Social Exclusion and Social Preferences: Evidence from Colombia's Leper Colony

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NBER SI – Income Distribution & Macroeconomics
July 16, 2020

Motivation

- What is social exclusion?
  - Stigma
  - Physical marginalization
  - Lack of enjoyment of opportunities that are available to a society's majority

- Social exclusion of minorities continues to be a problem throughout the globe, and its occurrence is expected to increase in the near future (UN, 2016)

Research Questions

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  - Social exclusion generates social divisions
    - Are there lasting effects on group awareness and group favoritism?
  - Mistreatment oftentimes takes place at the hands of a specific group
    - Can mistrust of the exclusionary group prevail across generations?

Empirical Challenges

- Empirical challenges when assessing long-run effects of social exclusion:
  - Ethnic/religious/racial marker associated with exclusion
  - Source that motivated the exclusion often remains - long-run effects hard to assess
  - Social Exclusion is oftentimes context-dependent

Leprosy

- Epidemiological features of leprosy mitigates concerns about the selection on who end up suffering exclusion
- Social exclusion of lepers is not context-specific
- Descendants of lepers no longer bear the disease in Colombia
- Geographical isolation of lepers enables empirical examination of long-run effects
- Leprosy, an understudied phenomenon (16M cases only in past 20 years - WHO)

This paper – Preview of Findings

- **Lab-in-the field** in and around a former leper colony showing:

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- **Randomization** exercise showing **oral histories** as a mechanism:
  1. Historical narrative on banishment triggers altruism and ingroup favoritism
  2. Historical narrative on medical errors triggers mistrust in medicine

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- Role of orality in shaping beliefs and social preferences (Shiller, 2017; Michalopolous and Xue, 2018; Bénabou et al, 2020)
  - **This paper: Highlights historical narratives that are orally-transmitted as mechanisms that explain persistent differences in social preferences**

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- Leprosy and its history
- Empirical Approach
- Results
- Mechanisms
- Concluding Remarks

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    - CDC: No risk deriving from direct contact with someone with leprosy
- **Genetic component (chromosome 6q25-6q26)** necessary for physical manifestation (Abel, 1998; Mira et al., 2003)

Leprosy – A Global History of Exclusion

Leprosy in Colombia

- Leper colonies in XIXth and XXth centuries: Isolation of **visible cases** of leprosy

- In Colombia, **stringent administration** of lepers handled **by the Central Hygiene Board, lead entirely by doctors** who followed the recommendations from the Global Congress of Leprosy

- Centralized Leper Colony in Colombia **between 1870 and 1950 – *Agua de Dios***, Colombia
  - Colombia, 'The Land of the Lepers' according to The New York Times in 1906

Leprosy in Colombia

- Stringent legal framework designed by Central Hygiene Board

Hygiene Central Board, Bogota, 1907

Leprosy in Colombia

- Forceful removal of lepers from society, managed end-to-end by physicians

Secluded lepers assisting incoming population, 1940

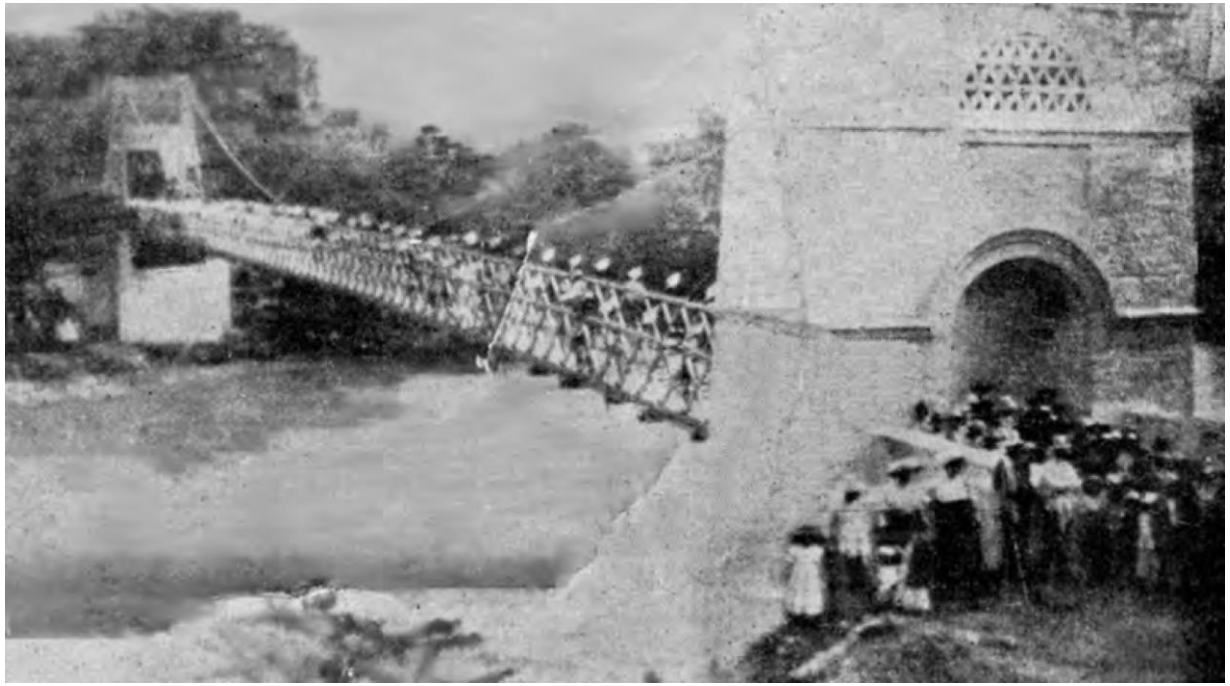
Leprosy in Colombia

- Lost of citizenship and rights; new legal status as perpetual patients

Id card given to Soledad Cortes, secluded patient in Agua de Dios since 1942

Leprosy in Colombia

- Isolation enforced from outside; administration by physicians inside



Bridge of the Sighs, 1920

Leprosy in Colombia

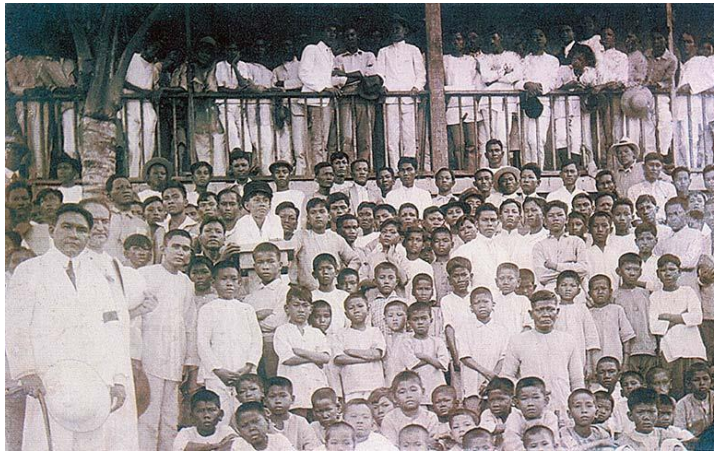
- Unconsented disinfection and experimentation protocols

Disinfection House, Founded on 1908

Leprosy in Colombia and the World

Agua de Dios, Colombia

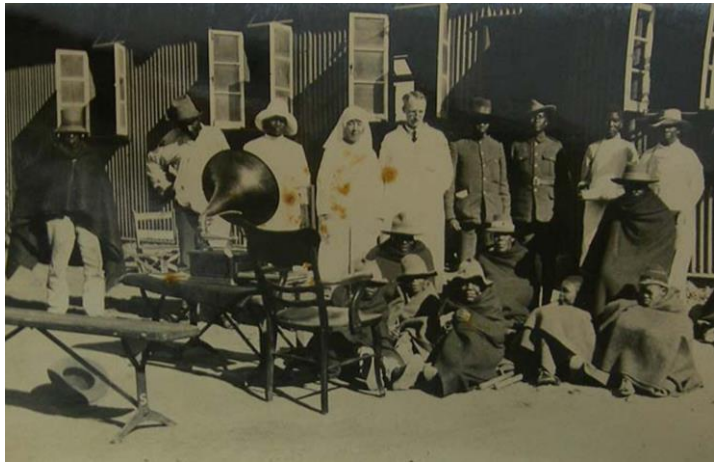
Kalaupapa, Hawaii, US



Culion, Philippines

Spinalonga, Greece

Shizuoka, Japan



San Antâo and Fogo, Cape Verde

Agua de Dios – From Leper Colony to Municipality

- Open borders starting 1950 – formerly secluded lepers stayed in the site
- Elimination of the formal denomination of Agua de Dios as a leper colony in 1963
- Leprosy has vanished from the landscape for decades – no longer prevalent in Agua de Dios
- For the past decades, vibrant social exchange and disappearance of stigma against Agua de Dios

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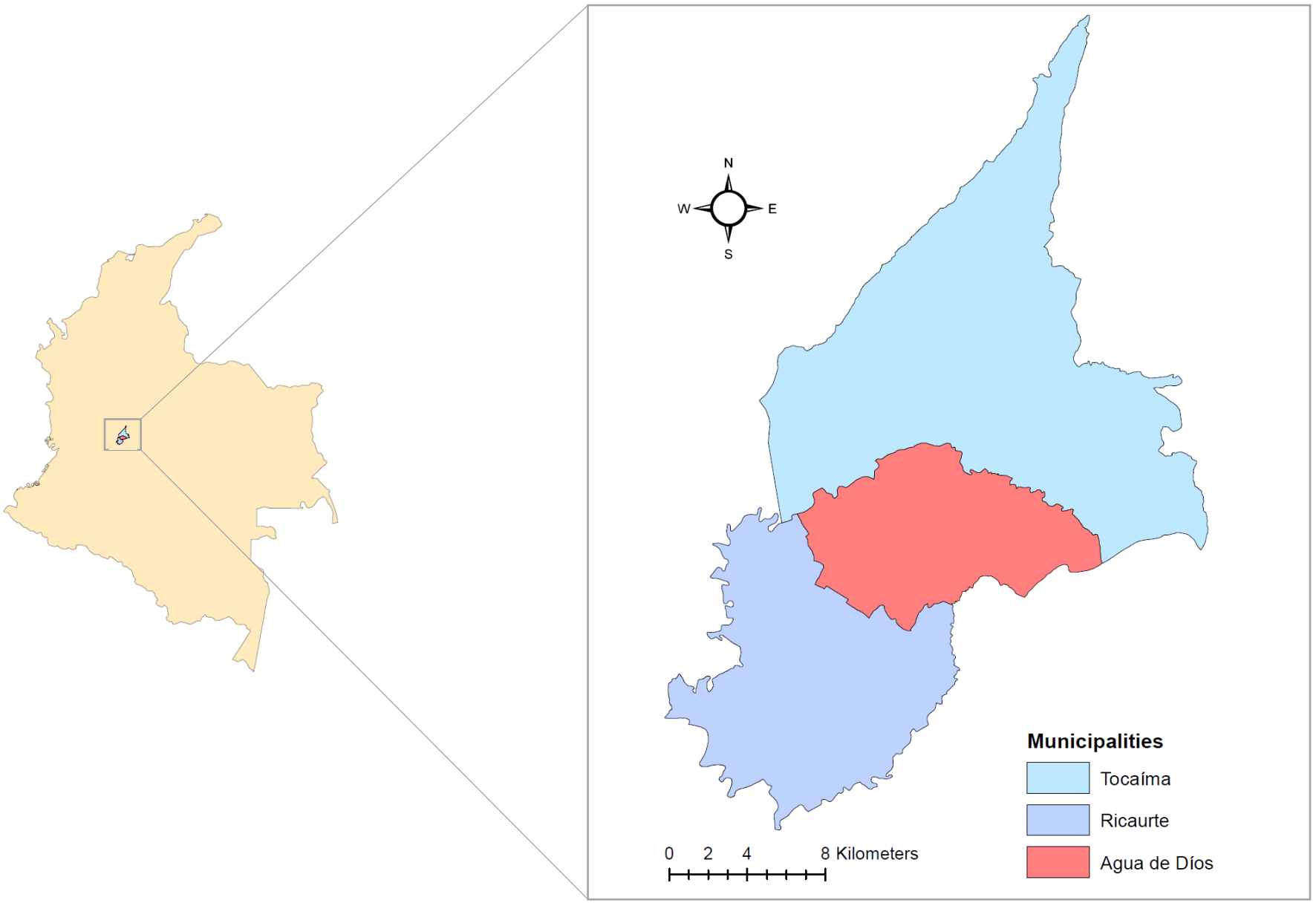
Empirical Approach – Colombia and Agua de Dios



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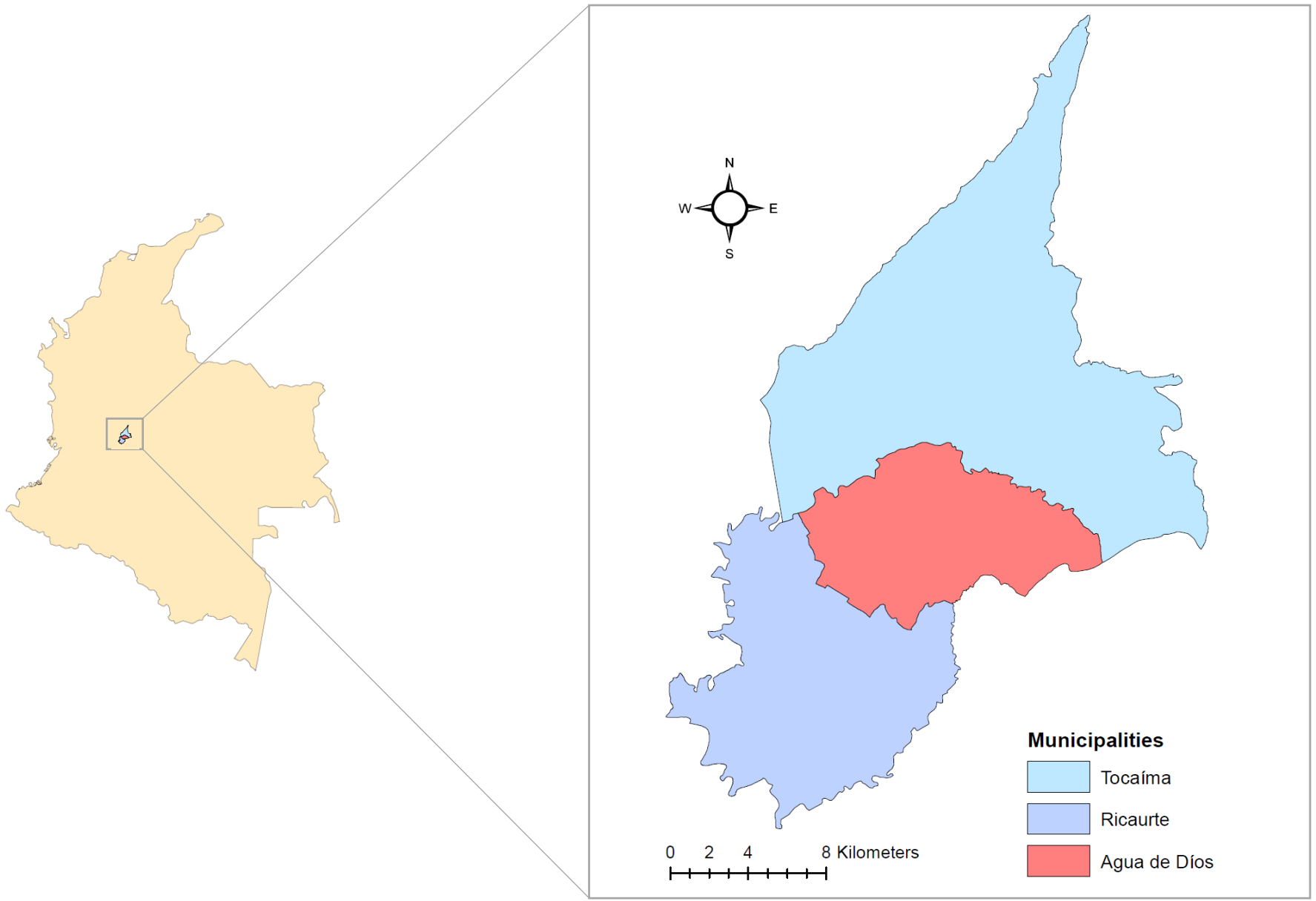

