Does Concern about Local Crime affect People's Trust in the Police?

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Abstract

Trust in institutions is one of the central pillars of the stability of democracies. By exploring a unique database indicative of confidence on Brazilian institutions, this study investigates the effect of concern in local crime on confidence in the police. We explore data from the Confidence in Justice Survey conducted for the period from 2013 to 2014 at the state of Sao Paulo. Our identification strategy is the two-stage least square model, with an individual's distance to police stations as the instrumental variable. We find that an increase in the total crimes registered reduces confidence in the police. Such results are particularly more apparent in crimes like drug dealing and rape. Exploring heterogeneities in the results, we find that black people are more sensitive to crime rate changes with respect to security, even while living in similar neighborhoods as white citizens. Results also show that those who had prior experience with the police are less sensitive, independent of the quality of police work at the time.

Keywords

Resumo

A confiança nas instituições é um dos pilares centrais da estabilidade das democracias. Ao explorar um banco de dados exclusivo relacionado à confiança nas instituições brasileiras, este estudo investiga o efeito da preocupação sobre o crime local na confiança na polícia. Exploramos dados da Pesquisa Confiança na Justiça, realizada para o período de 2013 a 2014, no

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estado de São Paulo. Nossa estratégia de identificação é o modelo de mínimos quadrados de dois estágios, considerando a distância de um indivíduo às delegacias de polícia como variável instrumental. Constatamos que um aumento no total de crimes registrados reduz a confiança na polícia. Tais resultados são particularmente mais aparentes em crimes como tráfico de drogas e estupro. Explorando heterogeneidades nos resultados, descobrimos que os negros são mais sensíveis às mudanças na taxa de criminalidade em relação à segurança, mesmo quando vivem em bairros semelhantes aos cidadãos brancos. Os resultados também mostram que aqueles que tinham experiência anterior com a polícia são menos sensíveis, independente da qualidade do trabalho policial da época.

Palavras-Chave

Confiança na Polícia. Instituições. Crime.

Classificação JEL

K11. K30. K40.

1.   Introduction

The police are the state's first-line representative with respect to citizens. Hence its legitimacy amongst citizens is of paramount importance in maintaining social order. Therefore, determining what factors affect citizens' trust in the police is highly relevant in terms of public policy. Potential risk factors for violence encompass conditions at various levels, namely, individual, family, community, and the society at large.

In 2017 there were 63,800 intentional violent deaths in Brazil, reaching 30.8 deaths for every 100 thousand inhabitants. Those deaths were concentrated among young men. This is a special problem in emerging countries, being poorer and having larger populations of young men than developed countries. Becker (1968) models the objective function of an offender, having as inputs the return on committing the crime, the probability of receiving punishment, and the severity of the punishment itself. However, Brazilian citizens seem distrustful of the police's efficiency in fighting crime. In 2017, the Trust in the Justice Survey, conducted by the Getulio Vargas Foundation, disclosed that only 26% of Brazilians trust the police. This number is below the percentages corresponding to the army, Catholic Church, press, and big companies. It is therefore important to measure the determinants of trust in the police since this could create a variety of incentives related to obeying the law.

A brief review of the literature on the subject reveals an empirical ambiguity regarding the causal relationship between concern about local crime and trust in the police. Some studies adopt the level of trust in the police as the dependent variable and are therefore subject to influences by local conditions such as crime rates. These studies argue that people hold the police accountable for local crime, disorder, and lack of public safety (Reisig and Parks 2000; Sampson and Jeglum-Bartusch 1998). Other studies have examined crime rates as being partly determined by the extent of trust in the police (Reisig and Parks 2000).

Our work considers the other direction of causality, treating crime rates as an independent variable and examining its impact on trust in the police. This causal ordering is present in several studies that conclude that where residents perceive higher crime rates, and where fear of crime is high, trust in the police is consequently lower. Communities whose residents believe, for instance, that their neighborhood is afflicted with drug dealing and gangs are less likely to trust the police (Jesilow, Meyer, and Namazzi 1995).

Although public assessment of the police has become the chief concern of a substantial amount of research, only a small set of studies has analyzed public trust in developing countries. This study analyzes the relationship between concern about local crime and trust in the police in the Brazilian setting and thus, seeks to contribute to the literature by examining whether regions that have higher crime rates have lower trust in the police.

One of the most important contributions of this study is that it presents evidence based on data from the Trust in Justice Survey conducted by São Paulo Law School of Getulio Vargas Foundation. The survey provides a unique database that measures perceptions of respondents about compliance with the law and their perceptions about institutions. We used data from the 2013 and 2014 editions, with a total of 1,005 observations.

Additionally, this study contributes to literature by applying the analysis to the state of São Paulo. Poverty in Brazilian metropolitan regions like São Paulo is rampant and has a multidimensional character in terms of public services, access to education, and income. Moreover, this study separately analyzes the different types of crimes such as those that are property-violating and life-threatening, as well as drug dealing and sexual offenses, each of which affects the population's trust in the police in a

distinct manner. Therefore, this study is relevant to establishing some explanation for the public's perceptions about the police. Understanding the population´s views on the trustworthiness of the police may help police managers improve public participation in crime prevention programs as well as broader police-community relations in Brazil.

