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Appendix A: The Racial Structure in Ecuador

On pages 12-13 of the main text, we briefly describe the racial structure in Ecuador. Here provide a more nuanced historical look at the racial structure in Ecuador. During Spanish colonial rule, *Indians*, in present-day Ecuador, were considered akin to minors (or underaged individuals) whose communal lands needed to be protected by the Crown. In exchange for this protection, Indians were employed through the *hacienda* or *huasipungo* system as wage laborers. Indians who did not have access to communal lands were employed as *huasipungueros*, exchanging their labor fofor a parcel of often unproductive lands . Over time, various forms of indebtedness to the landowner tied the *huasipungueros* and their families to the hacienda, creating a relationship akin to debt patronage (Pallares, 2002).

After independence in 1822, the *hacienda* system, as well the *indio* tribute, continued as large landholdings expanded. Initial efforts from the central government to extend the tribute (i.e., tax) to all the population were quickly rejected by the poor white population, who saw the proposal as a way "for the State to convert them, by force, to *Indios*" (Guerrero, 2002, p.14). Rather than expanding the tax base, in the mid-19th century, Ecuador eliminated the tribute altogether as an empty gesture of equality and gave the *indígena* population a legal character of 'miserable' under the tutelage of their *hacienda* owner. The *hacienda* owners supported this arrangement. They stopped transferring the tribute from the *Indios* to the central government, yet maintained the economic and social dynamic that allowed them to expand their lands and power during colonial times. This meant that from the foundation of the state to the mid-20th century, the racial structure in Ecuador, particularly in the highlands, was shaped to extract cheap labor from the *indígena* population. Only during the sixties, with the land reform, oil boom, early industrialization, and expansion of the urban center did the *hacienda* system withered out (Pallares, 2002).

While the racial structure remained, the *indígena* population started to organize and mobilize politically. The *indígena* uprisings of the nineties, massive mobilizations throughout the 21st century, and the foundation and institutionalization of a political party challenged the current order. It demanded and eventually conquered important political and social victories (see Pallares, 2002).[1] Yet, rejection of their demands from the mestizo and blanco-mestizo

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[1] The indígena population has organized around the "indígena" identity. Note, however, that different and sometimes conflicting groups form it.

population has been constant, as have racist attacks and material inequalities.

The state structures in Ecuador have perpetuated unequal systems dominated by a blanco-mestizo dominant ideology while also suggesting that the 'problem of race', or the 'problema indígena' in Ecuador, has been overcome (Roitman and Oviedo, 2017) despite blatant evidence to the contrary (Clark, 1998; Rivera Vélez, 2000; Cervone and Rivera, 1999; Vinueza, 1999). Research on race and ethnicity in Ecuador shows that the *mestizaje* has created a 'whitening' process, often achieved through capital accumulation (Roitman and Oviedo, 2017). According to Whitten Jr (2003), mestizaje in Latin America is a process of ethnic mixing that serves as a mechanism to blur racial divisions, deny racism, and for early nation-building.[2] This process of mestizaje, and also most people who identify as mestizos, downplays discrimination towards indígenas and other marginal communities while still engaging in *covert* racist practices (Beck, Mijeski and Stark, 2011). Thus, in Ecuador, discursive racism is usually framed as an acceptance or tolerance of the out-group (e.g., indígena) by creating strict demarcations between the self and the 'other'. Unsurprisingly, covertly racist language is normalized (Roitman and Oviedo, 2017) while having different forms (De la Torre, 2000). Individuals who engage in racist behavior often perceive their actions and discourses as benign and unrelated to race. They cover the racist elements of their actions and discourses through rhetorical means (Traverso-Yépez, 2005), which leads to variation in the manifestations of racist discourse. Moreover, the state's structures and government representatives often pay mere lip service to integration and ethnic identity. Everyday patterns of behavior and speech, as well as the organization of the state, are constructed in a way that '*indios*' and 'indígenas' are the subjects and objects of structural discrimination.

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[2]Similar to the race literature studying racial relations in the United States (Omi and Winant, 2014) and Europe (Van Dijk, 1993), the literature on Latin America in general (Martínez-Echazábal, 1998), and on Ecuador, in particular, (Roitman, 2009), notes that race is a complex construction due to mestizaje and the strong correlation between ethnic background, perceptions and auto-denomination of race, and class.

Appendix B: Covert and overt manifestations of racist language in Ecuador

As described in the main text, we identify five general manifestations of covert racism:

1. *No-difference racism* (Bonilla-Silva, 2006) or negation of identity (Canessa, 2007). This form of racism ignores the identity of the target group –in the case of Ecuador, the indígena identity. The roots of no-difference racism in Ecuador come from the mestizaje project, which was part of the state-building effort by Ecuador's dominant class. The mestizaje logic aims to establish that the Ecuadorian population is all mestiza. This takes the form of "we are all mestizos / todos somos mestizos" (Beck, Mijeski and Stark, 2011). While indigenous self-identification in Ecuador and Latin America is complicated, highly variable, context-specific, and changes over time (de la Cadena, 2001; Canessa, 2007; Martínez-Echazábal, 1998), the negation of the identity has served as a mechanism of domination that aims to strip the individual from a sense of self, as well as social and political representation. Criticizing the lack of assimilation into the dominant discourse and creating barriers to do so have been a historical strategy used by the Ecuadorian elite to justify the exclusion of the indígena community from political and social spaces (Guerrero 2002).