No climatic differences

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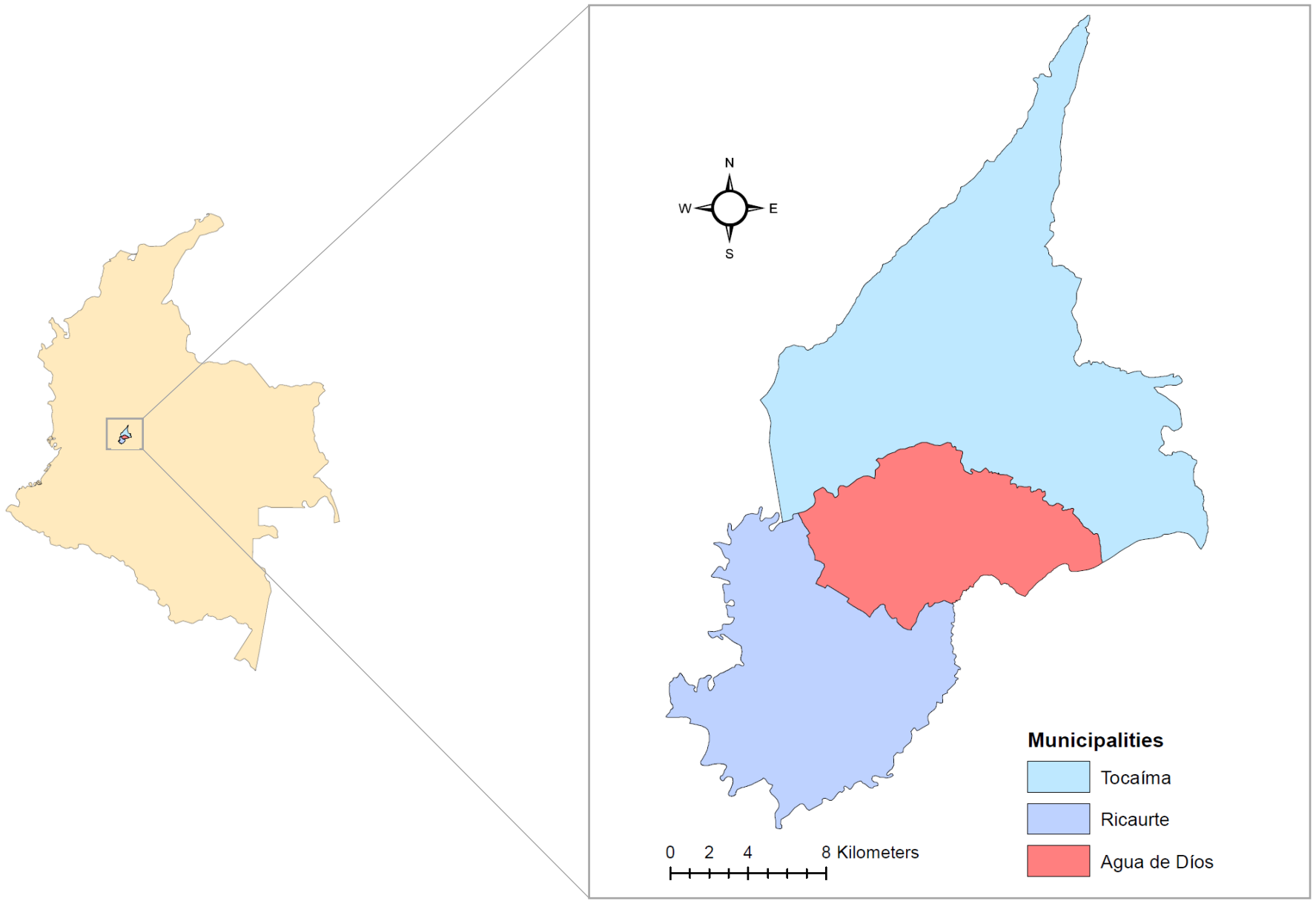

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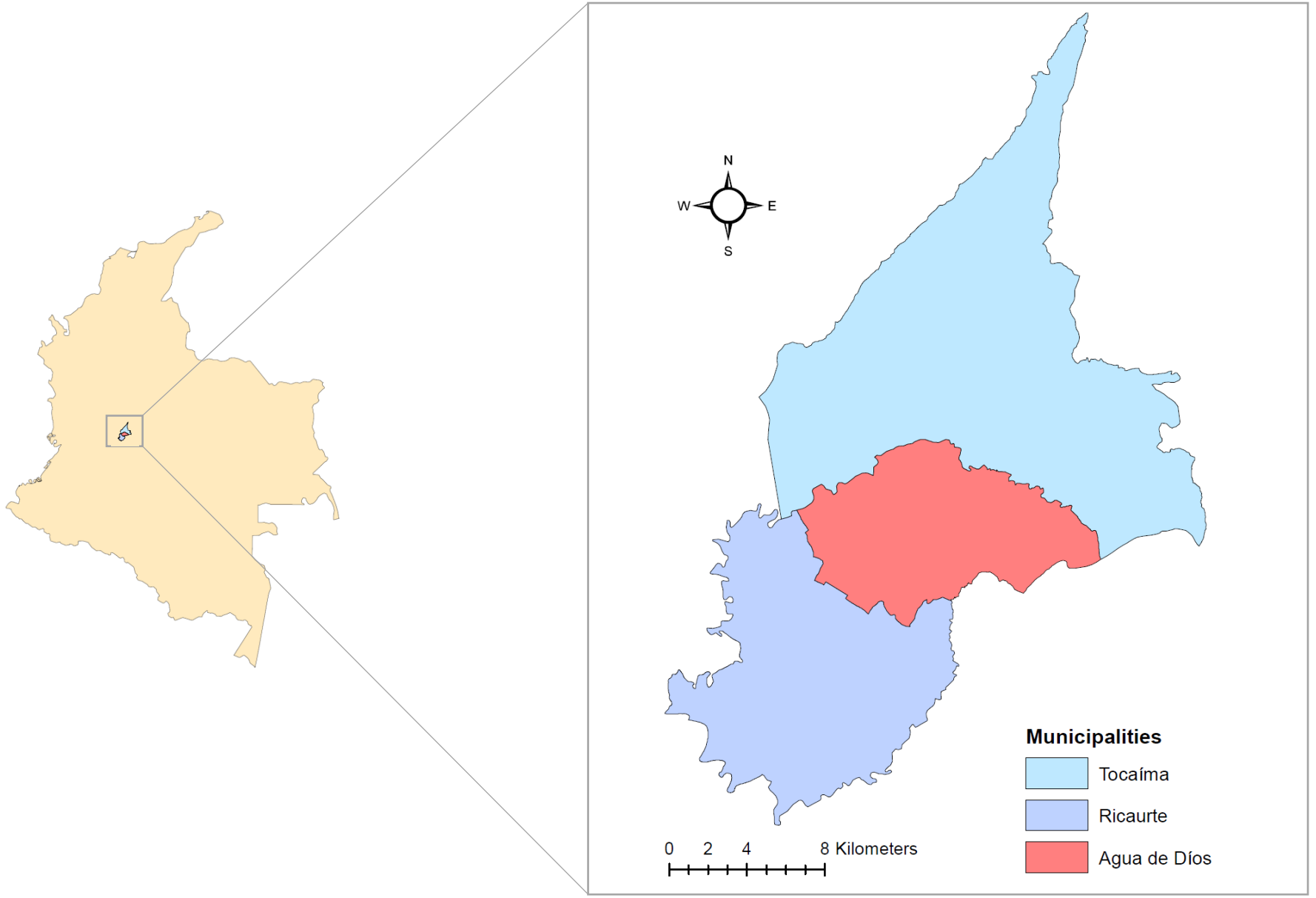

No climatic differences

No historic demographic differences

No contemporary demographic differences

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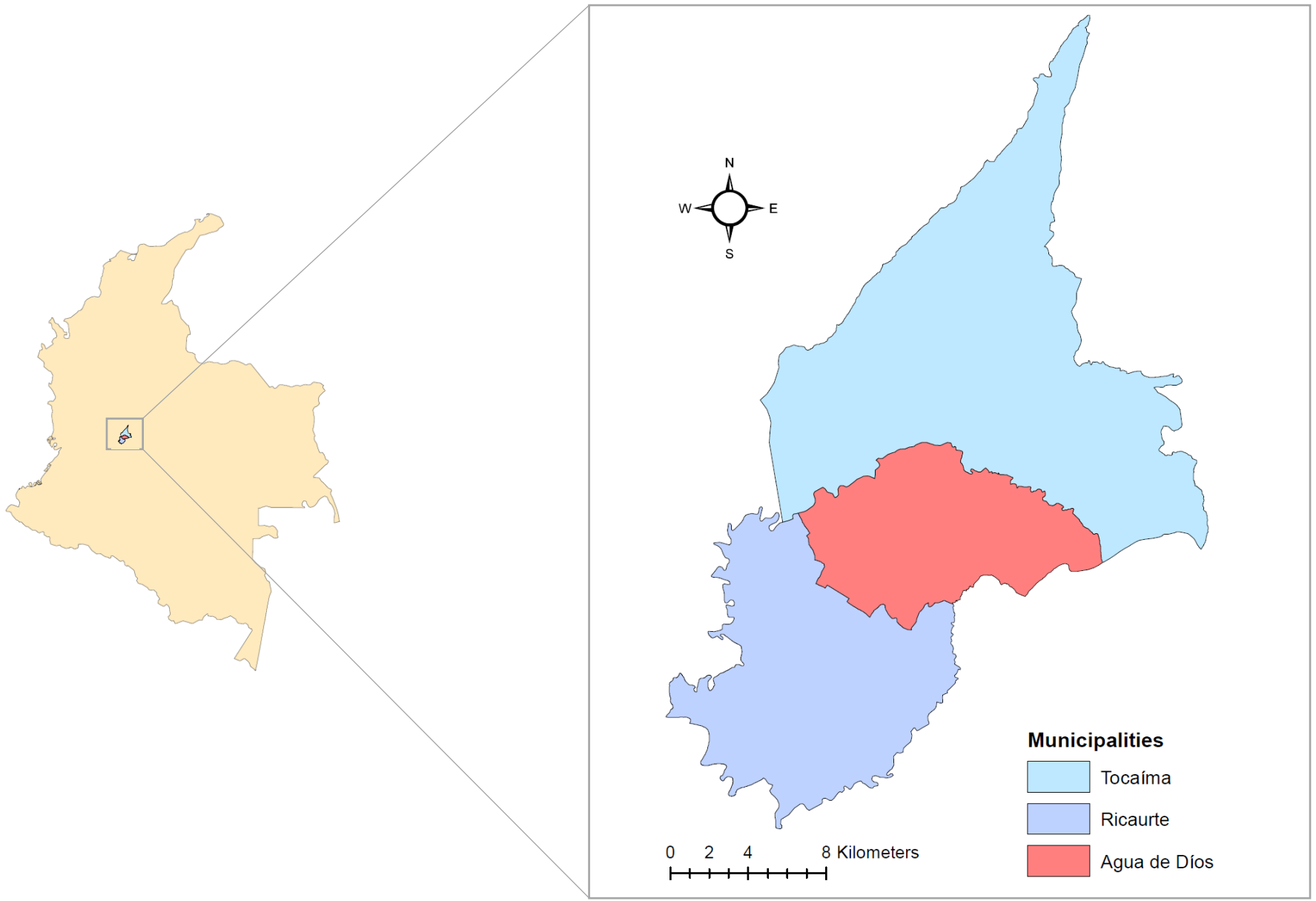

No climatic differences

No historic demographic differences

No contemporary demographic differences

No differences in material wellbeing

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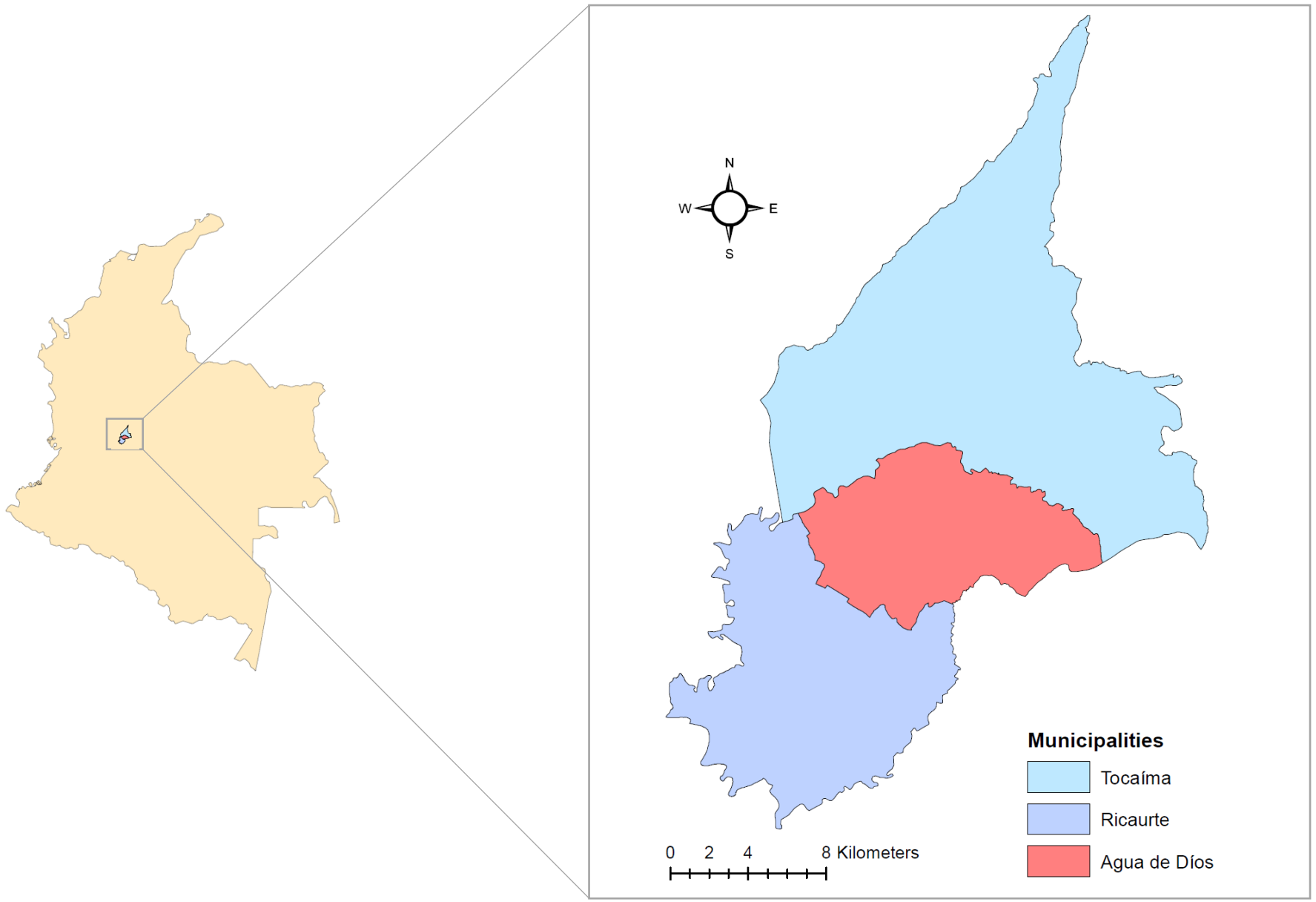


No climatic differences

No historic demographic differences

No contemporary demographic differences

No differences in material wellbeing

No current stigma

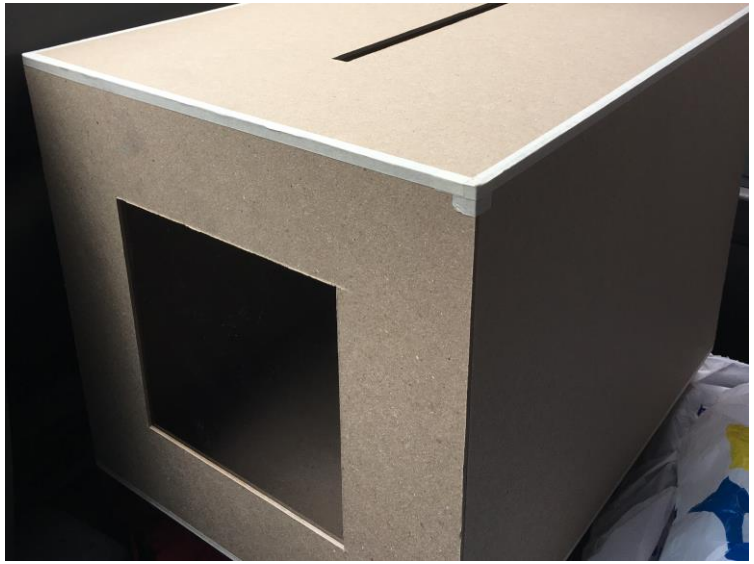
Empirical Approach – Baseline Results

- Lab-in-the-field approach + Surveys
  - Information collected in Agua de Dios, contiguous municipalities, and matched (distant) municipalities

- Experimental tool: Dictator Games (Two rounds, COP 16,000 to allocate per round)
  - Round I – Receiver from the same municipality
  - Round II – Receiver from distant municipality

