Class and the Development of Trust in Police in Latin America
Supporting Information

Tara Slough[*]   Carolina Torreblanca[†]

July 27, 2023

Contents

---

[*]Assistant Professor, New York University. `taraslough@nyu.edu`
[†]PhD Candidate, New York University. `carolina.torreblanca@nyu.edu`

Appendix A   Survey Data

A1.1   Samples

This section describes the temporality and geographic coverage of the different survey data used in the analyses. Table A1 shows all the included LAPOP country rounds and the year each round was conducted. Table A2 describes the Chilean ELSOC data, including the number of respondents per survey wave and year of survey collection. Table A3 shows the number of survey responses included in each of the two waves from the Medellín, Colombia, survey (Hanson, Kronick, and Slough, 2022).

Year	Countries surveyed
2004	Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama.
2005	Colombia
2006	Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru
2007	Brazil, Colombia, Uruguay, Venezuela
2008	Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela
2009	Colombia
2010	Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela
2011	Colombia
2012	Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela
2014	Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela
2016	Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Paraguay
2017	Argentina, Bolivia, Brazil, Chile, Guatemala, Jamaica, Panama, Peru, Uruguay
2018	Colombia, Costa Rica, El Salvador, Honduras, Panama
2019	Argentina, Bolivia, Brazil, Chile, Dominican Republic, Ecuador, Guatemala, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Uruguay

Table A1: Table lists all the country-year LAPOP surveys included in the pooled data. All country surveys between 2004 and 2019 were included.

	ELSOC survey wave				
Year	**1**	**2**	**3**	**4**	**5**
2016	2927				
2017		2473			
2018			3748		
2019				2573	
2020				844	
2021					2740

Table A2: Number of survey responses included in the Chilean Longitudinal Social Survey (ELSOC) data used in the analysis, per survey wave and year of survey collection.

	Medellín panel survey wave	
Wave	**Year**	**Observations**
Baseline	2018	5205
Endline	2019	3644

Table A3: Number of survey responses included in each of the two waves from the representative survey conducted in Medellín, Colombia (Hanson, Kronick, and Slough, 2022), used in the analysis.

A1.2 Survey measures

In Table A4, we report the survey questions and measures employed in the paper and the corresponding data source.

Construct	LAPOP Question	Medellín Panel Question	Chile Panel Question
Trust in Police	**To what extent do you trust the police?**	**How much do you trust the police?**	**Can you tell me how much confidence you have in the police?**
	7-point Likert scale	4-point Likert scale	5-point Likert scale
Trust in [other institution]	**To what extent do you trust [other institution]?**	—	—
	7-point Likert scale		
Education	**What was the final year of education that you completed or passed?**	**What was the highest educational level that you completed?**	**What was the highest educational level that you completed or are currently in school for?**
	0-18+ years	11 ranked categories	10 ranked categories
Income	**In which of the following ranges does the monthly family income of this household fall, including remittances from abroad and the income of all working adults and children?**	**In which of the following income ranges does this home's monthly income fall?**	**Below is a list of income ranges, could you please indicate which of these ranges you are classified in considering your net income, i.e. your income after taxes, health, welfare or other deductions?**
	16 ranked categories (depends on local currency)	8 ranked categories	16 ranked categories
Class (subjective)	—	—	**In society, commonly, there are different social groups or classes. People in the upper social class are those with the highest income, the highest level of education and the most valued jobs. People in the lower social class are those with the lowest income, the lowest level of education and the least valued jobs. In between these classes are others. According to your opinion, to which of the following social groups or classes do you belong?**
			5 ranked categories
Class (administrative)	—	Estrato 1-6 (six choices)	—
Preference for *mano dura*	**In order to catch criminals, do you believe that the authorities should always abide by the law or that occasionally they can cross the line?**	—	—
	Yes they can /No they cannot		
Crime victimization	**Have you been a victim of any type of crime in the past 12 months? That is, have you been a victim of robbery, burglary, assault, fraud, blackmail, extortion, violent threats or any other type of crime in the past 12 months?**	**Thinking of the last 6 months, have you or anyone in your home been victims of any of the following crimes? Have any family members, friends, or neighborhood acquaintances? [theft, car robbery, verbal threats or abuse from police, extortion, street fights, family violence, sexual abuse, homicide.]**	—
	Yes/No answer	Yes/No answer	
Police solicited a bribe	**Has a police officer asked you for a bribe in the last twelve months?**	—	—
	Yes/No answer		
Views police as corrupt	—	**How strongly do you agree or disagree with the following statement: The police are corrupt.**	—
		5-point Likert scale	
Feels unsafe in neighborhood	**Talking about the place or neighborhood where you live and thinking about the possibility of being the victim of an assault or robbery, do you feel very safe, somewhat safe, somewhat unsafe or very unsafe?**	**In your neighborhood, do you generally feel very safe, relatively safe, relatively unsafe, or very unsafe?**	**How safe or unsafe do you feel in the neighborhood where you live? Very unsafe, unsafe, neither safe nor unsafe, safe, or very safe?**
	4-point Likert scale	4-point Likert scale	5-point Likert scale

Table A4: English translations of relevant survey questions employed in the analyses.

A1.3 Variable recodings and transformations

We transform a number of the variables described in Table A4 in some analyses. We outline the procedures that we use for these transformations, as follows.

Z-score transformations:

For a variable X_i, we construct Z-scores using the following formula:

$$X_i^Z = \frac{X_i - \overline{X}_i}{\sqrt{\mathrm{Var}[X_i]}} \tag{1}$$

Decile construction:

We rank respondents by decile of education and socioeconomic status. Since the education and income measures are discrete (as indicated in Table A4), individuals in the same income or education bracket, are in some cases, assigned to different deciles to maintain equal-sized decile bins. To do this, we randomly rank respondents within the same class bracket before partitioning the sample into deciles.

Binary signals of police behavior/security outcomes.