In this study, we estimate the effect of crime rates in people's confidence in the police, analyzing four different types of crimes, namely, life-threatening crimes, property-violation crimes, drug trafficking, and sexual offenses. We recognize that even after controlling for a rich set of covariates, there is a clear endogeneity between places with higher (lower) crime rates and unobserved variables that affect people's confidence in the police. To address the problem of simultaneity bias due to the correlation between trust in the police and crime rates, we apply a two-stage least square approach using the distance of each respondent to their closest police station as the instrumental variable. This instrument is not ideal since there can be a correlation between police stations' localization and the flow of people. However, the novelty of the study supports its relevance.

Our results show that an increase of 1% in the total crime per capita rate reduces trust in the police by about 450 basis points. This impact is even more remarkable in the special cases of rape and drug dealing. However, this is only significant for black people. Results also show that respondents that had previous experiences with the police do not appear to associate police work with crime rates.

This article is organized as follows. Section 2 discusses the empirical literature related to crime and trust in the police and shows the institutional background of police work in Brazil. Section 3 describes our database. Section 4 describes our methodology and the identification strategy. Section 5 displays our main results. Section 6 opens a discussion about some subsamples of interest, and finally, section 7 presents our conclusions.

2. Literature Review

2.1. Does Concern about Crime Affect Trust in the Police?

In this study, we analyze the impact of crime rates on trust in the police. Citizen evaluations of the police are a critical issue for police administrators during the information technology era, as locality-based crime prevention and fighting strategies become integral parts of a new policing model mainly driven by data and technology (Rosenbaum 2007). Jesilow, Meyer, and Namazzi (1995) show that communities whose residents believe, for instance, that their neighborhood is afflicted by drug dealing and gangs are more likely to be critical of the police than communities whose residents do not believe similar issues exist in their neighborhood. The same is true in places where people believe that crime is a serious problem in their neighborhood (Weitzer and Tuch 2004a, 2004b; Weitzer, Tuch and Skogan 2008) and where people report that a violent crime occurred in their neighborhood in the past year (Weitzer and Tuch 2002).

Our study is similar in that it adopts the accountability model. We embed survey respondents in the context of their neighborhood, with its corresponding crime rates. Sampson and Jeglum-Bartusch (1998) and Reisig and Parks (2000) both show that variations in neighborhood homicide rates are related to differences in assessments of the police. Their results are robust even when controlling for important neighborhood characteristics such as poverty and also for individual factors like race and previous experience with police. In this study, our independent variables are different. We use life-threatening and property-violation crimes, as well as drug trafficking and sexual offenses. For example, the homicide rate is included in the life-threatening crime category. The idea is to analyze the differences between these variables in terms of the importance of their impact on the public's trust in the police.

Sampson and Jeglum-Bartusch (1998) show that cynicism about the law and dissatisfaction with the police are routine parts of life in places that have high crime rates. People living in such areas are rooted in distinct experiences associated with their neighborhood. There is a theoretical school that consists of variations on the claim that people hold the police directly or indirectly responsible for neighborhood conditions. According to this approach, social conditions including fear and helplessness are important variables in explaining the trust or distrust in the police. Consistent with

this view, Xu, Fiedler, and Flaming (2005) conclude that fear undermines satisfaction with the police. From their standpoint, fearful people, who disproportionately live in high-crime, disorderly, low-quality-of-life neighborhoods, believe their neighborhoods are unsafe because the police are unable or unwilling to help them.

High levels of social disorder signal to residents that law enforcement is ineffective and that police protection is not to be trusted (Ren, Cao, Lovrich, Gaffney 2005). Reisig and Parks (2000) and Velez (2001) show that residents of areas with higher crime rates are more likely to report that officers perform poorly in maintaining order and fighting crime, that the police treat crime victims unsatisfactorily, and that the police are unresponsive to local issues.

Likewise, our study analyzes whether the public's perception of trust in the police changes when the crime rates change. There is a problem of potential endogeneity between trust in the police and crime rates. Simultaneity issues are also likely to be present because people who have lower levels of trust in the police may disobey the law more often than other people. Respondents under such conditions may be naturally averse to the police. Put differently, respondents whose neighborhoods are afflicted with drug dealing and gangs are more likely to distrust the police. We try to treat this problem via an instrumental variable approach, as presented and discussed in the next section.

3. Data

Our database came for the quarterly Trust in Justice Survey conducted in 2013 and 2014 by the Getulio Vargas Foundation. These surveys were obtained via telephone calls over a period of twenty-one months. The survey participants live in São Paulo state. Each respondent is an individual who represents a selected household, is of any gender, and is over 18 years old. Our sample consisted of 721 respondents in 2013 and 284 respondents in 2014.

The question on trust in the police allows four response categories: 1 = not at all confident, 2 = not very confident, 3 = fairly confident, and 4 = very confident. The trust in the police variable is a dummy that takes the value one when the response is very confident or fairly confident, and zero otherwise. We created a dummy variable that takes the value one when respondent i responds 3 or 4, and zero otherwise.

We used five per capita crime-related variables, namely total crimes, life--threatening crimes, property-violation crimes, drug trafficking, and sexual offenses. Life-threatening crimes include homicide, robbery, kidnapping, and physical aggression. Property-violation crimes include robbery and theft. For each category, we have the monthly number of crimes reported by police departments in the state of São Paulo from 2013 to 2014.

