach. The author argues that, through education, the individual can find a job and be less vulnerable. Also, education enables the expansion of people's minds, allowing them to recognize the opportunities and providing alternatives beyond just following their parents.

3. VIOLENCE AGAINST WOMEN

The popular understanding of violence consists of acts of physical aggression but not only. The violence is understood as a break from any form of the victim's integrity: physical integrity, psychic integrity, sexual integrity, and moral integrity (RICOLDI; ARTES, 2016).

Gender-violence is based on acts of physical, psychological, or verbal violence between people only because they are male or female. However, according to Khouri (2012), the expression of gender violence is almost synonymous with violence against women, since these are the biggest victims of the incidents.

Violence against women has been considered a public health problem by the World Health Organization since 1990. According to Meneghel and Hirakata (2011), the deaths of women resulting from gender conflicts are called femicides or feminicides. These crimes are usually committed by men and result from situations of home abuse, threats or intimidation, sexual violence, or situations where women have less power or resources than men (WHO, 2013). It is not, therefore, every murder of women that is characterized as feminicide. This specific crime is configured when the woman is the victim of homicide only because of her gender.

In Brazil, statistics on offenses are even scarcer than on other crimes. Despite the scarcity of data, it is possible to verify that the occurrences of female homicides, although declining, are still at alarming levels and the country lives a culture of violence as conflict resolution (WAISELFISZ, 2015).

The Maria da Penha Law, sanctioned in August 2006, established the obligation of respect and equality, creating mechanisms to curb domestic and family violence. Barreto (2016) and Garcia et al. (2013) present, however, that the Maria da Penha Law, from its force to the present day, has had little effect in reducing the numbers of violence against women and feminicide.

The numerous consequences of violence against women can be summarized, according to Bott et al. (2012): (i) a major cause of injury and disability, as well as a risk factor for physical, mental and sexual problems; (ii) causes long-term intergenerational problems for the health, development and well-being of the children of women who have been victims; and (iii) negative social and economic consequences for society as a whole.

Education as well as being a desirable goal of economic development provides equal opportunity in work and economic resources between women and men (DUFLO, 2012). But

education is a resource too and the resources have instrumental value, once they are used to exercise the agency power. In this sense, the years of schooling completed could be an indicator of functionings that increase the agency power, the ability to choose, and its effectiveness results. Moreover, exercising choice a person can change power relations. Having resources and improving active agency are related. (KABEER, 2003, p.171-174).

As pointed out by Beltrão and Alves (2009), since the 1980s women have been more educated than men, considering the number of years of schooling and are also the majority in the proportion of graduating enrollments. This increase in the educational level of women could be associated with the increase of their presence in prominent positions, inducing their appreciation outside the domestic environment. There would be a possibility, therefore, of education being configured as a channel to affect violence against women since she could find herself in situations of greater exposure and risk.

4. METHOD AND DATA

Methodological Procedure

The model proposed in this research seeks to understand the effect of education on female homicides, that is, to investigate whether the higher educational level can reduce female homicides, a *proxy* variable for violence against women. Few studies have investigated the causes of violence against women, especially in Brazil. We fill the gap in the literature by exploring the impact of male and female education on female homicides. By separating both levels of education we can identify the channels from males that are only the offenders from the channels from a female that can be offender and victims.

The empirical strategy was to build a data panel of the 645 municipalities in São Paulo´s state from 2003 to 2018.

The panel data model is the best strategy for studies investigating the determinants of crime, which usually present unobservable heterogeneity among individual units (DOS SANTOS; KASSOUF, 2008). The presence of unobserved effects among municipalities affecting violence is confirmed by the Hausman test on a fixed-effects model. By controlling for fixed-effects we are taking any biased from our estimates that are due to unobserved variables that are time fixed (LOCHNER; MORETTI, 2004). We expect that culture and criminal incidence are unobserved factors that do not vary over the period of our sample (SILVA, 2014). We also control for measures of municipality economic performance.