- Survey Evidence:
  - On a scale of 1 to 10, how much do you trust physicians?
  - On a scale of 1 to 10, how safe do you believe HPV Vaccine to be?
  - Survey evidence on Self-reported Altruism + Solidarity with Venezuelan refugees

Protocol



Protocol – Balanced Sample

	Mean Values		s.e.
	Agua de Dios	*Contiguous Municip.*	
Female	0.602	0.583	(0.007)
Age	45.109	41.079	(1.459)
Primary Education	0.818	0.850	(0.015)
Secondary Education	0.572	0.535	(0.018)
Children	2.087	1.866	(0.175)
Marital Status	0.493	0.614	(0.021)**
Attrition	31%	34%	
Obs	139	126	

Protocol – Balanced Sample

	Mean Values		s.e.
	Ancestry	*No Ancestry*	
Female	0.585	0.599	(0.057)
Age	43.085	43.252	(2.460)
Primary Education	0.856	0.816	(0.020)
Secondary Education	0.628	0.497	(0.044)*
Children	0.492	0.599	(0.040)
Marital Status	1.72	2.19	(0.264)
Obs	118	147	

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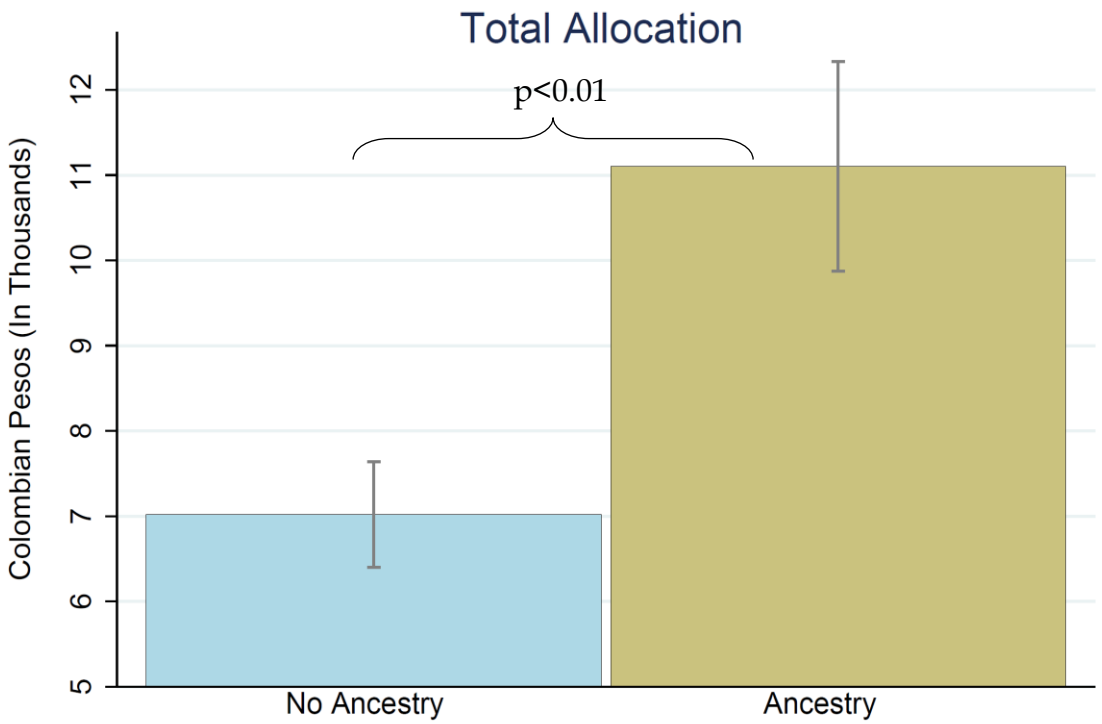
Results – Pro-Sociality



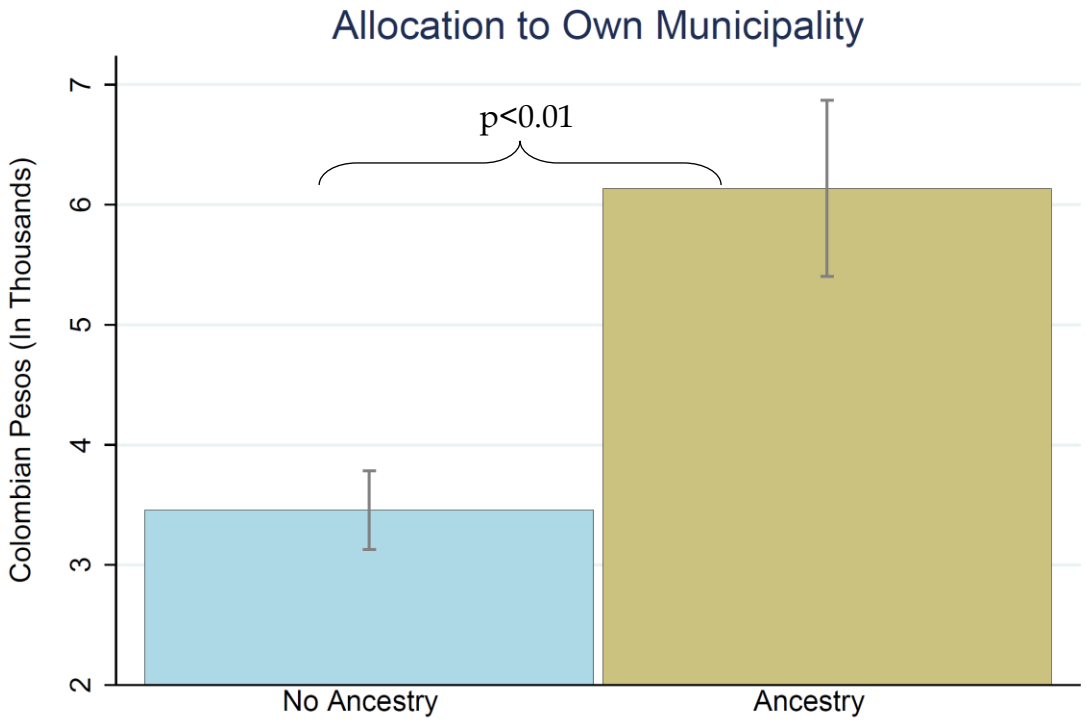
No selection in out-migration

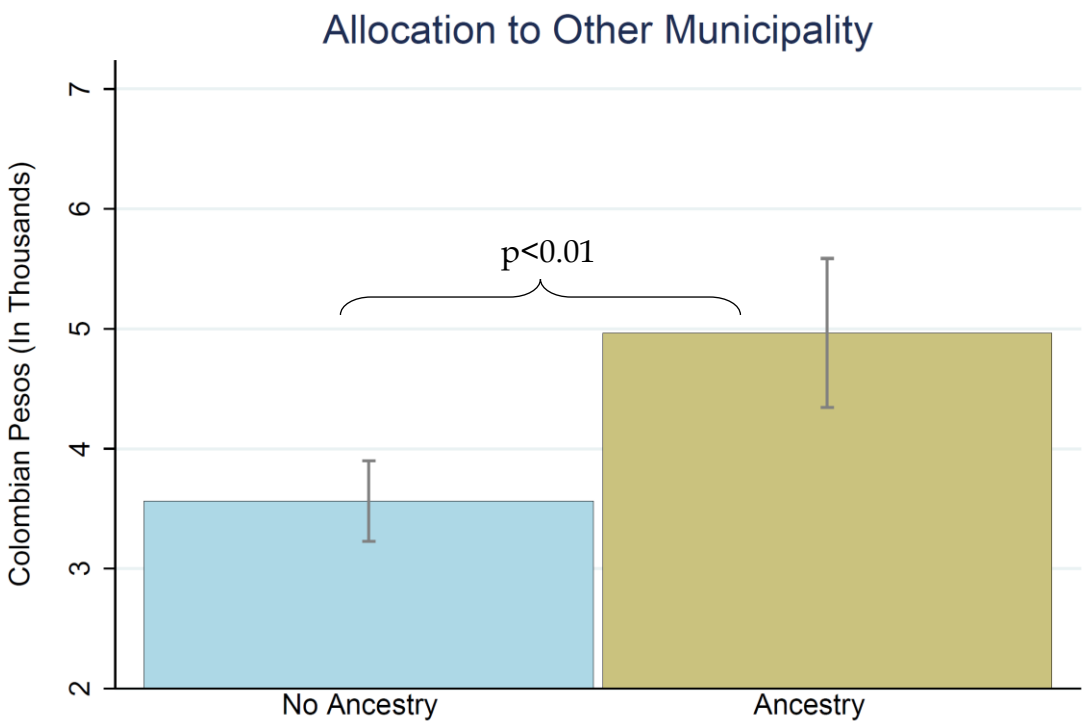
Demand Effects?

Regression Tables

Distribution

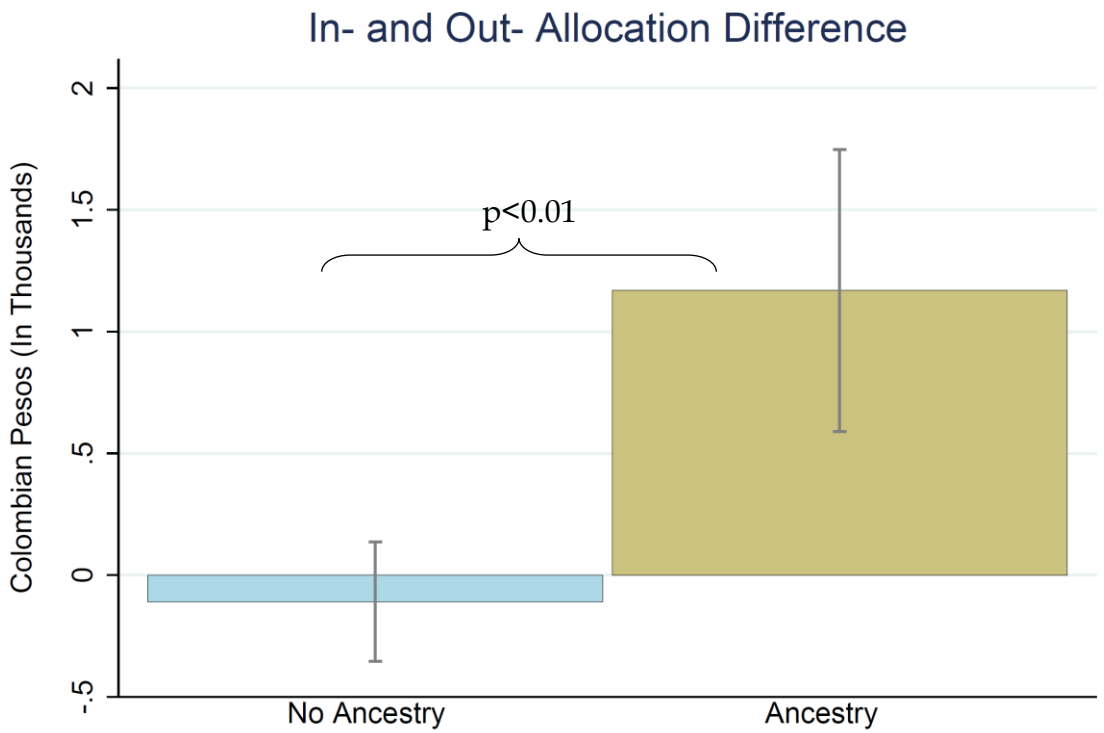
Results – Pro-Sociality





Regression Tables

Results – Ingroup Favoritism



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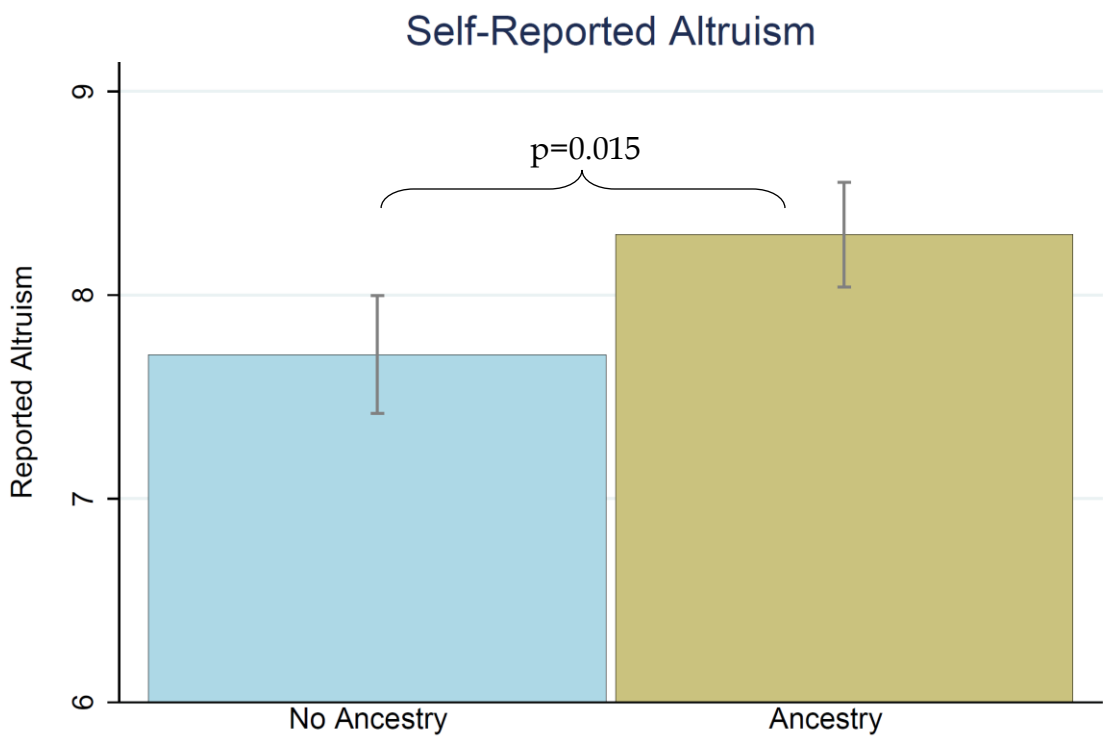
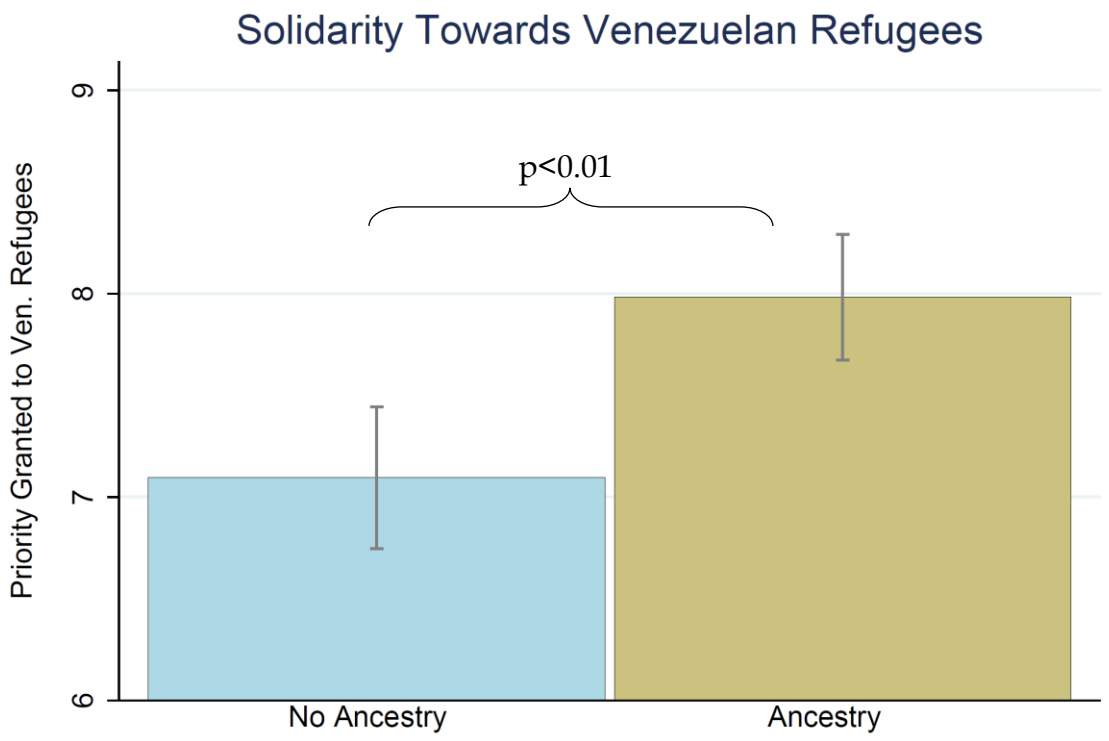
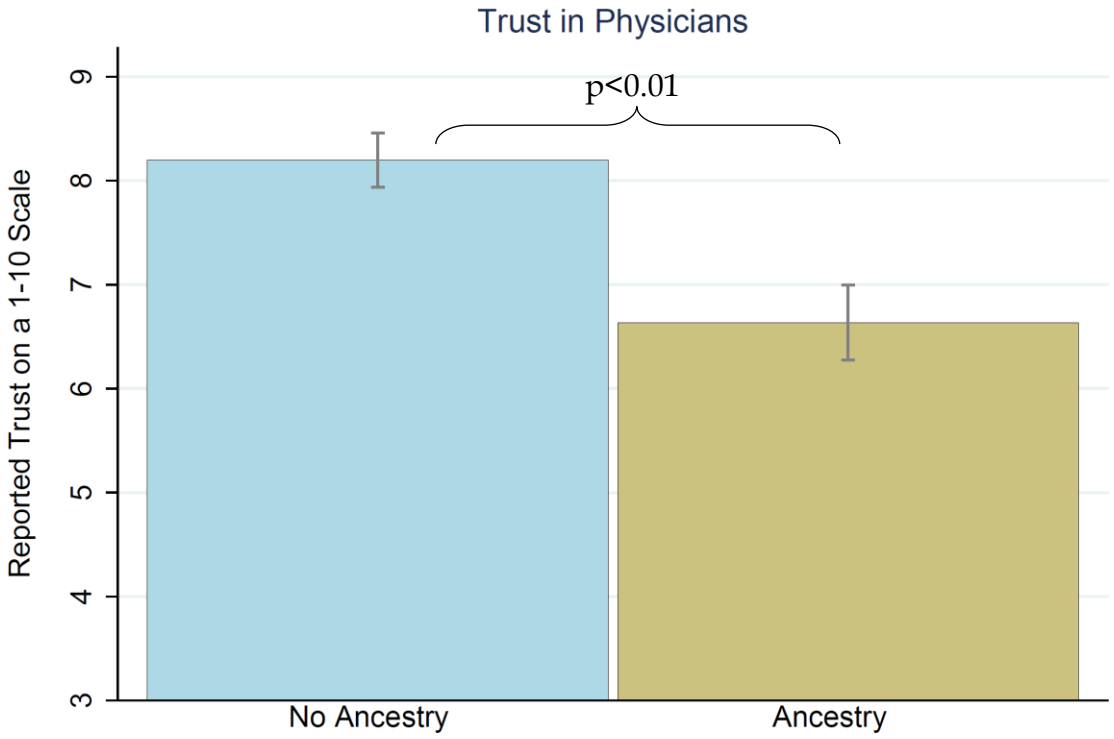