Our data on crime numbers came from the São Paulo Public Security Secretary (*Secretaria de Segurança Pública do Estado de São Paulo*) and only reflect reported crimes and victim information such as intentional homicide, rapes, drug trafficking, and armed robbery. Victim statistics are probably the most reliable source for violence-related data in São Paulo because the São Paulo state law enforcement agencies compile statistics for these types of crime. The police departments are heterogeneous in terms of size. As such, we constructed the per-capita-crimes variables using populations from sector censuses of the police stations in São Paulo.

Table 1 describes the main characteristics of per-capita-crime variables, our trust in police variables, and distance to police stations. There is only one police station connected to each respondent. For each of the respondents it was considered the nearest police station. Crime statistics are for all police stations considered in the sample and distributed in the state of São Paulo. As can be seen, 32% of respondents declare that they trust the police, and the average number of per capita total registered crimes is 0.37. The most common type of crime is property-violation related, with a rate of 0.297.

Table 1 - Descriptive Statistics for Trust and Crime Variables

	Full Sample	Previous Experience with the Police		Good Previous Experience with the Police		Race	
		Yes	No	Yes	No	Blacks	Non-Blacks
Trust in the Police	0.320	0.315	0.324	0.336	0.252	0.235	0.383
	(0.467)	(0.465)	(0.468)	(0.473)	(0.435)	(0.425)	(0.486)
Per capita Crimes							
Total	0.379	0.365	0.389	0.372	0.377	0.386	0.374
	(0.726)	(0.758)	(0.703)	(0.94)	(0.352)	(0.353)	(0.907)
Property-Violating Crimes	0.297	0.286	0.306	0.292	0.298	0.303	0.293
	(0.628)	(0.654)	(0.608)	(0.812)	(0.299)	(0.298)	(0.786)
Life-threatening Crimes	0.070	0.068	0.071	0.068	0.068	0.071	0.070
	(0.09)	(0.094)	(0.088)	(0.111)	(0.06)	(0.059)	(0.108)
Drug Trafficking	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	(0.005)	(0.005)	(0.005)	(0.006)	(0.003)	(0.004)	(0.006)
Sexual Offenses	0.009	0.009	0.009	0.009	0.008	0.009	0.009
	(0.017)	(0.018)	(0.016)	(0.021)	(0.012)	(0.012)	(0.02)
Total Respondents	1005	422	583	253	169	425	580

Notes: 1) Data on trust in the police came from the Brazilian Confidence in Justice Survey coordinated by the Getulio Vargas Foundation, with 1,005 respondents. 2) The upper lines on the table show the sample average of each variable. The lower lines report the standard deviation and the bottom line shows the number of observations. 3) 'Per capita' means that we divided the number of crimes registered at the police departments by the 2010 total population of its sector census. 4) 'Crimes in the Neighborhood' means the average per capita crimes of the two closest police stations, excluding the nearest one. This average was weighted by the distance of each police station to each individual.

Table 2 - Details the variables that control for individual heterogeneity Definitions for the Main Variables

Woman	Dummy variable that takes the value one when the respondent is female, and zero otherwise
Black	Dummy variable that takes the value one when the respondent is black, and zero otherwise
0 to 1 Minimum Wages	Dummy variable that takes the value one when the respondent's salary is from 0 to 1 minimum wages, and zero otherwise
1 to 4 Minimum Wages	Dummy variable that takes the value one when the respondent's salary is from 1 to 4 minimum wages, and zero otherwise
4 to 8 Minimum Wages	Dummy variable that takes the value one when the respondent's salary is from 4 to 8 minimum wages, and zero otherwise
8 Minimum Wages	Dummy variable that takes the value one when the respondent's salary is higher than 8 minimum wages, and zero otherwise
Formal Contract Work	Dummy variable that takes the value one when the respondent has a formal job, and zero otherwise
Occupied	Dummy variable that takes the value one when the respondent has a formal or informal job, and zero otherwise
Age	is the respondent's age in years
Years of Schooling	is the respondent's education in years
Married	Dummy variable that takes the value one when the respondent is married, and zero otherwise
Had Previous Experience with the Police	Dummy variable that takes the value one when the respondent called the police for help, and zero otherwise
Positive View of Police Performance	Dummy variable that takes the value one when the respondent that called the police for help was satisfied with the service provided, and zero otherwise

Table 3 displays descriptive statistics for demographic characteristics. Our sample is similar to the overall São Paulo demographic data in terms of gender and race. In our sample, 51% of respondents are female and 7% are black. According to the 2010 census, 6% of São Paulo's population is black and 52% is female. Households with monthly per capita income between 0 and 1 minimum wages account for 43% of total households, or 42% of São Paulo's population. Households with monthly per capita income between 1 and 4 minimum wages account for 40% of the population. In our sample the corresponding share is 38%. Table 3 also shows that 42% of respondents have had previous experience with the police and that 25% of these respondents think that the police had performed well.

Table 3 – Demographic Characteristics

	Full Sample
Female	51.5%
	(0.5)
Black	7.50%
	(0.132)
0 to 1 Minimum Wages	43.1%
	(0.213)
1 to 4 Minimum Wages	38.2%
	(0.5)
4 to 8 Minimum Wages	10.1%
	(0.462)
8 or more Minimum Wages	1.6%
	(0.331)
Formal Contract Work	32.2%
	(0.468)
Occupied	71.3%
	(0.452)
Age	41.755
	(15.228)
Years of Schooling	9.746
	(3.735)
Married	55.0%
	(0.498)
Capital	26.0%
	(0.439)
Had Previous Experience with the Police	42.0%
	(0.494)
Positive Experience with the Police	25.2%
	(0.434)

Notes: 1) The upper lines on the table are the sample averages for each variable. The bottom lines report the standard deviation. 2) Wages were measured in terms of the 2014 minimum wage, which corresponds to 306 US dollars.