To construct comparable binary signals across the three measures of police behavior/security outcomes, we dichotomize the Likert-measured variable measuring perceptions of safety in a respondent's neighborhood, as follows:

$$\text{Feels unsafe}_i = \begin{cases} 0 & \text{if Likert response } \leq 2 \text{ (very safe or somewhat safe)} \\ 1 & \text{else (somewhat unsafe or very unsafe).} \end{cases} \tag{2}$$

To maintain comparability across the surveys, we dichotomize the Likert-measured variable of "Are the police corrupt?" from the Medellín panel as follows:

$$\text{Police corrupt}_i = \begin{cases} 0 & \text{if Likert response } \leq 3 \text{ (strongly disagree, disagree, neither agree nor disagree)} \\ 1 & \text{else (agree or strongly agree).} \end{cases} \tag{3}$$

Appendix B   LAPOP vs. Chile and Medellin Panels

This section compares the correlations between class and trust in police from the LAPOP data to those from the Chile and Medellín panels. Additionally, Table A5 presents results using the longitudinal Chile survey of the estimated association between subjective class and trust in police when individuals change their self-identification to a higher socioeconomic class.

Figure A1 benchmarks the national, LAPOP-based correlations, between the two measures of class and trust in the police with the correlations estimated from each panel. All correlations estimated with panel data are more positive than the corresponding LAPOP correlation. In the case of the Chile panel, the association between class and trust in police is estimated to be positive, although small in magnitude. However, the Medellín panel shows a negative and statistically significant association between education and trust in police, and a very weak, negative, but statistically insignificant correlation between income and trust in police. We note that the LAPOP data aims to be nationally representative whereas the Medellín survey aims to be representative of populous police beats in the city (for details on sampling, see Hanson, Kronick, and Slough, 2022).
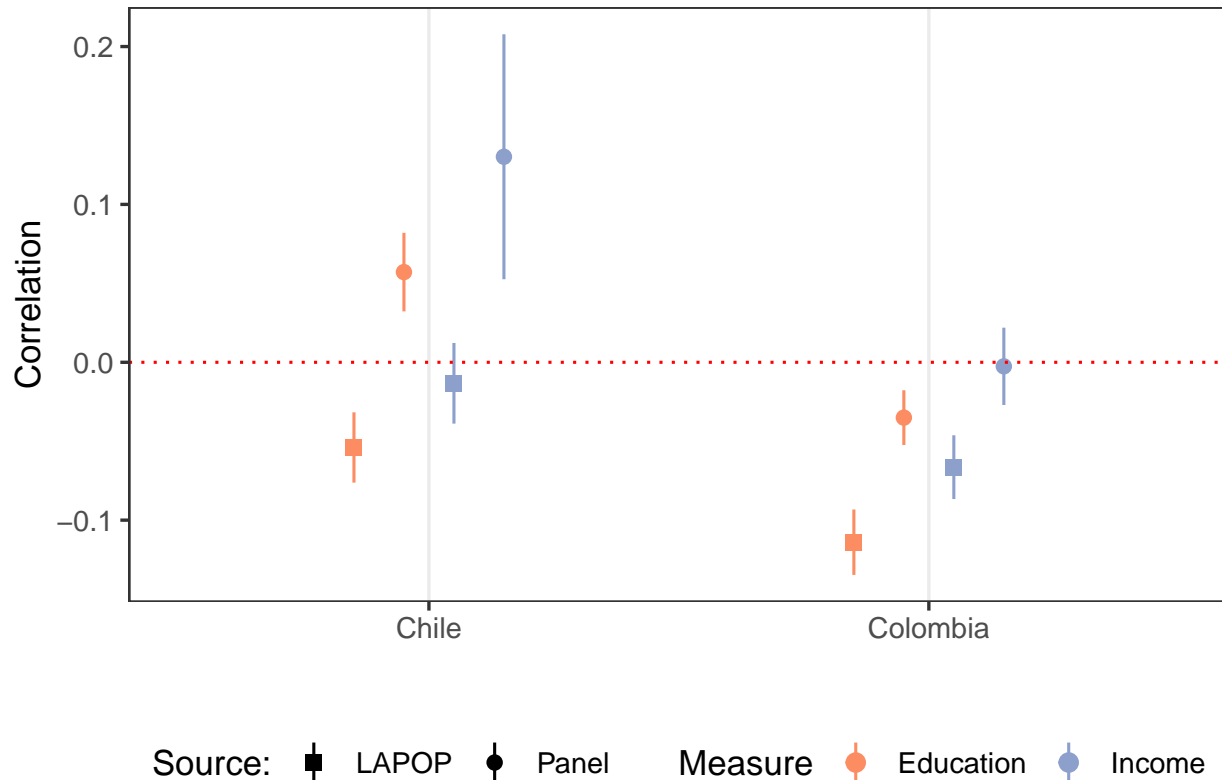

Figure A1: Figure shows the estimated correlation between two measures of class and trust in the police from the Chile ELSOC and Medellín panels, and LAPOP data.

In this paper, we characterize how trust in police varies in social class in Latin America. To that end, we compared trust between individuals of different classes when class is operationalized as education and

income. In the following analysis, we report additional estimates using class self-categorization, reported in the ELSOC Chile panel, as the measure of social class. Specifically, we make use of the data's panel structure and analyze the association between *changes* in individuals' self-identification with a class and trust in police. Table A5 shows the estimates of the pooled association (across waves), the average treatment effect (TWFE), and the fixed effects counterfactual estimator proposed by Liu, Wang, and Xu (2022) between trust in the police and identifying with a *higher* class than in the previous survey round. Self-identification with a higher class is associated with higher self-reported trust in police, both between and within individuals, as would be expected if treatment by police improved in class. However, the difference is not statistically significant in any of the three specifications and is small in magnitude.