Data

The proxy for violence against women is the rate of female homicides per 100 thousand women. This crime is considered to have more reliable records, after all, it is more reported than a crime against property and, generates a murder police report only when strong evidence is found, like a corpse (HARTUNG, 2009). However, it is noteworthy to point that in DATASUS there is no classification of deaths by feminicides so that women homicides were used to represent this variable. The explained variable source is the DATASUS Mortality Information System (SIM). Homicide codes are defined by the 10th International

Classification of Disease (ICD 10), the X85 to Y09 codes marshal all types of aggressions used here. This variable will be constructed according to the equation below and the other variables used in the models are presented in Table 1.

$$female\ homicides = \frac{women's\ homicides\ in\ the\ municipality}{women\ in\ the\ municipality} \times 100.000$$

The empirical models use some control variables to minimize the bias of the omitted variable since these variables can be correlated with the education *proxy* used.

Chart 1 - Variables used in estimations.

Variable	Description	Source	Expected signal
Violence	Women´s homicides	DATASUS	-
Education	The ratio of enrollment and school-age population with ten years lag.	INEP[2]	Negative
GDPpc	GDP per capita	SEADE[1]	Negative
Urban Pop.	Percentage of population living in urban areas	SEADE	Positive
Young Pop.	Men 15 to 24 years old	SEADE	Positive
Apprehensions	Theft apprehensions	SSP[3]	Positive
Detention Rate	Relationship between number of homicide prisoners	SSP	Negative
Workforce	Percentage of employed women in working age	RAIS[4]	Ambiguous

[1] State Data Analysis System Foundation; [2] National Institute of Educational Studies and Research Anísio Teixeira; [3]Secretariat of Public Security of the State of São Paulo; [4]Annual List of Social Information.

The measure used for the education of municipalities is presented according to the equation below:

$$education\ rate = \frac{N.of\ school\ age\ enrolled}{N.of\ school\ age\ enrolled\ residents} \times 100.000$$

We use the enrollments from the first year of schooling until high school, so we shape the rate with the nine years of fundamental school and the three years of high school. The text will refer to these twelve years as regular schooling. The number of school-age enrollments

was taken from the Educational Census collected and disseminated by the Anísio Teixeira National Institute for Educational Research (INEP). The enrollment data has ten years lag for each year of homicide information. With this strategy, the education rate expresses de average access to education of the adult population in each analyzed year with registered homicides. The age population data were obtained from the Brazilian Institute of Geography and Statistics (IBGE) in population counts, with estimates of age ranges from the 2000 and 2010 Population Census.

The municipal educational level represents the social and economic development degree and may be associated with demographic, economic, and social factors. The control variables can be separated into three groups: socioeconomic, demographic, and criminal justice determinants.

The GDP per capita of the State Data Analysis System (SEADE) is one of the socioeconomic determinants. Municipal GDP per capita is used as a proxy to capture the effects of income changes on crimes against individuals. We can analyze this variable from two perspectives: according to Becker's (1968) model of rational utility theory, agents condition its utility to factors that would increase the opportunity cost of committing a crime. However, as local income increases, the benefits associated with crime increase, generating potential gains for the criminal. Thus, the effect of income on crime is ambiguous. The values of the municipal GDP *per capita* were deflated by the implicit deflator of GDP for the year 2015. This variable was used by Kume (2004), Hartung (2009), and Silva (2014).

The proxies to the demographic determinant are the percentage of young men and the urban population of each municipality, both obtained from the SEADE. The percentage of young people refers to the number of people in the municipality's male population aged 15 to 24 years to the total population of the municipality. According to Kume (2004), urban areas would be responsible for the rising crime rate because the most crowded environments tend to make it difficult to identify the criminal and facilitate his escape.