Table 4 displays descriptive statistics for the covariates. Among those who have had previous experience with the police, 54% are female and 48% are black. As for women who have had previous experience with the police, 53% stated that the police had done a good job. However, only 45% of black people who have had previous experience with the police stated that the police had performed well. In terms of income, considering respondents who have had previous experience with the police, 41% receive up to 1 minimum wage per month, 42% of them stated that the police had done a good job.

Table 4 reveals that the socio-economic status of those that have had previous experience with the police is higher in terms of years of schooling and labor earnings. It is also noteworthy that a high number of survey respondents are occupied and about half of them are formal contract workers. Years of schooling and labor earnings are lower for black respondents. This suggests that racial discrimination can be confounded with social discrimination.

Table 4 - Descriptive Statistics for the covariates

	Previous Experience with the Police		Good Previous Experience with the Police		Race	
	Yes	No	Yes	No	Blacks	Non-Blacks
Female	0.543	0.496	0.538	0.523	0.456	0.559
	(0.499)	(0.5)	(0.5)	(0.501)	(0.499)	(0.497)
Black	0.487	0.521	0.458	0.562		
	(0.491)	(0.496)	(0.488)	(0.545)		
0 to 1 Minimum Wages	0.414	0.451	0.421	0.401	0.061	0.038
	(0.166)	(0.241)	(0.186)	(0.14)	(0.24)	(0.191)
1 to 4 Minimum Wages	0.436	0.501	0.502	0.371	0.506	0.450
	(0.496)	(0.5)	(0.501)	(0.485)	(0.501)	(0.498)
4 to 8 Minimum Wages	0.339	0.285	0.324	0.404	0.296	0.316
	(0.474)	(0.452)	(0.469)	(0.492)	(0.457)	(0.465)
8 or more Minimum Wages	0.156	0.103	0.138	0.205	0.096	0.147
	(0.364)	(0.304)	(0.346)	(0.405)	(0.296)	(0.354)
Formal Contract Work	0.351	0.302	0.364	0.364	0.341	0.309
	(0.478)	(0.459)	(0.482)	(0.483)	(0.475)	(0.462)
Occupied	0.773	0.671	0.739	0.828	0.732	0.700
	(0.42)	(0.47)	(0.44)	(0.379)	(0.444)	(0.459)
Age	39.969	43.048	40.826	38.470	38.671	44.016
	(13.882)	(16.02)	(14.486)	(12.923)	(14.553)	(15.327)
Years of Schooling	10.590	9.136	10.273	11.185	9.148	10.184
	(3.394)	(3.852)	(3.515)	(3.153)	(3.452)	(3.873)
Married	0.536	0.561	0.510	0.550	0.506	0.583
	(0.499)	(0.497)	(0.501)	(0.499)	(0.501)	(0.494)
Capital	0.230	0.281	0.206	0.298	0.344	0.198
	(0.421)	(0.45)	(0.405)	(0.459)	(0.475)	(0.399)
Had Previous Experience with the Police					0.400	0.434
					(0.49)	(0.496)
Positive Experience with the Police					0.231	0.267
					(0.422)	(0.443)

Notes: 1) Data about trust on the police came from the Brazilian Confidence in Justice Survey coordinated by Getulio Vargas Foundation, with 1,005 respondents. 2) The upper lines on the table are the sample averages for each variable. The bottom lines report the standard deviation. 3) Wages were measured in terms of the 2014 minimum wage, which corresponds to 306 US dollars.

4. Empirical Approach

In this study we tested the hypothesis that trust in the police is affected by changes in crime rates. Assuming that different types of crimes have distinct relationships with people's perception of safety, we ran regressions for four types of crimes, namely, life-threatening crimes, property-violation crimes, drug trafficking, and sexual offenses.

Ideally, our experiment would involve observing and comparing the same individual's trust in the police in two distinct situations where he or she would be exposed to (1) average or (2) slightly higher crime rates. Given the impossibility of such a task (Holland 1986), even if we ran an ordinary least squares (OLS) regression of trust in the police on crime rates we would not obtain an unbiased estimator due to the classic problem of 'bias of simultaneity' (Wooldridge 2010). This problem occurs because at the same time that changes in crime rates affect people's trust in the police, variations in people's trust in the police can change crime rates.