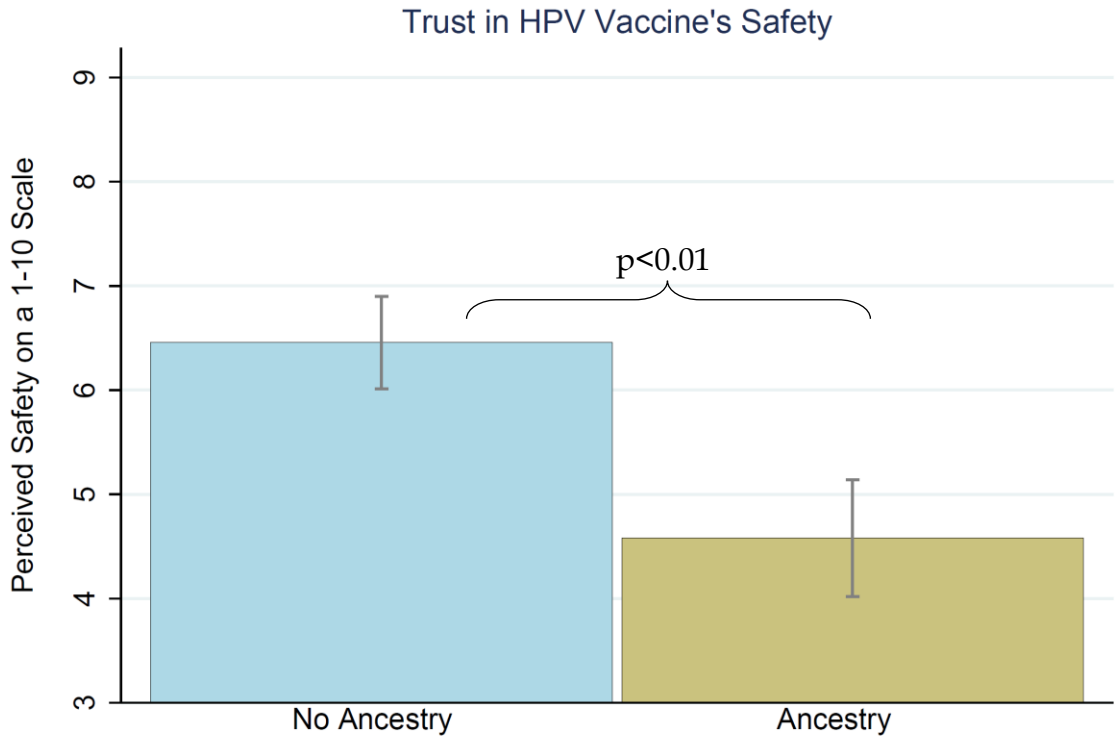


Regression Tables

Falsifications

Results – Trust in Medicine





Regression Tables

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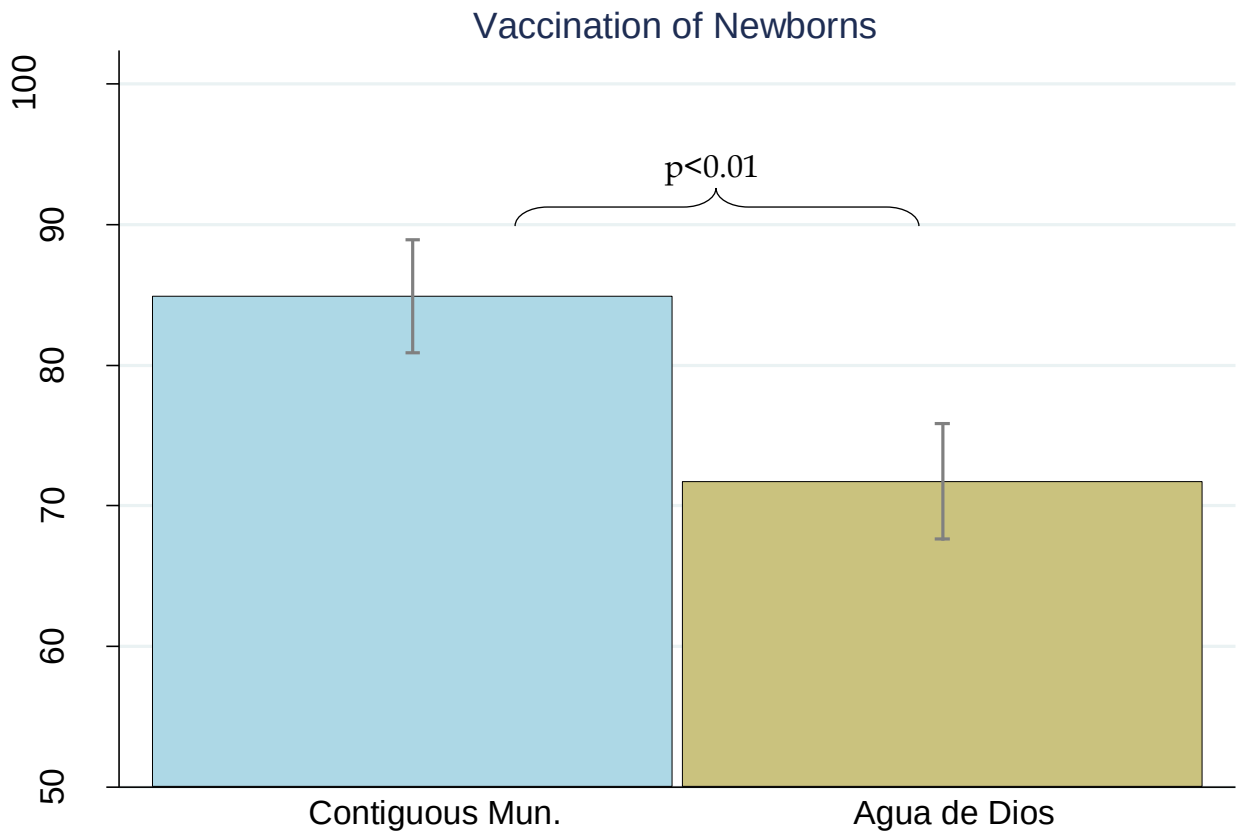
Results – Vaccination Rates



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Results – Distant Municipalities

- Could there have been a lasting effect deriving from the mere proximity to the leper colony?
  - Altruism of nearby communities could have been affected by having to live in proximity with the socially excluded

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- Want to establish that behaviors and preferences of Agua de Dios stand out as different and avoid this potential confound
  - Survey evidence from climatically identical but distant municipalities
  - Survey evidence from demographically similar neighborhood in Bogota

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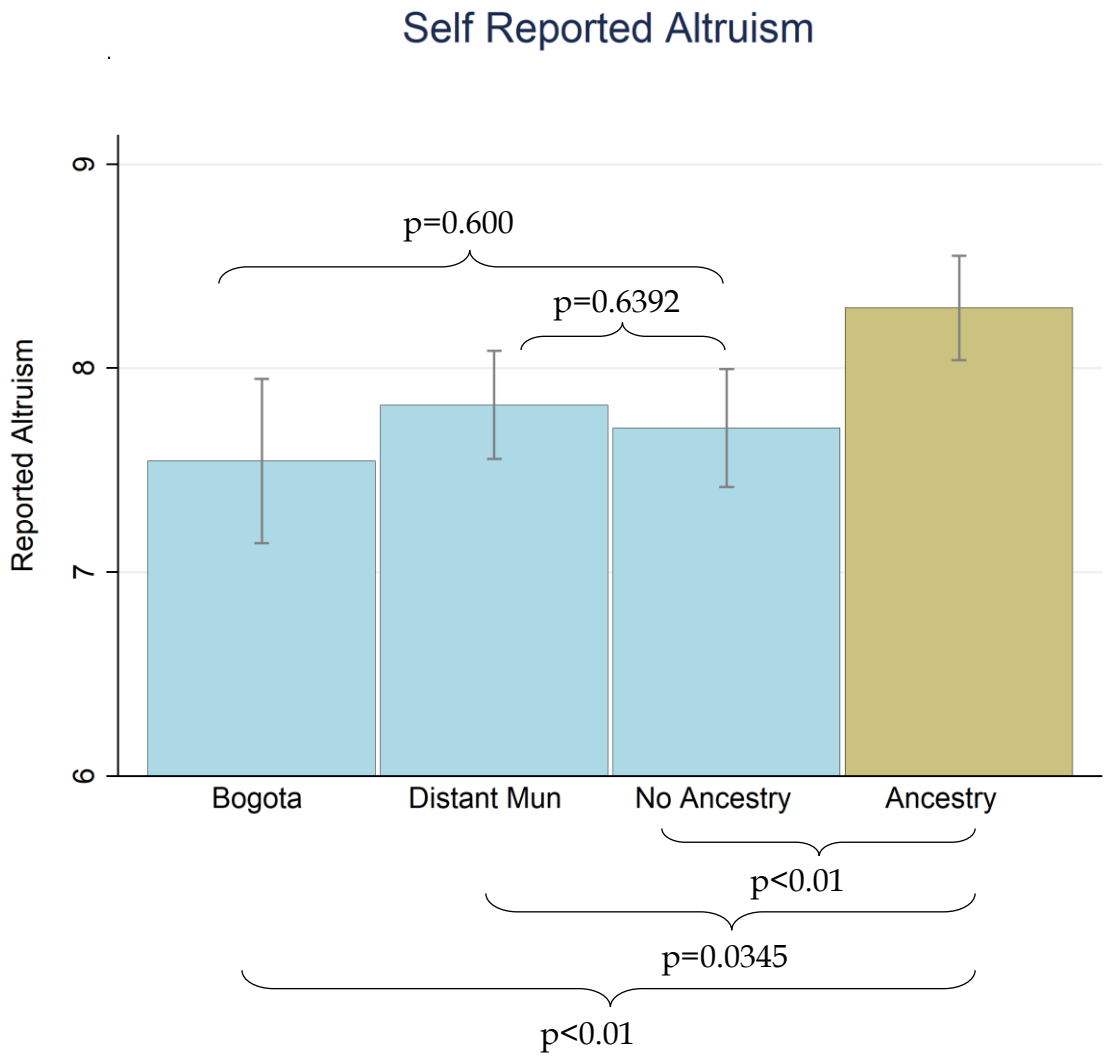
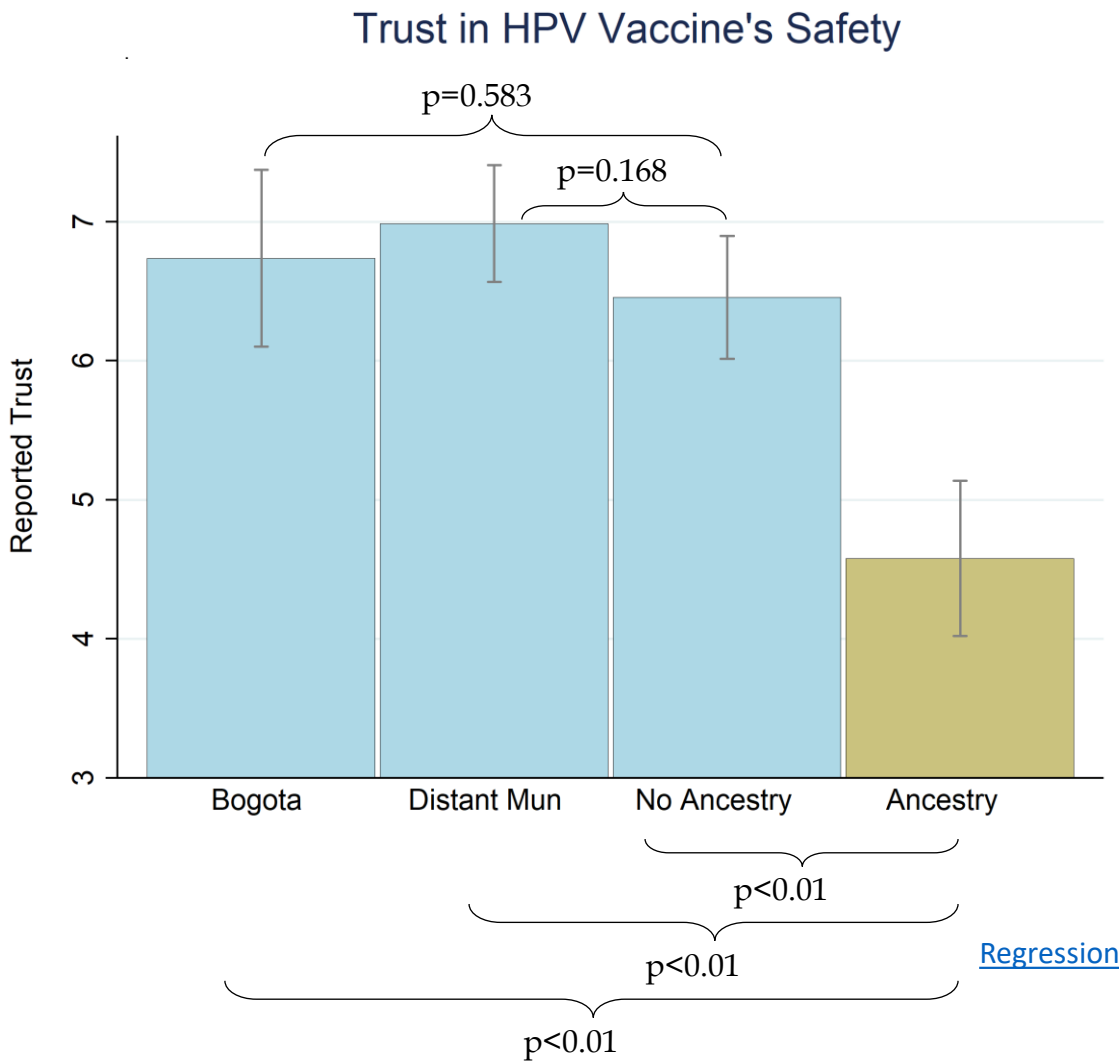
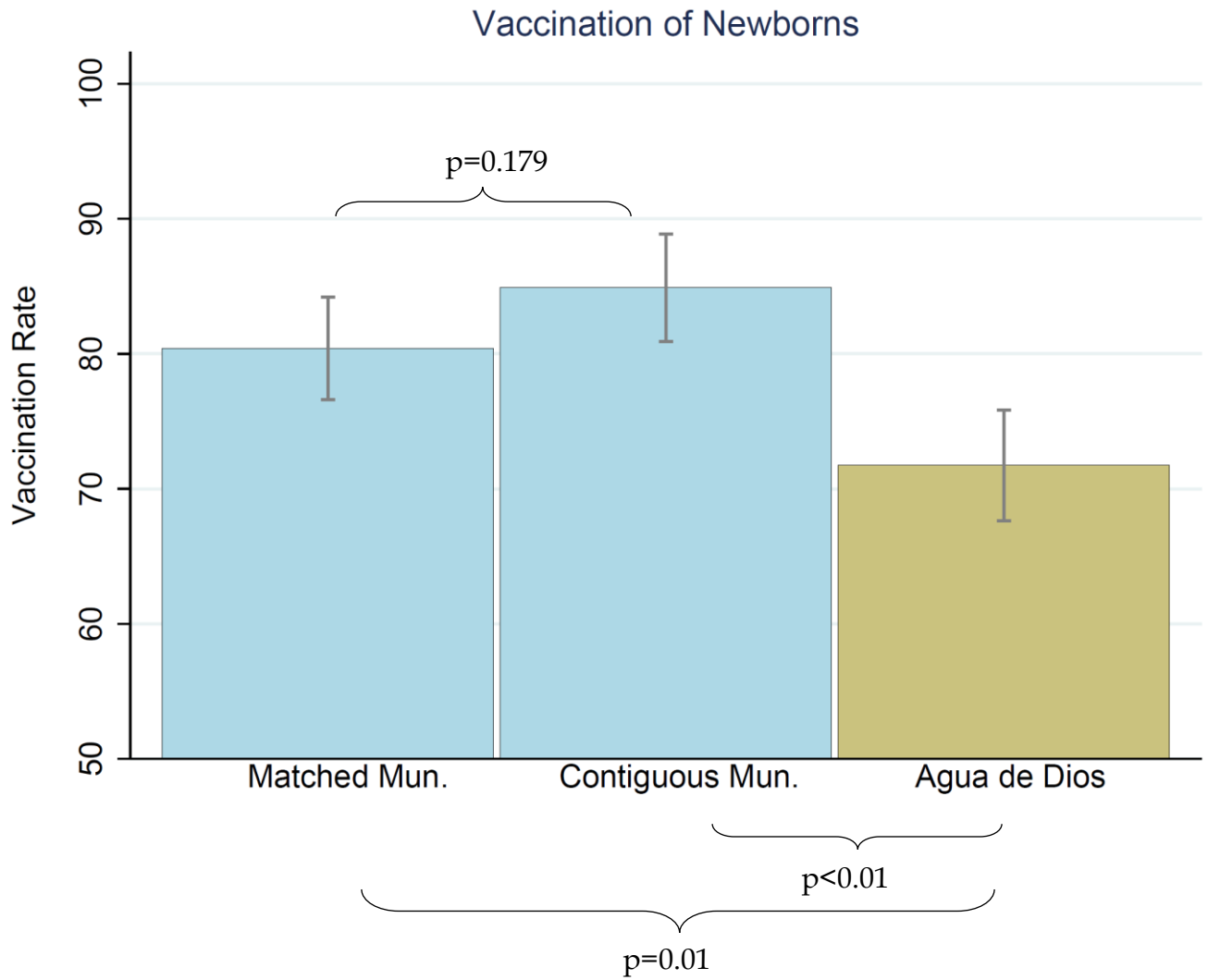