Quantity	Estimator	Estimate	95% CI
Association	OLS	0.046 (0.032)	[-0.017, 0.109]
ATT	TWFE	0.024 (0.031)	[-0.036, 0.084]
ATT (unit avg.)	FEct (LWX 2022)	0.004 (0.049)	[-.092, 0.049]

Table A5: Table shows the pooled association (across waves), average treatment effect (TWFE), and fixed effects counterfactual estimator proposed by Liu, Wang, and Xu (2022) between trust in the police and identifying with a higher class than in the previous survey round for respondents in the ELSOC Chile panel. Treatment is defined as 1 when respondents changed their answer to the question "According to your opinion, to which of the following social groups or classes do you belong?" to self-identify with a wealthier social group, while respondents who identified with the same social class or a lower social class are coded as 0. Robust standard errors clustered at the primary sampling unit in parentheses.

Appendix C   Forecasting Instrument

This section explains in detail the forcasting instrument and data. Figure A2 shows the English version of the web interface used to elicit experts' prior beliefs, while figure A3 shows its Spanish translation. Respondents were asked to predict the mean level of trust in the police for an average adult at the 10th, 50th, and 90th percentiles of household income. We asked experts to provide a forecast for at least one Latin American country or the region as a whole. Figures A2 and A3 show the Mexico-specific prompts.

Figure A2: Screenshot of the web interface used for eliciting experts' priors. As an example, Mexico was selected and Mexico-specific data was provided to contextualized the range of income.

Por favor pronostique la respuesta **promedio** de un respondiente adulto en la **mediana** de ingresos. En México, un hogar promedio de cuatro miembros en el quinto decil gana 8,153 USD o 156,929 pesos al año.

Nada						Mucho
1	2	3	4	5	6	7

Confianza en la policía

Por favor pronostique la respuesta **promedio** de un respondiente adulto en el **decil más alto** de ingresos. En México, un hogar promedio de cuatro miembros en el decil más alto gana 43,838 USD o 843,755 pesos al año.

Nada						Mucho
1	2	3	4	5	6	7

Confianza en la policía

Por favor escriba brevemente por qué hizo las predicciones que hizo. Por favor siéntase libre de explicar su razonamiento en inglés, portugués, o español.

Figure A3: Screenshot shows Spanish-langage verision of the web interface used for eliciting experts' priors. As an example, Mexico was selected and Mexico-specific data was provided to contextualized the range of income.
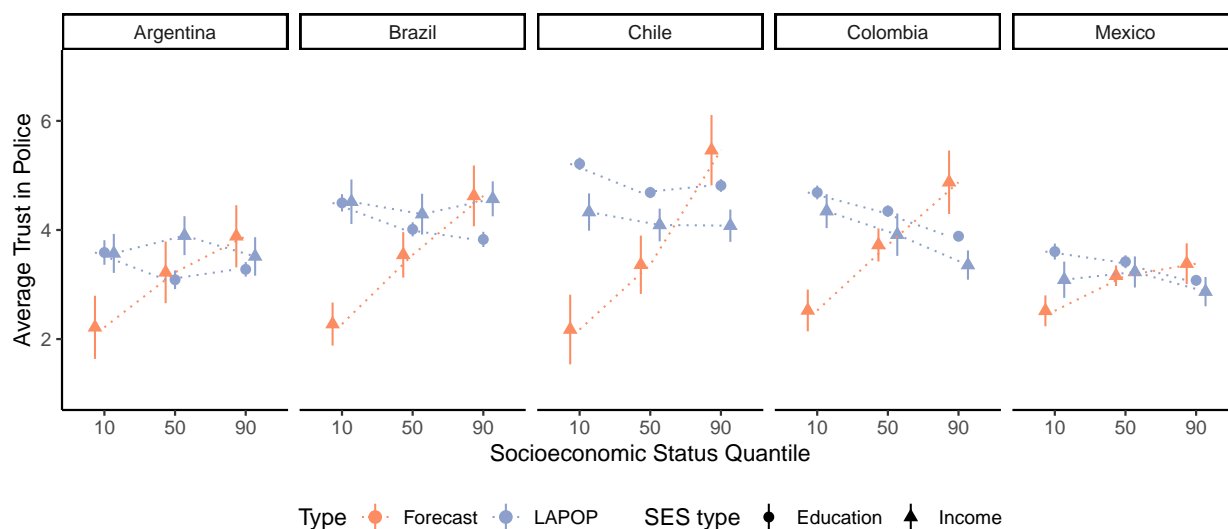
Figure A4: Divergence between average forecasts (in orange) and corresponding survey-based measures (in blue) for the five countries with more than eight survey responses. The figure shows that predictions for the case of Mexico posit a less steep relationship between income and trust in police than for the rest of the countries. Activists, who tend to predict lower scores than other respondents for higher income levels, drive this weaker predicted relationship.

Table A6 shows the number of individual forcasts included in the analysis, disaggregating by type of respondent and country for which the forcast was provided.

Country	Professor	Graduate or Postdoctoral student	Activist	Other	Total
Mexico	24	10	10	12	**56**
Brazil	10	6	0	0	**16**
Argentina	8	3	2	0	**13**
Chile	4	3	1	0	**8**
Colombia	4	4	0	1	**8**
Uruguay	7	0	0	0	**7**
Latin America (Regional average)	0	2	1	1	**4**
Guatemala	2	1	0	0	**3**
El Salvador	0	1	0	1	**2**
Ecuador	1	0	0	0	**1**
Honduras	1	0	0	0	**1**
Nicaragua	1	0	0	0	**1**
Peru	0	1	0	0	**1**
	62	**30**	**14**	**15**	**121**

Table A6: Count of survey responses per country and respondent type.