To understand the second relationship, assume that in a region where people trust the police less, people are more likely to commit crimes. As OLS incurs in biased estimators, our way to deal with endogeneity is running a two-stage least square regression (2SLS) as defined in Hayashi (2000). Our idea here is to find an instrumental variable that is correlated to crime rates but at the same time *not* correlated to the deviation term in the regression. We recognize this is not entirely true for the instrumental variable we adopted (i.e., the distance of the individual to the closest police station) as the instrumental variable for crime rates. One possible problem with the instrument is that local areas with higher crime rates are also places with more flow of people. Other identification strategies are not applicable for this database since it constitutes random cohorts for two years.[1] The estimation can be described in two stages:

$$Per\ capita\ Crime\ Rate_{i,t} = \beta_0 + \beta_1 Distance\ to\ Pol.St._{\cdot i} + \beta' x'_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$Confidence\ in\ the\ Police_{i,t} = \pi_0 + \pi_1 Per\ capita\ \widehat{Crimes\ Rates}_{i,t} + \pi' x'_{i,t} + \sigma_{i,t} \quad (2)$$

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[1] As respondents of the survey were randomly sorted, we cannot apply fixed effects estimation or other identification strategies based on panel data.

where Equation (1) represents the first stage and Equation 2 the second stage. π_1 is the coefficient that measures the relationship between trust in the police and crime rate that we want to test, and $x'_{i,t}$ is a vector of covariates that we use as control variables on regressions. The control variables include dummies for income, gender, race, marital status, years of schooling, formal contract status, employment, and quarter dummies. In all regressions throughout the study, standard errors are robust to heteroscedasticity.

There is a well-known debate about the roles of geography versus institutions in explaining the long-term development of countries. For example, Acemoglu, Johnson, and Robinson (2001) argue that geographic conditions, particularly high disease burdens, affected European settlement patterns, which in turn led to extractive institutions in non-settler economies and development-friendly institutions in settler economies. It is nevertheless worthwhile to consider the institutions and the provision of public services at the micro level within a country, as this allows one to examine in detail what kind of institutions matter and moreover, how they are viewed by society in terms of trust.

Geography can have an indirect effect on the levels of trust in institutions, including the police department. Rodrik, Subramanian, and Trebbi (2002) show that the distance and the integration between geographic regions explain the emergence of some regional elites, as well as the quality of some institutions. According to these authors regions that are distant from major economic centers tend to exhibit lower rates of economic and social development. They also show that geographically distant regions exhibit the greatest social inequalities and are the most socially vulnerable. Glaeser (2005) provides evidence that when inequality increases the returns to crime increase for the poor because (1) victims become richer, and (2) the opportunity costs of crime decrease as the poor become poorer. He also shows that the rich tend to desire a legal system focused on protecting property while the poor tend to be more concerned with preventing interpersonal violence. These divergent goals diminish the societal willingness to invest in a mutually beneficial legal system. On the whole, poorer areas tend to have fewer public services when compared to less poor areas. Although this study does not analyze the effects of economic inequality, it does use the distance between the respondent's home and the nearest police department as an instrument for crime rate.

Some studies show that trust in the police is lower in places where residents perceive higher crime rates. Communities whose residents believe, for instance, that their neighborhood is afflicted with drug dealing and gangs are more likely to be critical of the police (Jesilow, Meyer and Namazzi 1995) than other communities that do not suffer the same issues. The same is true for those who believe that crime is a serious problem in their neighborhood (Weitzer and Tuch 2004a, 2004b; Weitzer, Tuch, and Skogan 2008) and for those who report that a violent crime occurred in their neighborhood in the past year (Weitzer and Tuch 2002).

We use the Euclidean distance from a respondent's home to the nearest police department as the instrumental variable for crime rates. To find a causal effect we must establish that the only way the distance of an individual to the police station can affect trust in the police is via the channel of affecting his or her neighborhood´s crime rate.

Our argument is that the distance between the respondent's home and the nearest police department does not directly affect trust in the police because the choice of where to live is not directly associated with the level of trust that people have in the police, but it is strongly related to household income. Thus, our exogeneity hypothesis is that the distance between the respondent's home and the nearest police department affects trust in the police only through crime rates.

One specificity found in the instrumental variable approach is that our results must be interpreted as local estimators (Angrist and Pischke 2009). This means that under the hypothesis described above, we are estimating the causal effect of crime rate changes on trust in the police *only for the subsample of the population whose perceived crime rates in their neighborhood are somehow affected by distance to the police station.* Otherwise our estimators would no longer infer a causal relationship.

5. Empirical Results

Table 5 presents two-stage least square results as described by Equations (1) and (2). We note that for all kinds of crimes an increase in crime rates is negatively related to trust in the police. For instance, if the total per capita crime increases by about 1% then trust in the police decreases by 4.5%.

The effects of changes in the property-violation crime rate are quite similar to those of the total crime rate because, as pointed out on Table 1, most of the total registered crimes relate to private property. In the same way, drug dealing and sexual offenses have a much greater impact on police trust because their statistical incidence is smaller. Increases in drug dealing and sexual offenses draw much more attention from public opinion than private property crimes.

Our evidence corroborates existing literature that uses surveyed data to identify variables associated with citizen satisfaction relative to the police. Reported concerns about public trust and trust in the police rely on the assumption that trust shapes public cooperation. Measures of public satisfaction with the police are also important because perceptions of the police affect citizen cooperation (Weitzer 1999). This result suggests that the government should have the police engage in trust-building activities to increase public approval of its services.