Regression Tables

Results – Municipality Level – Vaccination Rates



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Higher self-reported historical knowledge

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- **Oral histories** – A relevant praxis in households with a leper ancestor (Botero et al, 2017)

Higher self-reported historical knowledge

- **Historical Narratives** – Historical recounts that justify actions on the basis of morality (Bénabou et al., 2020)

    - Within-household transmission of endured trauma makes it more likely for these narratives to resonate and thus shape behavior

Mechanisms – Effects of Historical Narratives

- Examination of outcomes, randomly assigning participants into one of the following groups (in consultation with local historians):

1. Participants who answered the survey with no additional information (***NoTreat***)

Randomization Check

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3. Participants who received information on the historical responsibility of medicine and physicians (***MedicineHist***)

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2. Participants who received information on the non-medical history of exclusion (***ExclusionHist***)
3. Participants who received information on the historical responsibility of medicine and physicians (***MedicineHist***)
4. Participants who received information on the history of the Chicala Tree, a floral species that is nowadays emblematic in the region (***FloraHist***)

Randomization Check

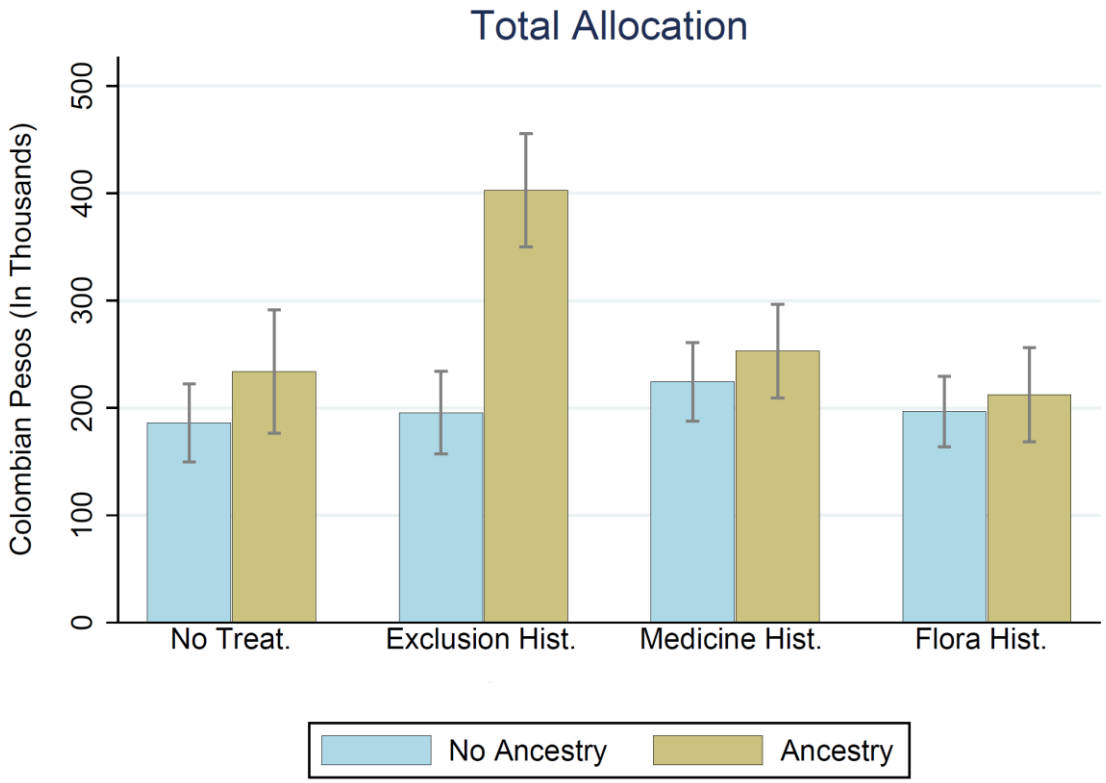
Mechanisms – Effects of Historical Narratives

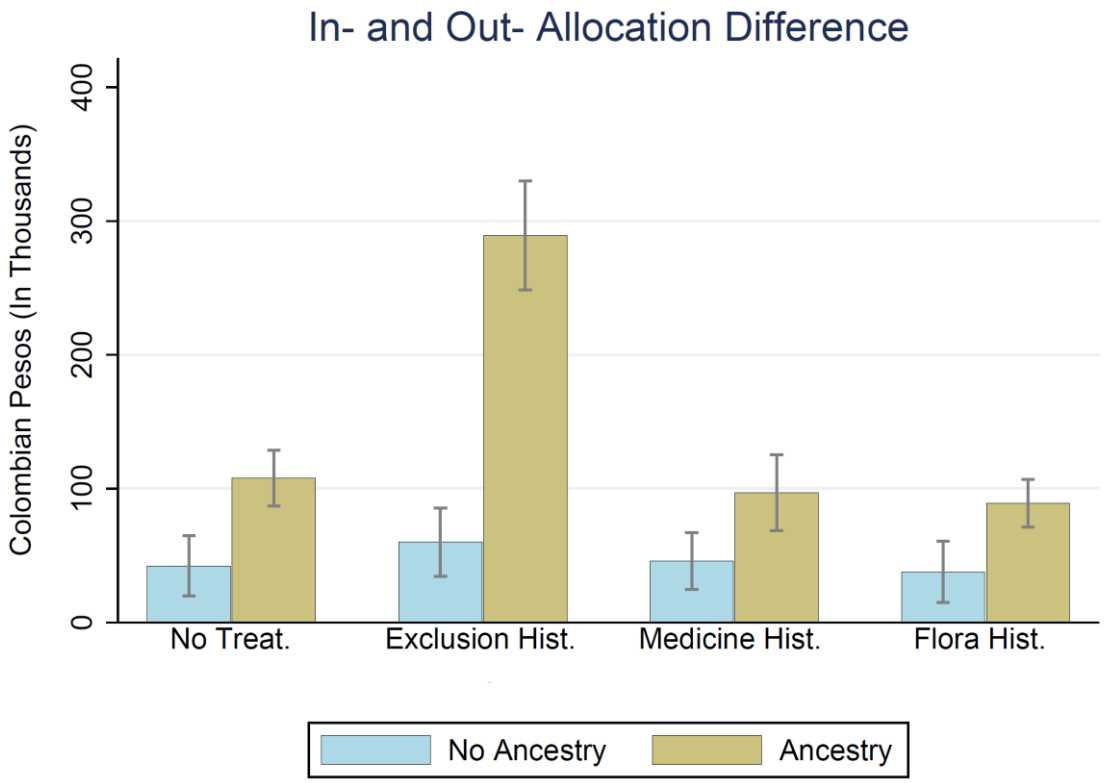
- Consistent survey variables collected

- All participants entered a lottery for COP 800,000 (1 month of minimum wage). They were asked:
  - How much would they allocate to someone in same municipality if they won?
  - How much would they allocate to someone in the same municipality if they won?

- All participants were given a free voucher to redeem in exchange for a free dosage of anti-parasitics (doctor-recommended in the region)
  - Take-up of antiparasitic

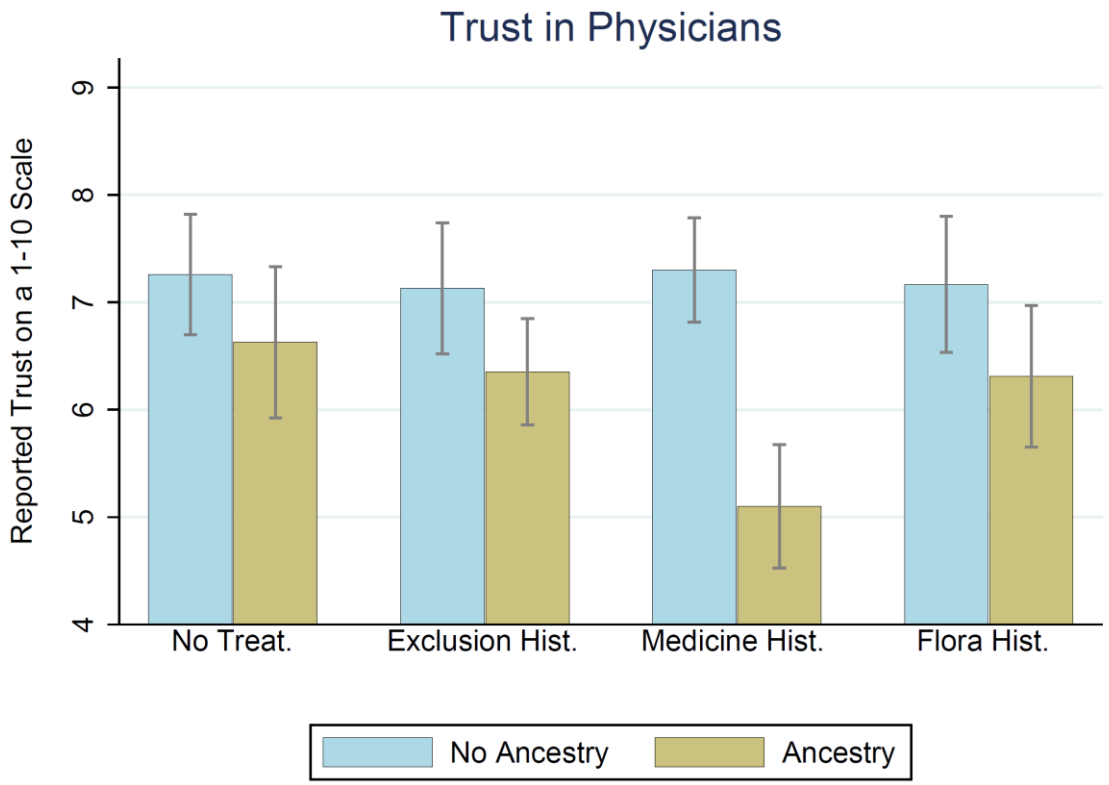
Mechanisms – Historical Exclusion Fosters Pro-Sociality