Appendix D   Assessing Artifacts of Measurement

A4.1   Rates of missingness

This section describes the country-specific patterns of missingness in the socioeconomic and institutional trust variables used for the analysis. Figure A5 plots the proportion of survey responses with missingness across all survey country-rounds, according to the type of variable.
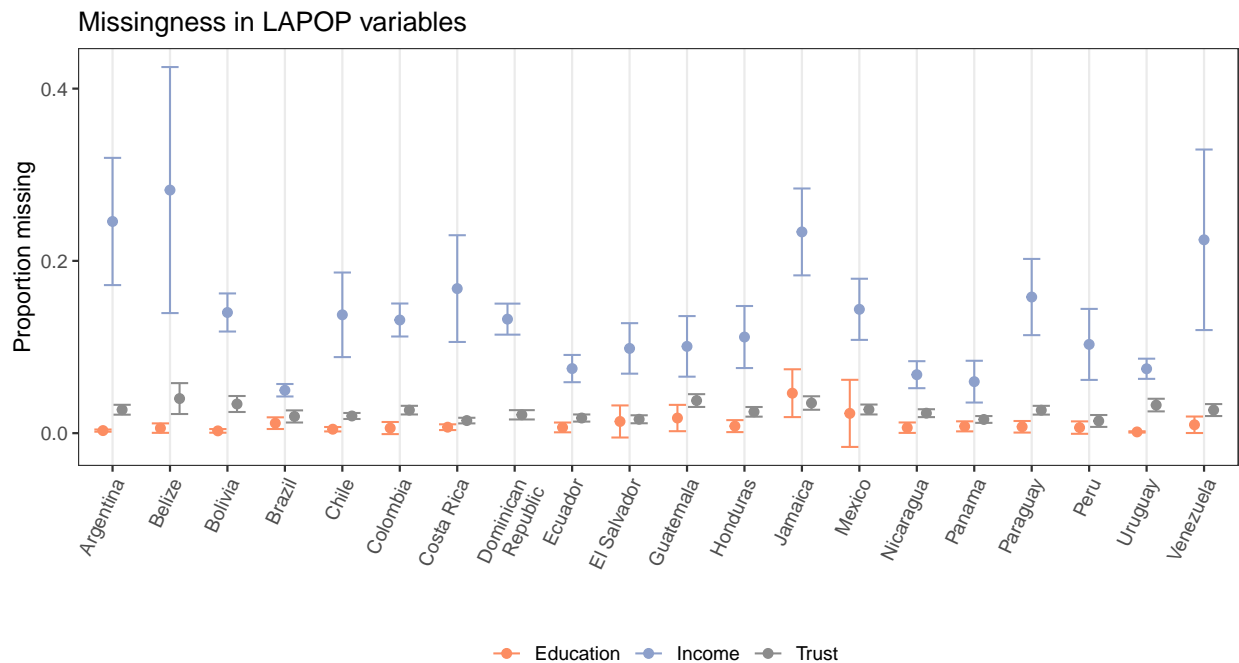

Figure A5: Figure shows the proportion across survey waves (and its 95% confidence interval) of respondents in each country that did not give a valid answer to a question about institutional trust (in blue), their income (in orange), and their educational attainment (in green).

A4.2   Worst-case bounds for missingness

Figure A6 shows the worst-case and best-case bounds for the estimated pooled correlation between trust in police and income or education after accounting for missing responses. For survey respondents who reported either socioeconomic status or trust in police but not both (99.8% of observations with missingness in either), we impute the Z-score value of the non-missing response (and $-1 * Z$-score) as the missing value. Since correlations are bounded between -1 and 1, and both responses are Z-scores, this process guarantees that the missing observation lies on the $45°$ line, making the estimated correlation the most positive (most negative) possible. The results show that the correlation is negative and of a similar magnitude, even if all missing observations were perfectly and positively correlated. The correlation between trust in police and income, if all missing observations were perfectly and positively correlated, is estimated to be 0.13. That is, the most positive correlation that the data's missingness could conceal is *equal* to the estimated correlation between income and trust in police in the United States.
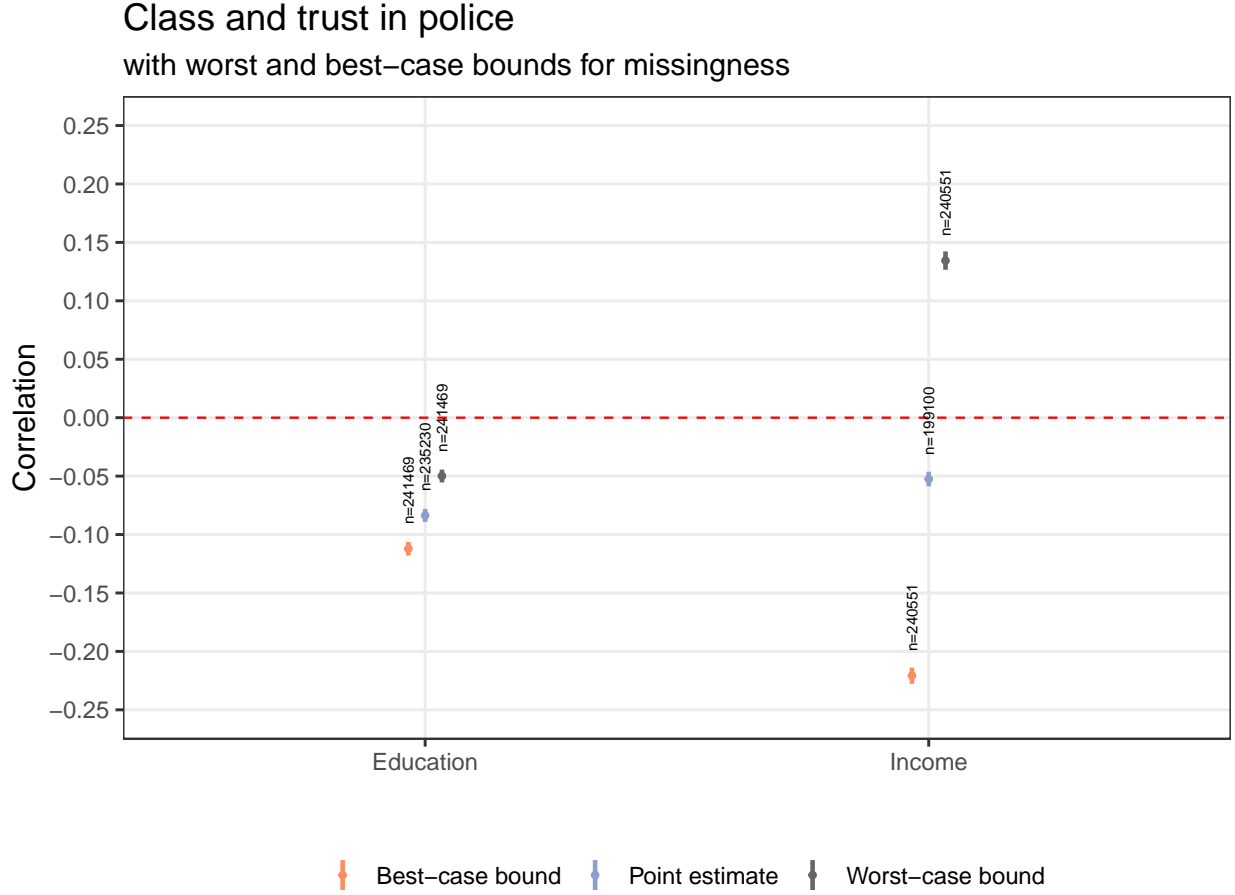
Figure A6: Figure shows the best-case, point estimates, and worst-case bounds for the pooled correlation across LAPOP survey waves between socioeconomic status, operationalized as self-reported education and income, and trust in police. Robust errors arevclustered at the primary sampling unit.