Table 5 - 2SLS Regressions for Trust in the Police and Crime Rates Measures

	Total per Capita Crimes	Per Capita Private Property Crimes	Drug Traffic Incidence	Per Capita Homicides	Per capita Rape Incidence
π_1	-0.045*	-0.041*	-0.139*	-0.161*	-0.160*
	(-1.79)	(-1.77)	(-1.92)	(-1.80)	(-1.84)
Woman	-0.052	-0.057	-0.065*	-0.048	-0.064*
	(-1.60)	(-1.61)	(-1.81)	(-1.54)	(-1.87)
Black	-0.131***	-0.134***	-0.115***	-0.130***	-0.119***
	(-4.39)	(-4.20)	(-3.51)	(-4.10)	(-3.53)
0 to 1 Minimum Wages	-0.102	-0.095	-0.134	-0.100	-0.111
	(-1.27)	(-1.15)	(-1.62)	(-1.21)	(-1.32)
1 to 4 Minimum Wages	-0.090*	-0.090*	-0.127**	-0.087*	-0.084*
	(-1.79)	(-1.86)	(-2.39)	(-1.73)	(-1.77)
4 to 8 Minimum Wages	-0.085*	-0.090*	-0.131**	-0.081*	-0.079
	(-1.77)	(-1.85)	(-2.50)	(-1.65)	(-1.64)
Years of Schooling	-0.006	-0.007	-0.008	-0.006	-0.008
	(-1.38)	(-1.39)	(-1.63)	(-1.35)	(-1.62)
Age	0.001	0.001	0.001	0.002	0.002
	(1.26)	(0.96)	(1.18)	(1.44)	(1.59)
Married	-0.068**	-0.066**	-0.060*	-0.070**	-0.077**
	(-2.16)	(-2.13)	(-1.92)	(-2.24)	(-2.45)
Formal contract work	0.014	0.008	0.023	0.014	0.027
	(0.41)	(0.24)	(0.66)	(0.40)	(0.77)
Occupied	-0.038	-0.037	-0.020	-0.034	-0.012
	(-0.94)	(-0.96)	(-0.49)	(-0.85)	(-0.29)
Observations	956	956	956	956	956
R-squared	0.0369	0.0369	0.0369	0.0369	0.0369
First Stage Estimation					
Distance	-0.228***	-0.251***	-0.074***	-0.167***	-0.063***
	(-15.78)	(-13.46)	(-5.98)	(-11.77)	(-8.59)
F - Statistic	31.63***	26.16***	11.15**	15.74***	12.72***

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

6. Discussion

6.1. Does Past Experience with the Police Have any Impact on Respondents' Opinions?

Section 5 has shown a negative relationship between crime incidence and trust in the police. However, important questions arise regarding to what degree crime incidence can be attributed to police work, as well as what the consequences are of adding other variables such as poverty, income inequality, size of young population, or law enforcement.

It is reasonable to assume that a large share of the population has never personally demanded police service. This probably affects the population's perception of police responsiveness to crime. Table 6 displays 2SLS estimates for the effect of crime incidence on trust in the police for subgroups of people with (PANEL A) and without (PANEL B) past experience with the police. As can be seen in the first stage report, the instruments are quite strong in all cases, and there are slightly fewer people who have used police services. The results of the second stage are noteworthy in that they reveal that for the subgroup with prior experience with the police, rising crime incidence does *not* affect trust in the police. By contrast, for people lacking past experience with police work there is no statistically significant impact.

Yet more notably, we have found that the coefficients are higher than those estimated for the entire sample. For those who have not had prior experience with the police, an increase in total crime of 1% decreases total crimes by 5.3%. This result suggests that people update their opinions about police work once they have had a closer experience with the police. Apparently, they tone down the responsibility ascribed to the police for crimes once they become more familiar with the institution's work.

Table 6 - 2SLS Regressions for Trust in the Police using Subsamples of People who Have Previous Experience with the Police

	Total Crimes	Private Property Crimes	Drug trafficking Incidence	Life Crimes	Rape Incidence
PANEL A: Using people who have had previous experience with the police					
Had Previous Experience	-0.027	-0.025	-0.098	-0.038	-0.140
	(-0.62)	(-0.64)	(-0.63)	(-0.64)	(-0.65)
Observations	407	407	407	407	407
R-squared	0.074	0.074	0.074	0.074	0.074
First Stage Estimation					
Distance	-0.207***	-0.227***	-0.057***	-0.148***	-0.040***
	(-9.11)	(-8.33)	(-2.83)	(-6.34)	(-3.29)
F - Statistic	11.28**	15.77***	8.50*	12.22**	7.54*
PANEL B: Using people who did not have previous experience with the police					
Did not Have	-0.053*	-0.048*	-0.149*	-0.172*	-0.161*
Previous experience	(-1.76)	(-1.79)	(-1.76)	(-1.69)	(-1.74)
Observations	549	549	549	549	549
R-squared	0.0518	0.0518	0.0518	0.0518	0.0518
First Stage Estimation					
Distance	-0.244***	-0.269***	-0.087***	-0.179***	-0.081***
	(-13.13)	(-10.61)	(-5.62)	(-10.28)	(-8.84)
F - Statistic	23.59***	18.22***	8.97*	11.64**	11.21**

Notes: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Moreover, depending on the results of the previous experience with the police, people might trust the police in a different way. To address this we ran our exercise subdividing the sample into people who had good previous experience with the police and those who did not.

As can be seen on Table 7, little impact occurs in both cases. Thus, it seems that if people were to somehow become more familiar with police work, they would likely attribute less weight to police responsibility in crime rate variations. However, this seems independent of the results of their past personal experiences.