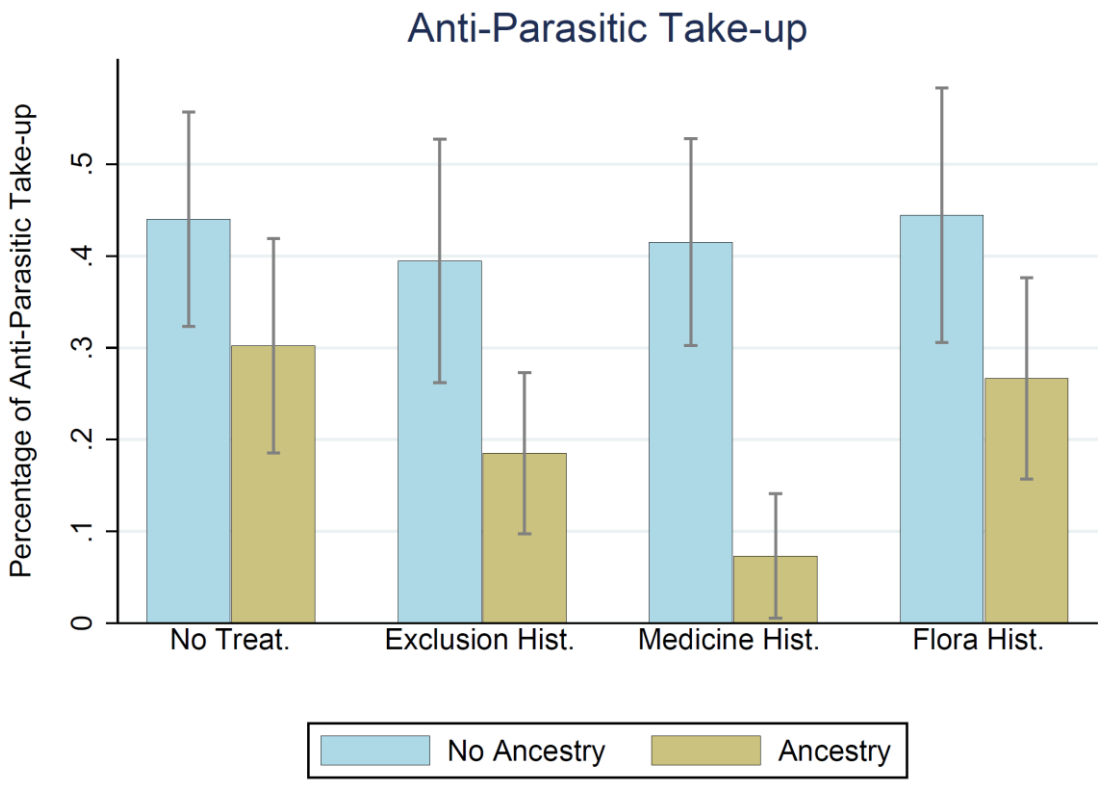




Regression

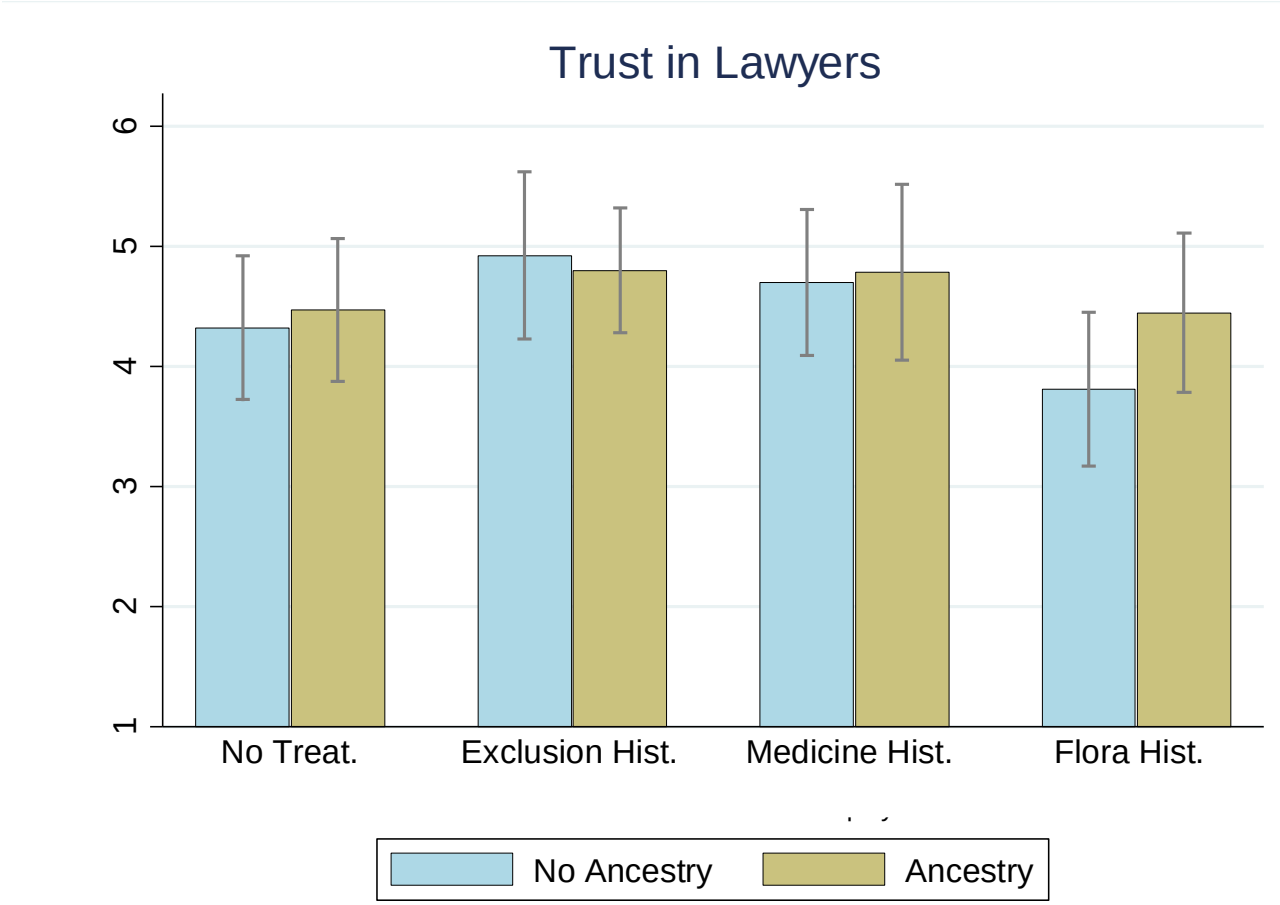
Mechanisms –Historical Medical Malpractice Triggers Mistrust in Medicine





Regression

Mechanisms – Trust in Lawyers



Regression

Outline

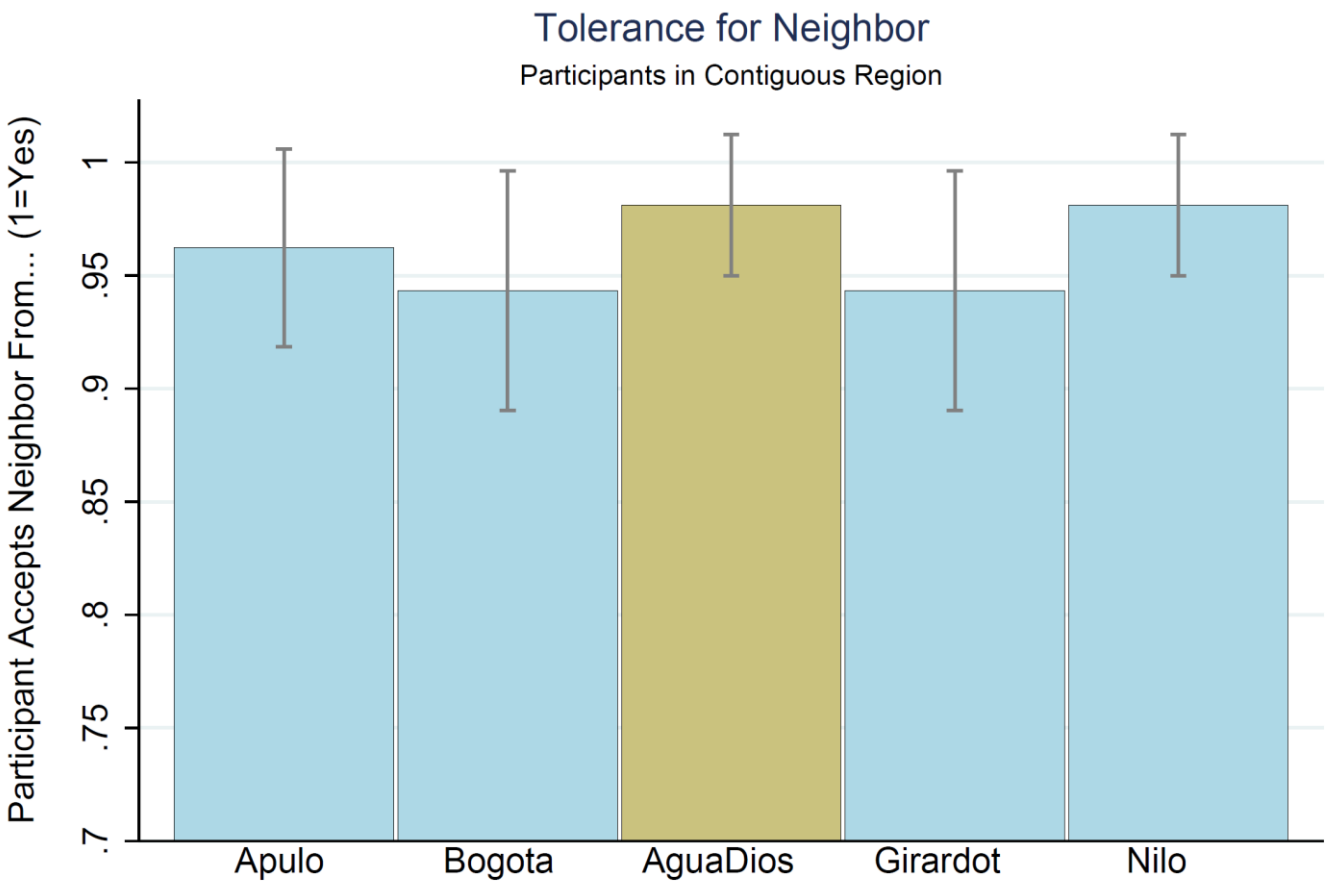
- Leprosy and its history
- Empirical Approach
- Results
- Mechanisms
- Concluding Remarks

Concluding Remarks

- Descendants of those who suffered social tend to be more pro-social but also more aware of group distinctions
- There is a persistent adverse effect on attitudes towards those who are visibly responsible for the exclusion (in this case exponents modern medicine)
- Historical narratives about the trauma, which are orally shared within the community, constitute a cultural mechanism through which results materialize

Appendix

No current stigma against inhabitants of Agua de Dios



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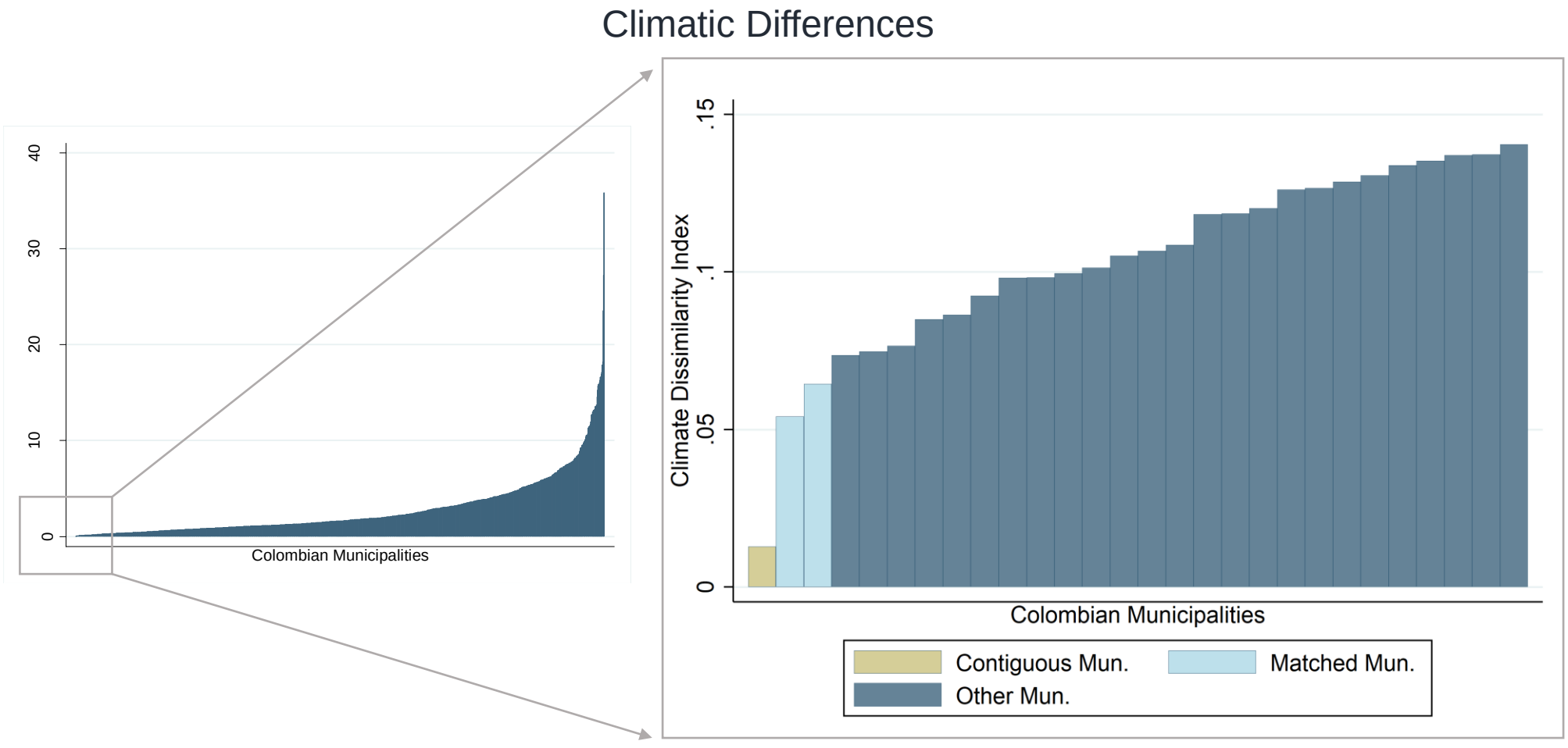
Climatic Differences (GIS)



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Distribution of Climatic Dissimilarity Index (CDI) with respect to Agua de Dios across all municipalities in Colombia (higher CDI implies larger climatic differences). CDI is computed as the sum of the squared percentage difference with respect to Agua de Dios in each climatic attribute (ruggedness, temp., precip, precip. seasonality, and temp. seasonality).

Climatic Differences (GIS)

	Climatic Characteristics					
	(1)	(2)	(3)	(4)	(5)	(6)
	Elevation	Rugged.	Temp.	Temp Seas.	Precip.	Precip Seas.
AguaDios	-58.679	0.182	0.529	-0.840	21.183***	-1.048***
	(68.903)	(0.207)	(0.482)	(0.891)	(0.178)	(0.104)
Mean Dep Var.	507.691	1.171	26.222	37.964	1969.439	44.028
Observations	424	424	424	424	424	424
R-squared	0.016	0.009	0.034	0.013	0.006	0.013

Unit of observation is a grid of 1 sq. Km. Source: WorldClim—Global Climate Data

Back

Empirical Approach – Historic Housing Characteristics

Housing Characteristics 1973					
	(1) Sewage	(2) Housing Material	(3) Floor Quality	(4) Home Ownership	(5) Rooms per House
AguaDios	0.088	-0.018	-0.038	0.011	-0.311
	(0.068)	(0.059)	(0.040)	(0.014)	(0.189)
Mean Dep Var.	0.435	0.407	0.472	0.424	2.709
Observations	7,445	7,445	7,445	7,445	7,445
R-squared	0.008	0.000	0.001	0.000	0.005

Unit of observation is the housing unit. Robust standard errors clustered at the block-level. Source: Colombian Housing Census, 1973

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Empirical Approach – Demographic Characteristics

	Demographic Characteristics				
	(1) Marital	(2) Fertility	(3) Primary	(4) Secondary	(5) Employment
	2005				
AguaDios	0.026	-0.016	-0.015	0.043	0.004
	(0.075)	(0.093)	(0.048)	(0.080)	(0.022)
Mean Dep Var.	0.573	0.751	0.951	0.302	0.918
Observations	8,008	4,035	9,522	9,522	3,248
R-squared	0.000	0.000	0.001	0.001	0.000
	1973				
AguaDios	-0.010	-0.109	0.013	0.033	0.002
	(0.111)	(0.077)	(0.027)	(0.017)	(0.004)
Mean Dep Var.	0.678	0.785	0.596	0.108	0.883
Observations	16,439	7,467	16,106	16,106	8,271
R-squared	0.001	0.017	0.000	0.003	0.000

Unit of observation is an individual. Robust standard errors clustered at the municipality-cohort level.
Sources: Colombian Census, 1973 and 2005.

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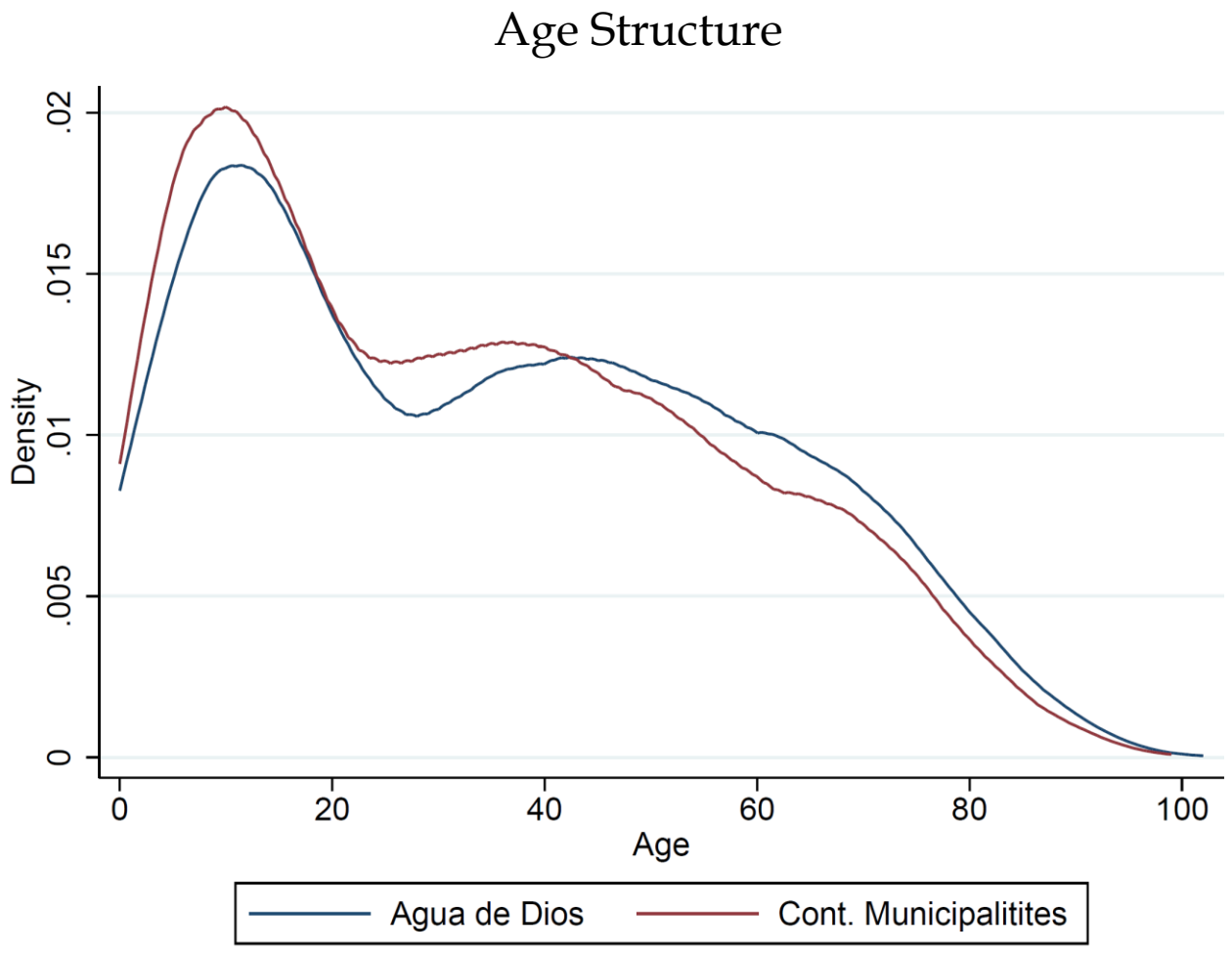
Empirical Approach – Age Structure (Census)