A4.3 Respondent interpretations of trust

This section investigates respondents' conceptions of institutional trust. We conceptualize trust as cognitive and relational. If trust is, in fact, cognitive and relational, if different governments interact with people differently, then changes in the political composition or ideology of the government should affect how individuals expect to be treated by government agents. To test, we analyze changes in reported trust of different institutions under right-wing national governments.
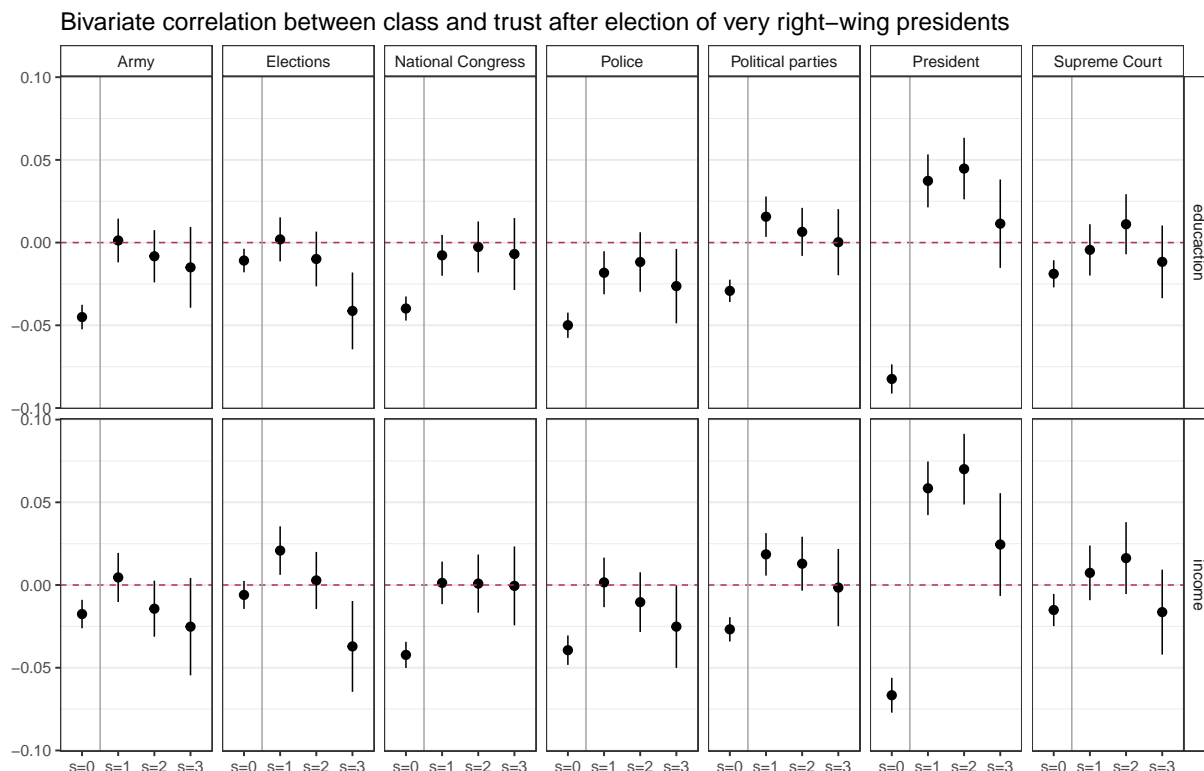
Figure A7 shows the results of estimating the following event study setup:

$$\text{Trust}_{ic} = \alpha + \sum_{s \in [1,3]} \beta_s \text{Right wing}_c + \varepsilon_{ic}$$

where Trust_{ics} is respondent i's self-reported trust in a given authority, standardized within country-years in country c, and Right wing_c is an indicator equal to one if country c's government is headed by a right-wing president at the time of the survey's collection, or zero otherwise. s indexes the number of LAPOP survey waves conducted in each country since the start of the right-wing spell, where $s = 0$ indicates the last survey

collected before its start. Robust errors are clustered at the level of the primary-sampling unit.

As figure A7 shows, self-reported trust in certain institutions *is* responsive to the ideological composition of the national government. The onset of right-wing governments significantly increases the correlation between trust in the president and both measures of class, as would be expected if support for right-wing governments was increasing in socioeconomic status. The correlation between trust and class for congress, political parties, and the police also significantly increases with the onset of right-wing spells, albeit by a smaller magnitude. Conversely, there is no significant change in trust in the Supreme Court, the Army, or Elections, as expected of institutions that are more independent of the national government.

Bivariate correlation between class and trust after election of very right–wing presidents

Extreme right–wing spells in Mexico, Panama, Paraguay, Honduras, Guatemala, Colombia, Chile, Brazil, and Argentina.