Table 7 - Regressions for Trust in the Police using Subsamples of People who Have Previous Experience with the Police and Were Satisfied \ Were Not Satisfied

	Total Crimes	Private Property Crimes	Drug trafficking Incidence	Life Crimes	Rape Incidence
PANEL A: Using people who had previous experience with the police and were satisfied					
Had Previous Experience	-0.028	-0.026	-0.109	-0.035	-0.277
	(-0.60)	(-0.59)	(-0.57)	(-0.58)	(-0.59)
Observations	249	249	249	249	249
R-squared	0.0408	0.0408	0.0408	0.0408	0.0408
		First Stage Estimation			
Distance	-0.245***	-0.267***	-0.063**	-0.196***	-0.025
	(-8.31)	(-7.58)	(-2.24)	(-6.39)	(-1.46)
F test	8.55*	7.55*	2.41	5.50*	1.41
PANEL B: Using people who did not have previous experience with the police and were not satisfied					
Did not Have	0.008	0.007	0.016	0.012	0.022
Previous Experience	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	146	146	146	146	146
R-squared	0.0276	0.0276	0.0276	0.0276	0.0276
		First Stage Estimation			
Distance	-0.202***	-0.216***	-0.101***	-0.130***	-0.073***
	(-5.07)	(-4.10)	(-3.38)	(-3.35)	(-3.72)
F - Statistic	6.14*	4.84*	2.85	3.92	3.56

Notes: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

6.2. *Does Skin Color Matter?*

If previous experience with the police is a condition that relates crime rates to success of police work then we should expect that two different subpopulations with exposures to high crime rates would attribute different rates to police work, depending on its efficiency. However, if crime rates for the two different subpopulations are very similar, then we should expect that trust levels in the police would be quite similar. If this is not the case it could be due to differences in sample demographic profiles, or because of different treatment by the police.

Table 8 shows that neighborhoods near police stations where black and non-black people live have very similar crime rates. Despite this, police trust is remarkably higher for the subpopulation of non-black people than for that of black people. As mentioned in the last paragraph this is a case of different demographic profiles. Table 3 shows that the black subsample is younger, less schooled, and slightly poorer than non-blacks.

We decided to run the two-stage least square regressions of trust in the police on different kinds of per capita crime rates separately for the subpopulations of non-black and black people. In these regressions we controlled for demographic and socioeconomic variables that could differentiate the groups in the ways described on Table 3. Even after controlling for such characteristics, black and non-black people were still different in their perceptions of relationships between crime rates and trust in the police. This must be due to the kind of treatment they receive from the police.

Table 8 - 2SLS for Trust in the Police using Black and Non-Black Subsamples

	Total Crimes	Private Property Crimes	Drug trafficking Incidence	Life Crimes	Rape Incidence
PANEL A: Using Black Subsample					
Black	-0.081*	-0.075*	-0.244*	-0.210*	-0.249*
	(-1.90)	(-1.87)	(-1.83)	(-1.81)	(-1.87)
Observations	412	412	412	412	412
R-squared	0.029	0.029	0.029	0.029	0.029
			First Stage Estimation		
Distance	-0.210***	-0.228***	-0.070***	-0.155***	-0.068***
	(-8.62)	(-6.51)	(-3.14)	(-6.46)	(-5.00)
F - Statistic	13.27**	11.35**	8.78*	10.65**	7.91*
PANEL B: Using Non-Black Subsample					
Non-Black	-0.033	-0.030	-0.104	-0.045	-0.131
	(-1.13)	(-1.13)	(-1.11)	(-1.09)	(-1.11)
Observations	544	544	544	544	544
R-squared	0.0125	0.0125	0.0125	0.0125	0.0125
			First Stage Estimation		
Distance	-0.238***	-0.262***	-0.077***	-0.175***	-0.061***
	(-13.46)	(-12.17)	(-5.11)	(-10.04)	(-6.83)
F - Statistic	23.28***	19.43***	8.89*	12.19**	8.77*

Notes: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

As can be seen on Table 8, crime rates seem to affect trust in the police only for the black subsample, who on average tend to trust the police less. These results are much stronger than those obtained for the entire sample. It is not possible to state with certainty that this result derives from racial stereotyping by the police. Nevertheless, the results indicate that if trust in the police is an important aspect to combat crime, then public policies should pay special attention to interactions with particular groups such as the black population.

These findings are similar to those reported in prior work on trust and trust in the police. Tyler (2005) shows that minority-group members are more distrustful of the police in the United States (US), with black Americans expressing the lowest level of trust. Trust in the police seems to reflect more than simple fear of crime victimization or concern about crime and neighborhood conditions. For example, in New York City, the New York Police Department (NYPD) is widely credited with reducing violent crimes to record lows. Nonetheless, New Yorkers, especially minorities, express widespread discontent with the police (McArdle and Erzen 2001).

7. Conclusions

In this article we discussed the issue of trust in the police, associating information on crime rates to the geographic location of the respondents. Accurate predictors of trust in the police may constitute an important tool for raising the expected cost of committing a crime.

In order to achieve this, acknowledging that it does not solve the endogeneity problem, we deployed a two-stage least square approach to deal with the simultaneity bias issue between crime rates and trust in the police. We used the Euclidian distance of each participant of the survey to the closest police station as the instrument. Our results point to a negative relation between increases in crime rates and trust in the police. Such results are even stronger for less common crimes such as drug dealing and rape. We also showed that those respondents who had previous experiences with the police do not seem to associate police work with crime rates. This holds true even when the previous experience with the police was poorly

evaluated. These results differ from those derived from respondents who lack previous experience with the police.