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Empirical Approach – Demographic Characteristics

Current Demographic Composition		
	Agua de Dios	*Contigous Municipalities*
Female	47%	47%
Mestizos	98%	95%
Local Mother (%)	74%	73%

Back

Selection on Migration

$$Y_{i,m} = \alpha + \beta(AguaDios_{i,m} * Migrant_{i,m}) + \vartheta Migrant_{i,m} + AguaDios_{i,m} + \varepsilon_{i,m}$$

	(1)	(2)	(3)	(4)	(5)	(6)
	Gender	Marital Status	Children	Primary	Secondary	Health
Out-Migrant*AguaDios	0.033	0.001	0.027	-0.001	-0.028	-0.063
	(0.027)	(0.024)	(0.038)	(0.011)	(0.020)	(0.037)
Out-Migrant	-0.023	-0.037	0.043	-0.001	0.015	0.133**
	(0.027)	(0.024)	(0.038)	(0.011)	(0.020)	(0.037)
AguaDios	0.011	0.079**	-0.025*	-0.013	0.028	0.063
	(0.006)	(0.014)	(0.010)	(0.007)	(0.025)	(0.055)
Observations	14,026	12,433	5,548	12,236	12,236	14,026
R-squared	0.000	0.006	0.001	0.001	0.000	0.001

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Results – Municipality Level – Pro-Sociality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Allocation		In- vs Out-Group Allocation Difference		In-Group Allocation		Out-Group Allocation	
AguaDios	3.786***	3.755***	1.126***	0.981**	2.456***	2.368***	1.330***	1.387***
	(0.877)	(0.813)	(0.361)	(0.330)	(0.532)	(0.435)	(0.408)	(0.442)
Female		-0.288		-0.835*		-0.561		0.274
		(0.924)		(0.437)		(0.563)		(0.453)
Age		-0.025		-0.034		-0.030		0.004
		(0.181)		(0.083)		(0.112)		(0.085)
Marital		0.238		-0.114		0.062		0.176
		(0.645)		(0.378)		(0.450)		(0.277)
Primary		-1.320		-0.225		-0.773		-0.547
		(0.743)		(0.742)		(0.466)		(0.578)
Secondary		2.044		0.745		1.395		0.649
		(1.545)		(0.598)		(0.968)		(0.659)
Age square		0.000		0.001		0.001		-0.000
		(0.002)		(0.001)		(0.001)		(0.001)
Children		-0.222		0.184		-0.019		-0.203**
		(0.199)		(0.216)		(0.195)		(0.073)
First		0.789		0.025		0.407		0.382
		(0.826)		(0.373)		(0.479)		(0.426)
Mean Value	8.838	8.838	0.460	0.460	4.649	4.649	4.189	4.189
Clusters	12	12	12	12	12	12	12	12
Observations	265	265	265	265	265	265	265	265
R-squared	0.081	0.106	0.037	0.086	0.099	0.125	0.039	0.072

Back

Ancestry Level – Pro-Sociality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Allocation		In- vs Out-Group Allocation Difference		In-Group Allocation		Out-Group Allocation	
Ancestry	3.874***	2.523***	1.296***	1.111**	2.585***	1.817***	1.289***	0.706**
	(0.745)	(0.564)	(0.344)	(0.484)	(0.448)	(0.418)	(0.368)	(0.318)
Female	-0.157	-0.208	-0.794*	-0.808*	-0.476	-0.508	0.318	0.300
	(0.853)	(0.862)	(0.420)	(0.408)	(0.516)	(0.517)	(0.431)	(0.433)
Age	-0.019	-0.030	-0.034	-0.033	-0.027	-0.031	0.007	0.002
	(0.185)	(0.176)	(0.084)	(0.085)	(0.115)	(0.111)	(0.085)	(0.082)
Marital	0.107	0.268	-0.123	-0.096	-0.008	0.086	0.115	0.182
	(0.597)	(0.607)	(0.357)	(0.358)	(0.408)	(0.415)	(0.274)	(0.275)
Primary	-1.551*	-1.386	-0.277	-0.255	-0.914*	-0.820	-0.637	-0.565
	(0.862)	(0.834)	(0.729)	(0.719)	(0.500)	(0.487)	(0.622)	(0.607)
Secondary	2.023	1.884	0.694	0.670	1.359	1.277	0.664	0.607
	(1.546)	(1.558)	(0.580)	(0.583)	(0.969)	(0.971)	(0.651)	(0.664)
Age square	0.000	0.000	0.001	0.001	0.000	0.001	-0.000	-0.000
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Children	-0.056	-0.121	0.237	0.226	0.091	0.053	-0.147*	-0.173**
	(0.167)	(0.177)	(0.215)	(0.226)	(0.180)	(0.188)	(0.070)	(0.075)
First	0.494	0.657	-0.052	0.016	0.221	0.336	0.273	0.320
	(0.930)	(0.902)	(0.368)	(0.377)	(0.540)	(0.509)	(0.457)	(0.467)
Mean Value	8.838	8.838	0.460	0.460	4.649	4.649	4.189	4.189
Clusters	12	12	12	12	12	12	12	12
Municipality FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	265	265	265	265	265	265	265	265
R-squared	0.110	0.127	0.105	0.108	0.141	0.157	0.067	0.079

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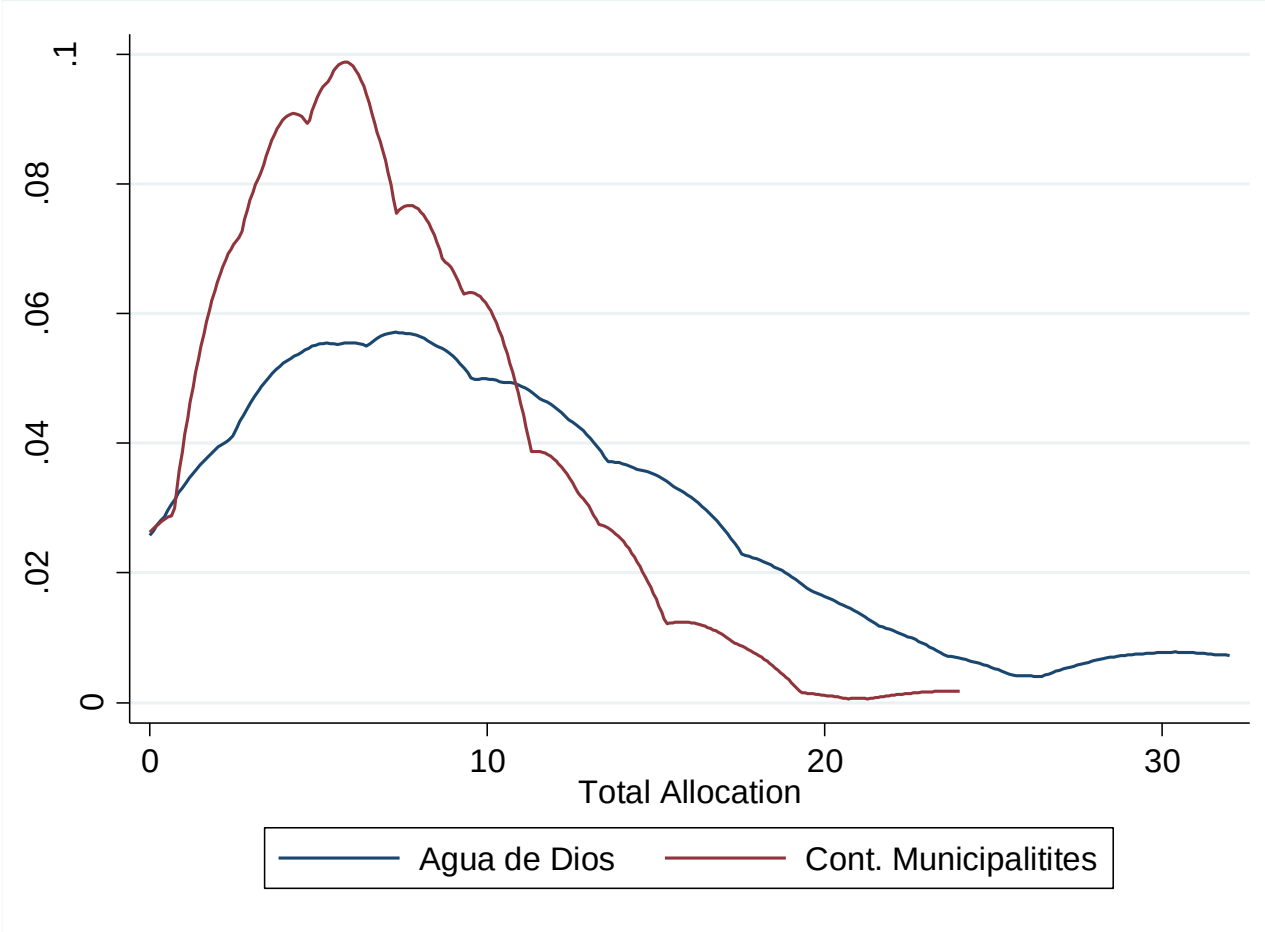
Results – Municipality Level – Pro-Sociality



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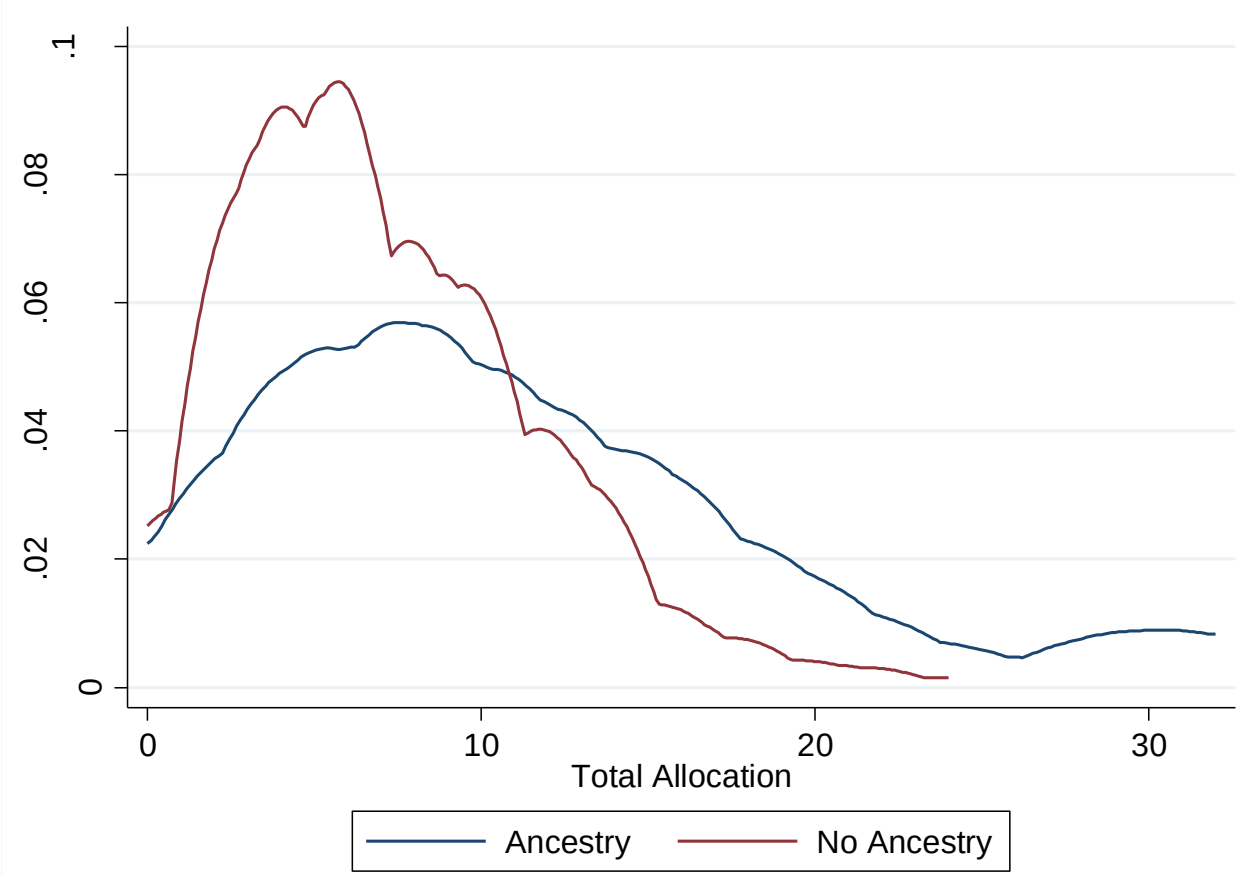
Ancestry Level – Pro-Sociality Distribution



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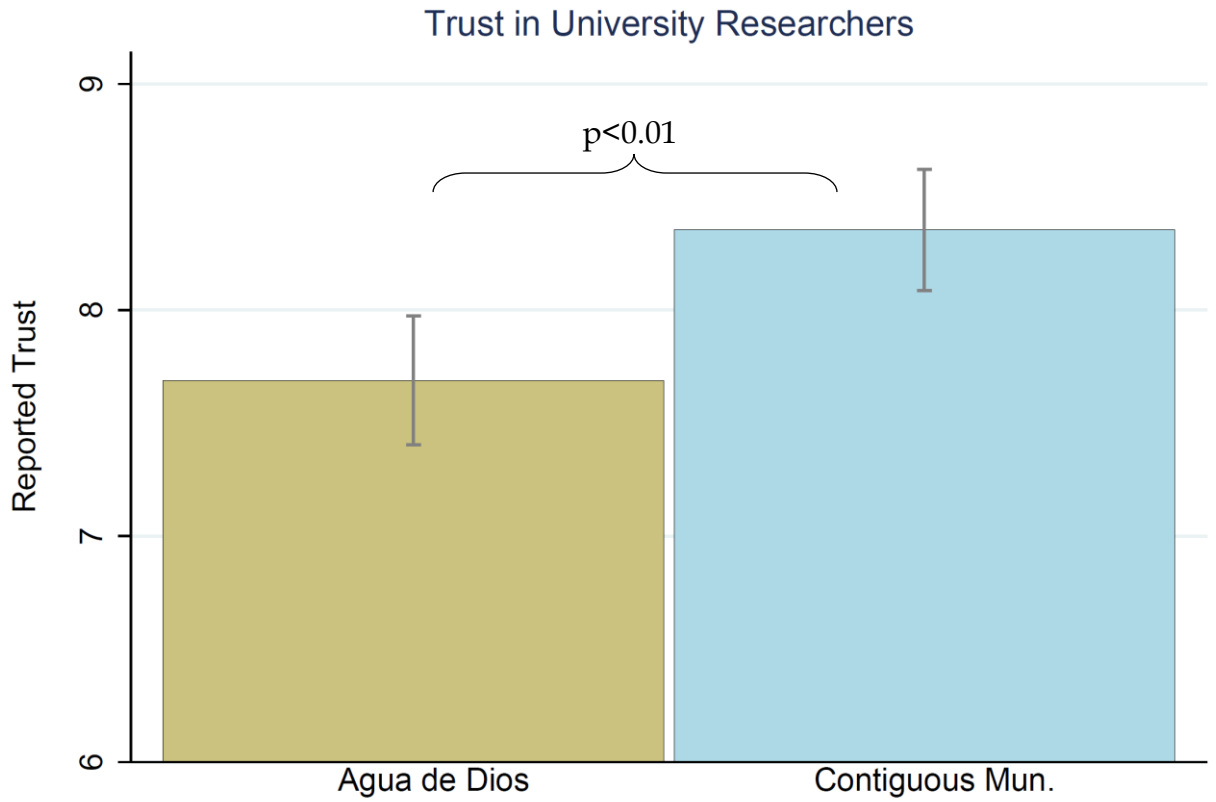
Trust in Researchers



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Municipality Level – Survey Measures of Pro-Sociality