Figure A7: Figure shows the estimated correlation between class and trust in each authority during each survey wave for countries with at least one spell of right-wing presidents. Robust errors clustered at the primary-sampling-unit. The right-wing spells include: Macri in Argentina, Bolsonaro in Brazil, Uribe and Duque in Colombia, Pérez and Morales in Guatemala, Hernández in Honduras, Calderón in Mexico, Martinelli in Panama, and Abodo in Paraguay.

Appendix E   Institutional Trust as a Fixed Trait?

If institutional trust were a fixed trait, we would expect a high level of homogeneity in each respondent's ratings of different government institutions. To test for this possibility, Figure A8 plots the pooled and country-specific intra-class correlation between respondent's assesments of trust in the police, congress, the courts, the president, political parties. The intra-class correlation gives the ratio of between-respondent variance to the total variance in trust in these institutions. If the ICC were close to 1, it would suggest limited variance in an individual's assessment of different institutions, suggesting that institutional trust functions as a stable trait or predisposition. Conversely, we can see that the pooled-sample ICC is estimated to be only 0.047 [0.0193, 0.232 95% CI] and all the country-specific ICCs are estimated to be less than .2.
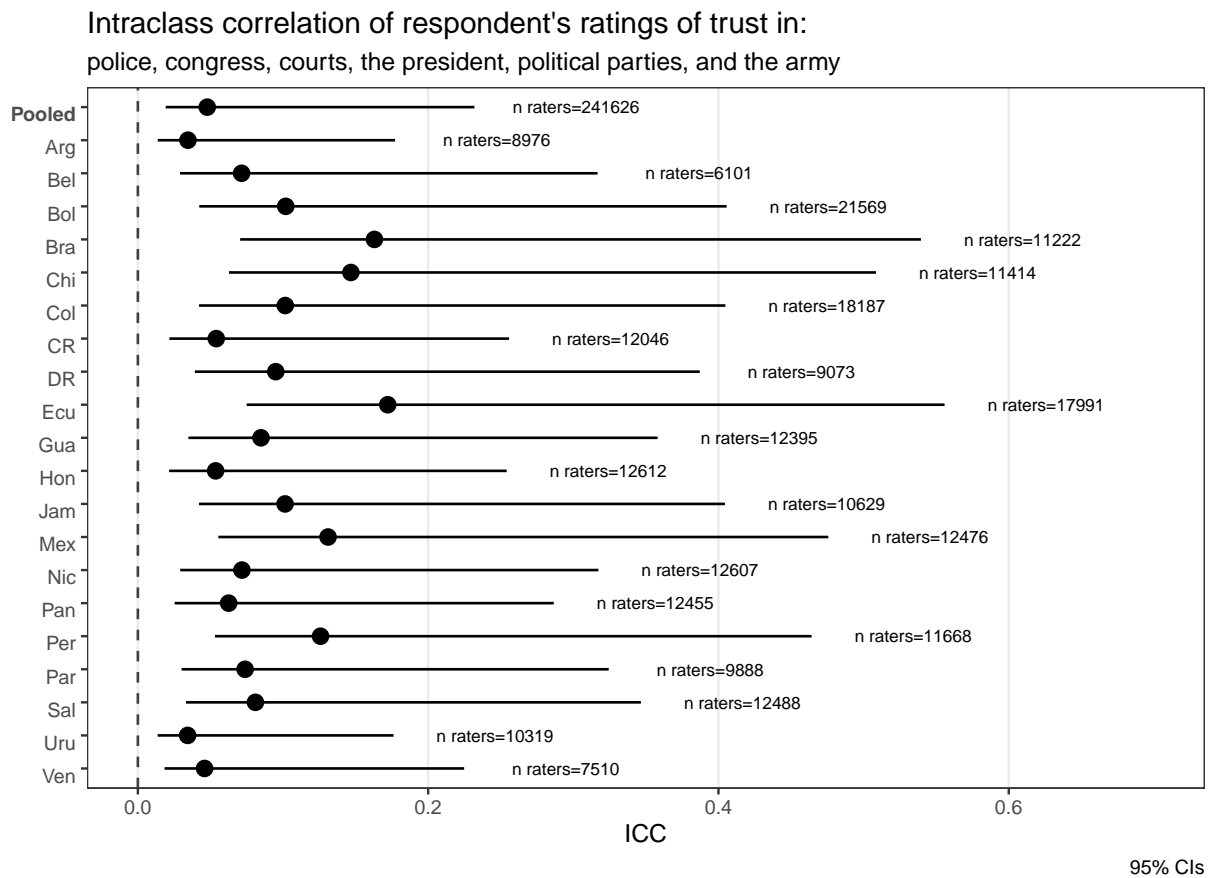
Intraclass correlation of respondent's ratings of trust in:

police, congress, courts, the president, political parties, and the army

Figure A8: Figure shows the pooled and country-specific intra-class correlations.