Finally, we did not observe considerable differences in crime rates related to the availability of police stations after controlling for black and non-black residential areas. Despite this, results show that black people tend to trust the police far less than non-black people do. This suggests a problem of racial stereotyping that merits further attention.

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Appendix

This appendix addresses the quality of our crime measures as predictors of trust in the police, using OLS regressions. These tables present OLS results as described by equations (1) and (2). We note that for all results, OLS estimates are very similar and consistent with 2SLS estimates.

Table 5 - OLS Regressions for Trust in the Police and Crime Rates Measures

	Total per Capita Crimes	Per Capita Private Property Crimes	Drug Traffic Incidence	Per Capita Homicides	Per capita Rape Incidence
π_1	-0.019*	-0.014*	-0.009	-0.024*	-0.217***
	(-1.66)	(-1.69)	(-0.142)	(-1.70)	(-5.29)
Woman	-0.044	-0.044	-0.039	-0.042	-0.037
	(-1.39)	(-1.40)	(-1.24)	(-1.32)	(-1.16)
Black	-0.135***	-0.137***	-0.136***	-0.135***	-0.139***
	(-4.36)	(-4.41)	(-4.41)	(-4.36)	(-4.49)
0 to 1 Minimum Wages	-0.097	-0.094	-0.096	-0.096	-0.095
	(-1.19)	(-1.15)	(-1.17)	(-1.17)	(-1.15)
1 to 4 Minimum Wages	-0.081*	-0.080*	-0.078	-0.080*	-0.074
	(-1.72)	(-1.70)	(-1.64)	(-1.68)	(-1.57)
4 to 8 Minimum Wages	-0.083*	-0.084*	-0.084*	-0.081*	-0.080*
	(-1.73)	(-1.75)	(-1.74)	(-1.69)	(-1.66)
Schooling years	-0.006	-0.006	-0.005	-0.005	-0.005
	(-1.25)	(-1.23)	(-1.15)	(-1.21)	(-1.16)
Age	0.002	0.002	0.002*	0.002	0.002*
	(1.51)	(1.45)	(1.67)	(1.61)	(1.65)
Married	-0.064**	-0.063**	-0.062**	-0.065**	-0.063**
	(-2.06)	(-2.02)	(-1.97)	(-2.08)	(-2.00)
Formal contract work	0.014	0.012	0.014	0.014	0.014
	(0.39)	(0.33)	(0.40)	(0.39)	(0.40)
Occupied	-0.036	-0.035	-0.033	-0.034	-0.035
	(-0.91)	(-0.90)	(-0.85)	(-0.86)	(-0.88)
Observations	956	956	956	956	956
R-squared	0.0390	0.0391	0.0365	0.0393	0.0373

Table 6 - OLS Regressions for Trust in the Police using Subsamples of People who Have Previous Experience with the Police

	Total Crimes	Private Property Crimes	Drug traffic Incidence	Life Crimes	Rape Incidence
PANEL A - Using people who have had previous experience with the police					
Had Previous Experience	-0.017	-0.013	-0.007	-0.029	0.007
	(-0.93)	(-0.99)	(-0.37)	(-1.26)	(0.20)
Observations	407	407	407	407	407
R-squared	0.082	0.081	0.083	0.081	0.080
PANEL B - Using people who did not have previous experience with the police					
Did not Have	-0.015*	-0.032*	-0.217*	-0.125*	-0.194*
Previous experience	(-1.81)	(-1.89)	(-1.92)	(-1.93)	(-1.68)
Observations	549	549	549	549	549
R-squared	0.0647	0.0645	0.0645	0.0648	0.0635

Table 7 - OLS Regressions for Trust in the Police using Subsamples of People who Have Previous Experience with the Police and Were Satisfied \ Were Not Satisfied

	Total Crimes	Private Property Crimes	Drug traffic Incidence	Life Crimes	Rape Incidence
PANEL A - Using people who have had previous experience with the police and were satisfied					
Had Previous Experience	-0.019	-0.016	0.009	-0.025	0.018
	(-0.85)	(-0.97)	(0.36)	(-0.93)	(0.48)
Observations	249	249	249	249	249
R-squared	0.0477	0.0485	0.0451	0.0484	0.0455
PANEL B - Using people who did not have previous experience with the police and were not satisfied					
Did not Have	-0.010	-0.007	-0.044	-0.040	-0.001
Previous Experience	(-0.31)	(-0.30)	(-1.48)	(-1.09)	(-0.02)
Observations	146	146	146	146	146
R-squared	0.1022	0.1022	0.1157	0.1105	0.1014

Table 8 - OLS for Trust in the Police using Black and Non-Black Subsamples

	Total Crimes	Private Property Crimes	Drug traffic Incidence	Life Crimes	Rape Incidence
PANEL A - Using Black Subsample					
Black	-0.024*	-0.020**	-0.022	-0.032**	0.001
	(-1.87)	(-2.13)	(-1.44)	(-2.12)	(0.05)
Observations	412	412	412	412	412
R-squared	0.028	0.027	0.030	0.028	0.027v
PANEL B - Using Non-Black Subsample					
Non-Black	-0.014	-0.008	0.009	-0.012	0.003
	(-0.78)	(-0.66)	(0.49)	(-0.53)	(0.10)
Observations	544	544	544	544	544
R-squared	0.0198	0.0195	0.0193	0.0194	0.0192