The detention rate is the likelihood of apprehension, and it is the proxy for criminal justice. Insofar as there is a larger likelihood associated with detention, greater is the cost of choosing an illegal activity. The detention rate is similar to that used by Gaulez et.al. (2018). It is the ratio between the number of prisoners and the number of homicides lagged in a period. If the proportion of arrested individuals increases, it is expected that others refrain from committing crimes in light of the probability of being punished. The number of vehicle thefts apprehensions is a variable to control the city's crime. This information was extracted from the São Paulo Public Security Bureau.

Descriptive statistics of the variables are presented in Tables 1 and 2. Table 1 shows statistics following the panel data pattern, while Table 2 presents a descriptive analysis of the variables in all periods.

Table 1 - Descriptive statistics for the municipalities of São Paulo. 2003 - 2018.

Variable		Average	DP	Min	Max	Obs.
Violence	*overall*	1.85	6.62	0.00	139.59	N = 10320
	between		3.92	0.00	53.03	n = 645
	within		2.33	- 51.18	88.41	T = 16
Women Educ.	*overall*	0.76	0.12	0.00	1.00	N = 5805
	between		0.08	0.42	1.00	n = 645
	within		0.08	0.24	1.18	T = 9
Men educ.	*overall*	0.77	0.12	0.00	1.00	N = 5805
	between		0.08	0.41	1.00	n = 645
	within		0.08	0.27	1.23	T = 9
Urban Pop.	*overall*	0.84	0.14	0.22	1.00	N = 10320
	between		0.13	0.25	1.00	n = 645
	within		0.03	0.32	1.35	T = 16
Young Pop.	*overall*	0.08	0.01	0.05	0.25	N = 10320
	between		0.01	0.06	0.22	n = 645
	within		0.01	- 0.00	0.12	T = 16
Detention rate	*overall*	0.26	0.36	0.00	1.00	N = 9675
	between		0.17	0.00	0.71	n = 645
	within		0.01	- 0.43	1.19	T = 15
Workforce	*overall*	0.21	0.13	0.00	1.00	N = 10320
	between		0.11	0.01	0.95	n = 645
	within		0.07	-0.72	1.04	T = 16

Table 2 - Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Violence	10320	1.85	6.618	0	139.60
Men´s Educ	5805	0.77	0.12	0.00	1.00
Women´s Educ	5805	0.76	0.18	0.00	1.00
Urban Pop.	10320	0.84	0.14	0.22	1.00
Young Pop.	10320	0.09	.012	0.05	0.25
Detention Rate	9675	0.26	0.36	0.00	1.00
Workforce	10320	0.21	0.13	0.00	1.00
GDPpc	9675	20595.14	20509.03	2606.15	401303.95

5. RESULTS AND DISCUSSION

The results presented raise relevant information to understand the determinants of crime on a rational choice and women empowerment approaches, especially considering the role of education in women's homicides. In short, it is expected to understand how these variables relate to each other.

The results of the fixed effects panel model estimates are shown in Table 3. Estimates were based on information of 645 municipalities of São Paulo from 2003 to 2018. The panel data model is used to control the unobservable heterogeneity of each observation unit, since characteristics cultural, social, political, considered stable over time, can influence violence against women in municipalities.

Some tests were performed to verify the best behavior of the data and the functional form: first, the Breusch-Pagan test to evaluate if the errors were homoscedastic. The null hypothesis was rejected indicating the presence of heteroscedasticity so robust errors were adopted; second, the Hausman tests were applied to evaluate which panel data method should be used. The test indicated the use of the Fixed Effects method, corroborating the Brazilian literature that does not disprove the unobserved fixed effects hypothesis, and the multiple linear restriction F tests performed for each regression rejected the null hypothesis indicating that variables were statistically significant together, the value-p was 0.00.

Estimates were made to verify the impact of education on women's homicides. The first column estimates the impact of women's access to education on their homicides; the second column aims to verify the impact of men's education and the third column presents the impact of men's and women´s education. In all specifications, education has been lagged for 10 years to identify the impact of access to education on life as young adults. The results of these estimates are presented in Table 3.