Appendix F   Updating on Experience with Police

We use two smaller panel surveys, described in Appendix A, and administrative data to gain additional leverage on our account of updating on police trustworthiness. First, one surprising finding in Figure 6 is that high socio-economic status respondents report higher rates of crime victimization than poor respondents. The crime vicitmization survey conducted in Medellín helps to clarify this surprising finding, by examining exposure to different crimes by socioeconomic status. Figure A9 shows that the proportion of respondents that report having experienced theft in the past year, the most commonly reported crime, is increasing in class *estrato*. Thus, the positive gradient of overall victimization and class—seen in the first panel of the top row and Figure 6—is due to the high frequency with which property crimes occur. Conversely, Figure A9 shows that lower-income individuals more commonly report incidences of violence but less frequently perpetrated crimes, like homicide or extortion.
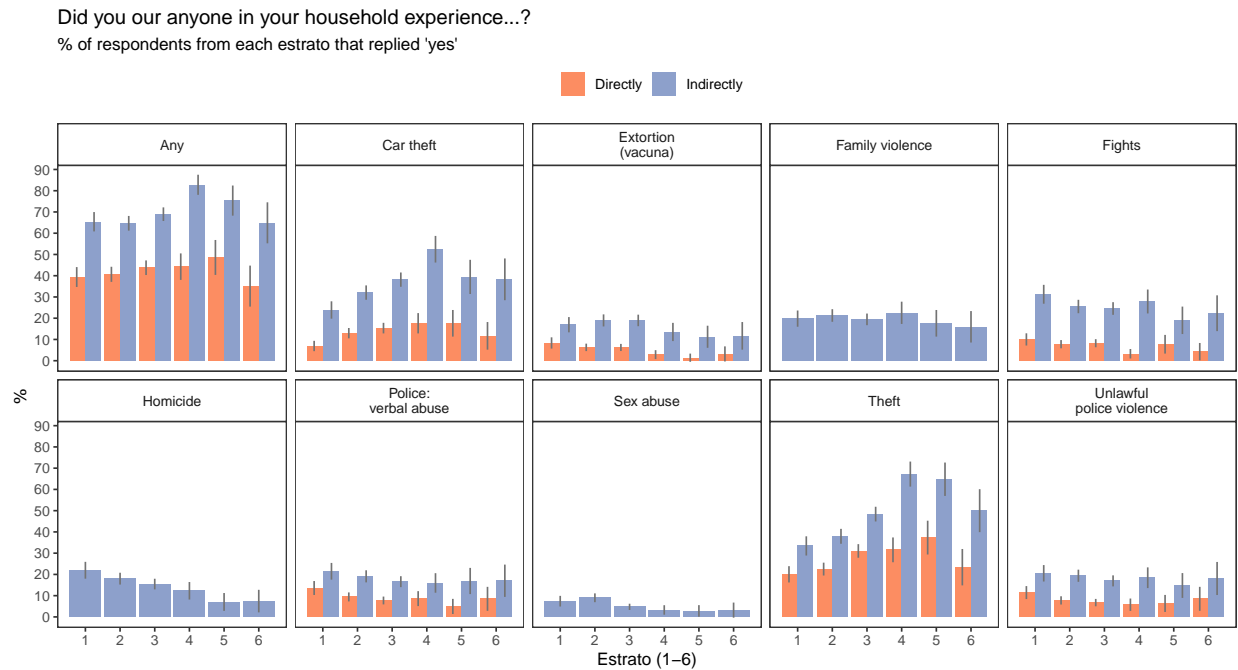

Figure A9: Figure shows the proportion of respondents from the Medellín survey that report direct (in orange) and indirect (in blue) instances of crime happening in their neighborhood in the last 6 months, by administrative class 'estrato'.

For some analyses, we conceptualize the feeling of unsafety as a perceived signal of police trustworthiness on which citizens update, since part of police officers' job is preventing crime and, in so doing, inspiring a feeling of security. However, how feeling "safe" correlates with the objective level of violence in a geography—or whether such feeling tracks objective measures of "successful" policing— is less clear. Table A7 shows the correlation between self-reported feeling of unsafety in respondents' neighborhoods and municipal-level homicides for respondents living in Brazil, Colombia, and Mexico. The measure of feeling of unsafety comes from all LAPOP survey waves (see Table A4), while municipal-level homicide data come from each country's official administrative records. Feeling unsafe is positively related to the intensity of homicidal violence in all countries and using all transformations of the measure of homicides, as we would expect if feeling of unsafety increased in the actual level of perpetrated violence. The correlation is strongest

in Brazil but positive and statistically significant at the 95% level for Colombia and Mexico as well.

'Feels unsafe'	Brazil	Colombia	Mexico
Rate per 100k	0.15 (0.02)	0.05 (0.02)	0.04 (0.02)
Total homicides	0.10 (0.02)	0.15 (0.02)	0.07 (0.02)
Rate per 100k (logged)	0.14 (0.02)	0.09 (0.02)	0.08 (0.02)
Rate per 100k (pooled quantile)	0.16 (0.02)	0.04 (0.02)	0.09 (0.02)
Rate per 100k (year quantile)	0.15 (0.02)	0.04 (0.02)	0.07 (0.02)

Table A7: Table shows the correlation between self-reported feeling of unsafety in respondents' neighborhood and homicides (measured at the municipal-level) for respondents living in Brazil, Colombia, and Mexico. In each country's column, the first row shows the country-specific correlation when the intensity of homicidies is operationalizes as rate per 100k municipal inhabitants, the second shows the correlation with the total number of homicides, the third with the logged rate per 100k municipal inhabitants, the fourth when violence is operationalizes as the municipal quantile of the overall number of homicides in the entire period, and the fifth when the quantile is constructed using the total number of homicides perpetrated there that year. Robust standard errors in parenthesis.