	(1)	(2)	(3)	(4)	(5)	(6)
	Self Reported Altruism		Solidarity with Venezuelan Refugees		First Principal Component	
AguaDios	0.728***	0.708***	0.640**	0.647**	0.794***	0.788***
	(0.142)	(0.148)	(0.245)	(0.285)	(0.172)	(0.164)
Female		0.660**		0.837**		0.037
		(0.293)		(0.377)		(0.190)
Age		0.059*		0.019		0.002
		(0.027)		(0.051)		(0.035)
Marital		-0.046		-0.179		0.040
		(0.258)		(0.263)		(0.128)
Primary		0.669		0.796**		-0.170
		(0.378)		(0.276)		(0.158)
Secondary		-0.439		-0.699***		0.326
		(0.251)		(0.220)		(0.302)
Age square		-0.001*		-0.000		0.000
		(0.000)		(0.001)		(0.000)
Children		0.081		-0.001		-0.038
		(0.075)		(0.093)		(0.041)
First		-0.051		-0.150		0.143
		(0.179)		(0.254)		(0.164)
Mean Value	7.970	7.970	7.491	7.491		
Clusters	12	12	12	12	12	12
Observations	265	265	265	265	265	265
R-squared	0.035	0.095	0.018	0.063	0.092	0.111

Back

Ancestry Level – Survey Measures of Pro-Sociality

	(1)	(2)	(3)	(4)	(5)	(6)
	Self Reported Altruism		Solidarity with Venezuelan Refugees		First Principal Component	
Ancestry	0.666**	0.377	0.962***	0.914***	0.808***	0.523***
	(0.227)	(0.382)	(0.208)	(0.223)	(0.144)	(0.112)
Female	0.683**	0.669**	0.867**	0.837**	0.064	0.053
	(0.257)	(0.278)	(0.360)	(0.364)	(0.169)	(0.174)
Age	0.060**	0.059**	0.019	0.028	0.003	0.001
	(0.027)	(0.027)	(0.051)	(0.049)	(0.035)	(0.034)
Marital	-0.076	-0.040	-0.175	-0.153	0.012	0.046
	(0.244)	(0.249)	(0.258)	(0.258)	(0.116)	(0.118)
Primary	0.624	0.659	0.765**	0.770**	-0.219	-0.184
	(0.368)	(0.375)	(0.247)	(0.249)	(0.179)	(0.174)
Secondary	-0.433	-0.465*	-0.749***	-0.773**	0.322	0.292
	(0.268)	(0.258)	(0.228)	(0.260)	(0.303)	(0.305)
Age square	-0.001*	-0.001*	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Children	0.110	0.095	0.038	0.027	-0.003	-0.017
	(0.072)	(0.074)	(0.096)	(0.094)	(0.033)	(0.034)
First	-0.106	-0.051	-0.201	-0.029	0.081	0.120
	(0.196)	(0.201)	(0.244)	(0.224)	(0.187)	(0.181)
Mean Value	7.970	7.970	7.491	7.491		
Clusters	12	12	12	12	12	12
Municipality FE	No	Yes	No	Yes	No	Yes
Observations	265	265	265	265	265	265
R-squared	0.090	0.100	0.084	0.098	0.115	0.135

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Results – Municipality Level – Trust in Medicine

	(1)	(2)	(3)	(4)	(5)	(6)
	Trust in Physicians		Perceived Safety of HPV Vaccine		First Principal Component	
AguaDios	-1.425***	-1.485***	-1.607***	-1.416**	-0.780***	-0.762***
	(0.287)	(0.206)	(0.457)	(0.548)	(0.172)	(0.157)
Female		0.543*		-0.101		0.159
		(0.262)		(0.522)		(0.175)
Age		-0.006		-0.128		-0.021
		(0.050)		(0.083)		(0.032)
Marital		0.251		0.508		0.230
		(0.325)		(0.556)		(0.197)
Primary		0.060		0.348		-0.030
		(0.518)		(0.902)		(0.281)
Secondary		0.165		0.281		0.123
		(0.365)		(0.578)		(0.138)
Age square		0.000		0.001		0.000
		(0.001)		(0.001)		(0.000)
Children		0.003		0.110		0.022
		(0.081)		(0.176)		(0.059)
First		-0.499*		-0.294		-0.305*
		(0.264)		(0.483)		(0.159)
Mean Value	7.502	7.502	5.645	5.645		
Clusters	12	12	12	12	12	12
Observations	265	265	265	265	265	265
R-squared	0.100	0.132	0.061	0.089	0.119	0.158

Back

Ancestry Level – Trust in Medicine

	(1)	(2)	(3)	(4)	(5)	(6)
	Trust in Physicians		Perceived Danger of HPV Vaccine		First Principal Component	
Ancestry	-1.583***	-1.071*	-1.753**	-1.374	-0.840***	-0.591*
	(0.394)	(0.549)	(0.609)	(0.933)	(0.224)	(0.299)
Female	0.490*	0.498*	-0.138	-0.160	0.137	0.139
	(0.231)	(0.244)	(0.575)	(0.545)	(0.182)	(0.175)
Age	-0.009	-0.001	-0.128	-0.106	-0.023	-0.013
	(0.049)	(0.049)	(0.074)	(0.080)	(0.028)	(0.030)
Marital	0.299	0.244	0.524	0.541	0.249	0.237
	(0.343)	(0.323)	(0.506)	(0.522)	(0.181)	(0.183)
Primary	0.150	0.087	0.396	0.303	0.005	-0.045
	(0.498)	(0.493)	(0.830)	(0.837)	(0.282)	(0.266)
Secondary	0.182	0.227	0.293	0.328	0.115	0.144
	(0.334)	(0.349)	(0.545)	(0.608)	(0.131)	(0.145)
Age square	0.000	0.000	0.001	0.001	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Children	-0.065	-0.044	0.039	0.017	-0.010	-0.014
	(0.095)	(0.081)	(0.188)	(0.187)	(0.064)	(0.058)
First	-0.382	-0.375	-0.179	0.073	-0.246	-0.181
	(0.292)	(0.267)	(0.502)	(0.327)	(0.176)	(0.119)
Mean Value	7.502	7.502	5.645	5.645		
Clusters	12	12	12	12	12	12
Municipality FE	No	Yes	No	Yes	No	Yes
Observations	265	265	220	220	220	220
R-squared	0.145	0.169	0.112	0.145	0.180	0.223

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Results – Falsification

Falsifications - Alternative Outcome Variables						
	(1)	(2)	(3)	(4)	(5)	(6)
	Religiosity		Trust in Local Bureaucrats		Trust in Politicians	
AguaDios	0.103		-0.846		0.007	
	(0.267)		(0.643)		(0.483)	
Ancestry		0.321		-0.049		0.347
		(0.279)		(0.385)		(0.466)
Female	0.466*	0.496*	0.059	0.142	-0.289	-0.227
	(0.250)	(0.249)	(0.388)	(0.405)	(0.302)	(0.314)
Age	0.050	0.042	0.077	0.047	0.147***	0.128**
	(0.033)	(0.033)	(0.051)	(0.052)	(0.041)	(0.046)
Marital	0.104	0.098	-0.736*	-0.779**	-0.472	-0.493
	(0.165)	(0.152)	(0.335)	(0.334)	(0.319)	(0.315)
Primary	0.178	0.171	0.130	0.139	-0.560	-0.564
	(0.181)	(0.206)	(0.536)	(0.535)	(0.583)	(0.578)
Secondary	-0.017	-0.026	-0.252	-0.200	-0.091	-0.084
	(0.263)	(0.253)	(0.552)	(0.549)	(0.453)	(0.479)
Age square	-0.001	-0.000	-0.001	-0.000	-0.002***	-0.001**
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)
Children	0.005	0.023	-0.007	0.016	-0.024	0.005
	(0.050)	(0.051)	(0.115)	(0.108)	(0.111)	(0.098)
First	0.184	0.051	-0.131	-0.628	0.015	-0.305
	(0.224)	(0.188)	(0.602)	(0.357)	(0.456)	(0.356)
Mean Value	9.521	9.521	4.702	4.702	3.725	3.725
Municipality FE	No	Yes	No	Yes	No	Yes
Clusters	12	12	12	12	12	12
Observations	265	265	265	265	265	265
R-squared	0.109	0.125	0.105	0.108	0.140	0.155

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Results – Municipality Level – Vaccination Rates

$$Y_{c,t,p} = \alpha + \beta AguaDios_c + \gamma_t + \gamma_c + \varepsilon_{c,t,p}$$

	(1)	(2)	(3)	(4)
	Vaccination Rate of Newborns			
AguaDios	-8.656***	-8.656***	-13.154***	-13.154***
	(2.023)	(2.084)	(2.324)	(2.394)
Comparison Group	Matched Munic.		Contiguous Munic.	
Mean Value of Control	80.4	80.4	84.9	84.9
Type FE	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes
Observations	234	234	234	234
R-squared	0.140	0.266	0.371	0.553

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Back - Distant

Results – Distant Municipalities

	(1)	(2)	(3)	(4)	(5)	(6)
	Self-Reported Altruism			Perceived Safety of HPV Vaccine		
AguaDios	0.717***	0.606**	0.884**	-1.440**	-1.687***	-1.301**
	(0.133)	(0.269)	(0.313)	(0.568)	(0.445)	(0.554)
Female	0.706**	0.439**	0.585**	-0.185	-0.179	-0.217
	(0.283)	(0.169)	(0.205)	(0.478)	(0.541)	(0.644)
Age	0.006	0.004	0.004	-0.020	-0.013	-0.017*
	(0.008)	(0.007)	(0.008)	(0.014)	(0.010)	(0.010)
Marital	0.001	-0.209	-0.167	0.413	-0.298	0.125
	(0.266)	(0.199)	(0.237)	(0.496)	(0.523)	(0.741)
Primary	0.696*	0.395	0.207	0.250	1.480**	1.172
	(0.358)	(0.379)	(0.501)	(0.862)	(0.688)	(0.772)
Secondary	-0.437	0.069	0.206	0.259	0.149	0.453
	(0.257)	(0.173)	(0.149)	(0.546)	(0.446)	(0.570)
Children	0.062	0.119	0.123	0.126	0.111	0.087
	(0.071)	(0.071)	(0.073)	(0.149)	(0.141)	(0.153)
Comparison Group	Contiguous	Matched	Bogotá	Contiguous	Matched	Bogotá
Mean Value	7.97	8.079	8.068	5.645	5.790	5.364
Observations	265	266	204	220	196	151
R-squared	0.088	0.063	0.088	0.078	0.144	0.101

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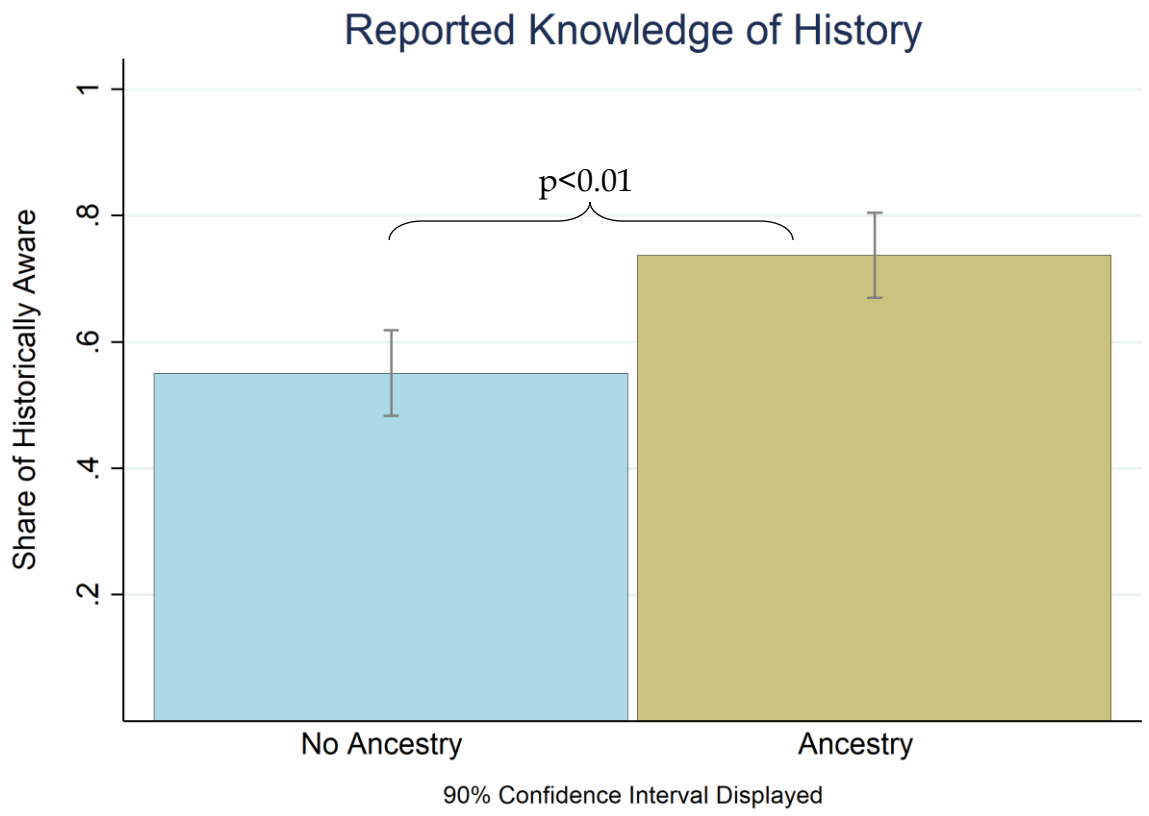
Mechanisms – Historical Narratives



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Mechanisms – Randomization Check

	(1) Ancestry	(2) Age	(3) Female	(4) Marital	(5) Children	(6) Primary	(7) Secondary
ExclusionHist	0.125	-2.977	0.027	0.005	-0.218	0.063	0.093
	(0.086)	(2.753)	(0.075)	(0.062)	(0.157)	(0.046)	(0.055)
MedicalHist	-0.026	-4.225	-0.005	-0.090	-0.085	0.034	0.079
	(0.073)	(3.163)	(0.085)	(0.073)	(0.247)	(0.051)	(0.056)
FloraHist	0.093	-2.561	0.036	0.123*	0.332	-0.039	0.055
	(0.080)	(2.536)	(0.099)	(0.069)	(0.240)	(0.071)	(0.065)
Mean Dep Var.	0.508	46.68	0.51	0.50	1.99	0.83	0.59
Clusters	24	24	24	24	24	24	24
Observations	360	360	360	360	360	360	360
R-squared	0.016	0.008	0.001	0.022	0.013	0.010	0.005

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Mechanisms – ExclusionHist Treatment

ExclusionHist:

"Since antiquity and across continents and nations, people suffering from leprosy have been subject to social stigma and exclusion. With the help of state-authorities and civilians, lepers have historically faced strict physical isolation and marginalization"

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Mechanisms – MedicalHist Treatment

MedicalHist:

"For centuries, civilians and experts alike believed that leprosy was a highly contagious and deadly disease. Such a belief was ratified by international summits of physicians like the Berlin Congress of Leprosy, where it was concluded that the disease was indeed as dangerous as it was commonly believed. Nowadays, it is known that the disease is, in fact, neither deadly nor highly contagious"

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Mechanisms – FloraHist Treatment

FloraHist:

"The Chicalá Tree is a floral species that originated in the southern regions of North America. It was brought into Colombia and specifically to Cundinamarca by indigenous communities, due to its resistance to fire and its potential decorative use. The climatic conditions in the Tequendama Region in Cundinamarca has allowed the Chicala to flourish"

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Mechanisms – Regressions

	(1)	(2)	(3)	(4)	(5)
	Total Allocation	In- vs Out-Alloc Diff	Anti-Parasitic Take-up	Trust in Physicians	Trust in Lawyers
ExclusionHist*Ancestry	173.927***	165.970***	-0.076	0.023	0.013
	(51.689)	(16.924)	(0.099)	(0.533)	(0.493)
MedicalHist*Ancestry	-11.684	-11.616	-0.186***	-1.412***	0.264
	(59.351)	(19.872)	(0.048)	(0.362)	(0.414)
FloraHist*Ancestry	-25.078	-8.236	0.012	-0.261	0.590
	(54.683)	(14.449)	(0.141)	(0.406)	(0.542)
Ancestry	37.267	59.597***	-0.164***	-0.876***	-0.190
	(37.310)	(12.984)	(0.035)	(0.288)	(0.267)
ExclusionHist	-0.651	15.323	-0.032	-0.329	0.301
	(22.343)	(14.189)	(0.071)	(0.439)	(0.541)
MedicalHist	32.555	0.417	-0.029	-0.086	0.028
	(28.032)	(14.476)	(0.043)	(0.330)	(0.424)
FloraHist	14.211	-2.020	-0.008	-0.071	-0.590
	(28.552)	(13.530)	(0.106)	(0.362)	(0.551)
Mean Value	242.839	101.144	0.314	6.666	4.544
Clusters	24	24	24	24	24
Additional Cont.	Yes	Yes	Yes	Yes	Yes
Observations	360	360	360	360	360
R-squared	0.160	0.391	0.121	0.130	0.093

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