The results show a negative relationship between homicides and education, suggesting that greater access to education would decrease the homicide rates of women in the municipalities. One percentage point in women's education rate reduces 0.21 points the female homicide when we consider only the women's education or when we consider the men's too (Model 1 and 3). In the same way, an increase of one percentage point on the male education rate could decrease 0.27 points the female homicide rate.

Our results are accordingly with other scholars that find a negative relationship between crime and education (BECKER; KASSOUF, 2017; KUME, 2004; SANTOS, 2009). Most of studies on the economics of crime use education to explain the costs and benefits of criminality, not as an explanatory variable itself to the homicide (HARTUNG, 2006; CERQUEIRA; LOBÃO, 2003; ERVILHA; LIMA, 2019). Our distinctive point is insofar including the ten years lag enrollment rate to shape the education variable we highlight the importance of the first twelve years of regular schooling. Additionally, our results show a decrease in the homicide rate as a result of education, not as a result of an individual choice changed by education. Through the results obtained presented in Table 3, some of the control variables are not statistically significant, although they remain with the same sign and similar magnitudes regardless of the specification

Table 3 - Women's Homicides and Education - EF Estimates.

VARIABLES	(1)	(2)	(3)
Women Education	-0.214*		-0.213*
	(0.115)		(0.115)
Men Education		-0.339**	-0.277**
		(0.113)	(0.113)
Apprehensions	-0.000241***	-0.000250***	-0.000242***
	(7.36e-05)	(7.35e-05)	(7.36e-05)
Urban Pop	-0.109	-0.0756	-0.105
	(0.806)	(0.806)	(0.806)
Young Pop	-1.440	-1.002	-1.524
	(2.704)	(2.713)	(2.727)
Detention Rate	0.0350	0.0349	0.0349
	(0.0309)	(0.0309)	(0.0309)
Female Work Force	-0.196	-0.236	-0.194
	(0.336)	(0.336)	(0.337)
GDP per capita	-9.96e-07	-1.10e-06	-9.89e-07
	(8.95e-07)	(8.93e-07)	(8.95e-07)
Constant	0.512	0.596	0.495
	(0.755)	(0.757)	(0.759)
Observations	5,805	5,805	5,805
R-squared	0.004	0.003	0.004
Number of code	645	645	645

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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6. FINAL REMARKS

This paper analyzes the effect of education on female homicides in the municipalities of São Paulo from 2003 to 2018. We investigated through the literature the channels that education has an impact on crime. One focus in this paper was on the influence of education in the decision to commit or not a criminal action, through the opportunity cost. However, the effect of education can also empower women by giving the means to leave a relationship that could put her in a dangerous situation. By separating male and female education, we can verify the existence of these two channels. In this way, this paper fills a gap in the literature on violence against women verifying simultaneously the two channels by which investing in education can decrease crimes committed against women.

Using a panel data model for all municipalities in the state of São Paulo, we estimate the effect of education of men and women on female homicides, our measure of violence against women. By using school enrollment ten years ago as a measure of education, we could verify the effect of youngers' access to school on violence in their adult ages.

Our results are in line with the literature on the economics of crime from the opportunity cost of commit a crime perspective, higher schooling enrollment of boys decreases crime against women in their adult age. As we expected, higher education makes crime against women less likely to occur. The channel for female access to education decreases violence against women is by women empowerment. The increase of one percentage point in the enrollment rate of men reduces the rate of female homicides by 0.27 points and the increase of one percentage point in the enrollment rate of women reduces by 0.21 percentage points. The difference between the coefficients is statistically significant, suggesting that men's education has a greater impact on reducing women's violence.

Regardless of the channel that education promotes a reduction in violence against the women the results suggest that educational inclusion is necessary. Therefore, policies that keep children enrolled at school, such as which was adopted recently in Brazil: conditional cash transfers and mandatory basic education should be pursued. As well as policies that allowed women to have as much economic benefit from schooling than men.

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