Although we use panel surveys to estimate the ATTs of different signals of police trustworthiness, it is helpful to see how associations estimated with these data relate to those estimated from the LAPOP sample. In Figure A10, we plot the association between feeling unsafe in the neighborhood, crime victimization, and viewing police as corrupt, and standardized measures of trust in police. The first and second panels show that the association between feeling unsafe and crime victimization is slightly more negative when using the Medellín panel than the Colombia-wide LAPOP data. Conversely, the association with the perception of police corruption is less negative in the Medellín panel than in the LAPOP panel. As for Chile, the LAPOP and panel-based estimates of the association between feeling unsafe and trust in police are similar.
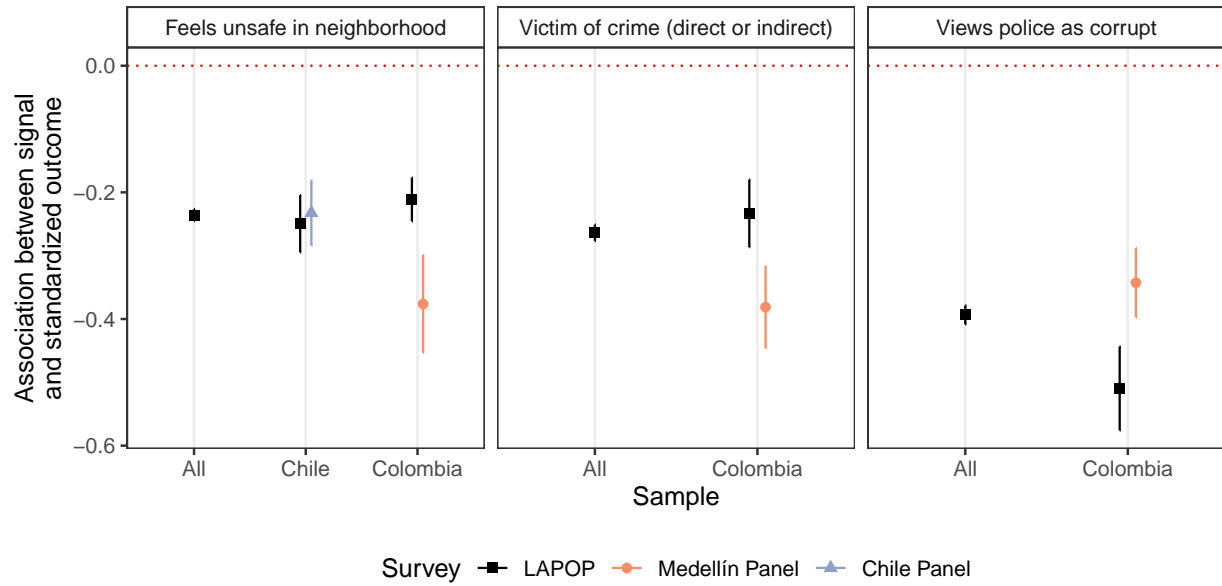
Figure A10: Figure shows the association between three signals of police trustworthiness and a standardized measure of trust in police when estimated using the data from LAPOP (black), the Medellín panel (orange), and the Chile panel (blue). For the estimation of the LAPOP association in the third panel, we use the variable 'police solicited a bribe' (see A4). Robust standard errors clustered at the primary sampling unit.

Appendix G   Organizing Findings

This section provide supplementary analyses supporting our discussion of our framework for the construction of trust in police. Figure A11 shows that trust in police is decreasing in class, both operationalized as income and education, across all age groups, discounting the possibility that systematic differences in the age of individuals of different income groups explain the negative relationship between the variables.

	Trust in police (standardized)					
	(1)	(2)	(3)	(4)	(5)	(6)
Victimized in past year (binary)	-0.245***	-0.255***				
	(0.007)	(0.007)				
Feels unsafe in neighborhood (binary)			-0.238***	-0.238***		
			(0.005)	(0.005)		
Bribe solicited (binary)					-0.371***	-0.372***
					(0.008)	(0.008)
Education (Z-score)	-0.083***		-0.081***		-0.072***	
	(0.003)		(0.003)		(0.003)	
Income (Z-score)		-0.056***		-0.051***		-0.041***
		(0.004)		(0.004)		(0.003)
Victimized × Education	0.022***					
	(0.007)					
Victimized × Income		0.018*				
		(0.007)				
Feels unsafe × Education			-0.010*			
			(0.005)			
Feels unsafe × Income				-0.012*		
				(0.005)		
Bribe solicited × Education					0.008	
					(0.007)	
Bribe solicited × Income						0.005
						(0.007)
Observations	154,180	130,510	235,291	199,160	233,142	197,420
Mean DV (signal = 0)	0.050	0.055	0.098	0.100	0.039	0.043

$^{+}p < 0.1,$ $^{*}p < 0.05,$ $^{**}p < 0.01,$ $^{***}p < 0.001$

Table A8: Differential updating on signals by socioeconomic status proxy. Standard errors are clustered at the level of the primary sampling unit.
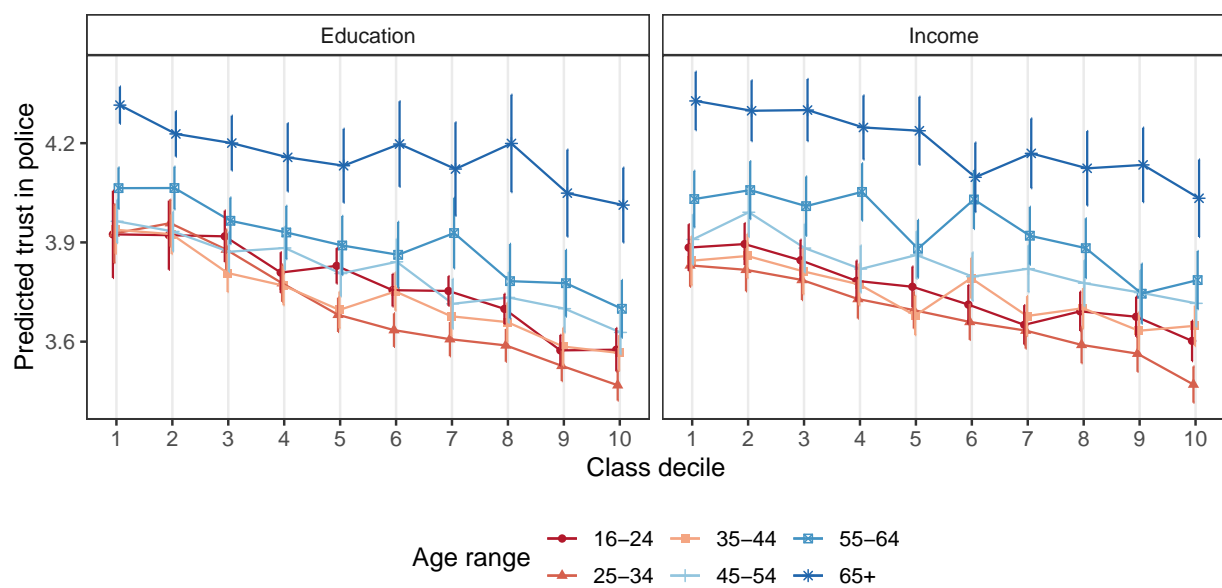
Figure A11: Trust in police as a function of age and class. 95% confidence intervals constructed on standard errors clustered at the primary sampling unit level.

Supplementary Appendix: References

Hanson, Rebecca, Dorothy Kronick, and Tara Slough. 2022. "Preaching to the Choir: A Problem of Participatory Interventions.".