2. *Attacks on the capabilities of the indigenous population.* Indígenas are described as incapable of ruling themselves. They are also presented as ignorant, easily manipulated, and without skills or education (Beck, Mijeski and Stark, 2011).[1]

3. *Infantilization.* The mestizo and white-mestizo population depict the indígena population as "abused children, not responsible for their condition as the 'miserable race'," and requiring "protection and nurturing by the state" (Guerrero, 1997). To many, indigenous people are akin to young children unable to comprehend fully formed, grammatically correct sentences. Hence, those who infantilize their speech when addressing the indígena population use half words and incomplete sentences. It is linked to a primal or primitive sense of the indígena identity that lacks agency (Van Dijk, 2009).

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[1]This category of covert racism is similar to *infantilization*, as they both refer to the (lack of) agency of the indígena population. We include them both separately since the *attacks on the capabilities of the indigenous population* often manifest as indígenas acting out of ignorance. In contrast, *infantilization* often manifests as indígenas acting through manipulation.

4. *Hygienic racism.* This form of racism focuses on the cleanliness of the group and connects to the idea of indígenas being unclean (i.e., not washed or showered). The blanco-mestizo population has used the link between hygiene, class, and race to equate the material consequences of the racial structure to poverty and moral failings rather than to racism (Colloredo-Mansfeld, 1998). Once indígenas accumulated wealth, the same notion was used more allegorically, suggesting their wealth was ill-gotten or 'dirty'. Thus, it also points to the indígena population's inability to make a living legally and instead resorting to crime. The indígena is perceived as an individual constantly trying to take advantage of the 'other', i.e., the white-mestizo (Colloredo-Mansfeld, 1998).

5. *Ventriloquism* (Guerrero, 1997). This form is closely connected to the second form of racism described above and directly challenges the independence of the indígena population. It focuses on who represents the group and often refers to non-indigenas being spokespersons of the indegena population, interpreting their demands and political position. An extension of this form of covert racism is individuals assuming that only indigenas that fall within a set of preconceived notions of what an indigena *should* look like can speak for the indigena population. Individuals often challenge indigenous leaders by stating they do not belong to the indigenous population. This is often the case with highly educated or affluent indigenous leaders; the logic is that highly educated or wealthy individuals are no longer (or never were) members of the indigenous population (Martínez Novo, 2018).

Table B.1 details each form of racist discourse and accompanying examples. In the complete codebook (see Appendix C) we provide additional examples of each category, as well as general rules for coding ambiguous texts. We follow Schreier (2012) qualitative content analysis suggestions to build the codebook.

In Table B.2, we provide examples from the data for each form of racist discourse previously described. The examples translated into English are in the main text (see Table 1).

Table B.1: Forms of racism in Ecuador

Covert Racism

Type	Description	Example
No-difference racism	Ignores or negates the ethnic identity of the individual(s)	"Esa sería justicia indígena contra estos magnates pelucones disfrazados con pintura en la cara y los otros con poncho rojo incumplen los 3 principios resumidos en no robar no mentir no ser ociosos"
Attacks on the capabilities	Depicts indígenas as uncapable and lacking in education	"Lamentable es q uses la ignorancia y necesidad de los indígenas para defender tu subsidio mojigato hipócrita"
Infantilization	Indígenas are portraited as children lacking agency	"Vaya vaya, sienta"
Hygienic racism	Indígenas are "not clean"; indígenas can only make a living through crime and trickery	"Que lenin traslade la sede a galapagos y los haga nadar a los indios a ver si así se bañan"
Ventriloquism	Indígenas (and indígena culture) are used by other individuals, in particular individuals who do not identify as indígenas	"Les llevan y les traen" which implies someone else is making choices for them

Overt Racism

Type	Description	Example
Ethnic slurs	Racist and charged expression that are explicitly used to degrade indígenas	"Guangudo (persons that uses a guango); longo; emplumado"
Attacks explicitly mentioning the ethnic identity	Derogatory expressions that explicitly mention the indígena identity of the receiver	"Indio hijo de p*ta"

Table B.2: Examples of racism in Ecuadorian Twitter

Covert Racism

Type	Tweet (example)
No-difference racism	"Este MESTIZO [sic] al igual que todos los ecuatorianos se llama CARLOS PÉREZ, se DISFRAZA de indígena y se hace llamar Yaku, Jah!!"
Attacks on the capabilities	"La [CONAIE] representan una amenaza para el progreso del pueblo indígena en lugar de destruir dedíquense a construir un país mejor. Ocúpense de educar y sacarlo de la ignorancia a un pueblo trabajador y pujante."
Infantilization	"Basta que Rafael Correa @MashiRafael tuitee sus mensajes me da mucho que pensar de [usted] y del movimiento que dirige @jaimevargasnae. ¡cómo utilizan al pueblo indígena solo para beneficiarse los líderes o sea [usted]!"
Hygienic racism	"vamos a jugar carnaval con los indígenas, ellos le temen al agua."
Ventriloquism	"A estas alturas esto ya no es una protesta por las medidas económicas. Esto ya es desestabilización, están afectando la infraestructura del Estado, grupos definidos poderosos. Los indígenas (los tontos útiles) ya no van a hablar, van a sacar a @Lenin."

Overt Racism

Type	Tweet (example)
Ethnic slurs	"¡¡¡Longo maldito!!! ¡No volverán!"
Attacks explicitly mentioning the ethnic identity	"Este es bruto hasta cuando arregla sus brutalidades. ¿Quién le dijo q es un país dentro de otro país? ¡Indio bruto carajo!"

Appendix C: Labelling: Codebook, Training Coders, and Lessons Learned

To create our labelled dataset we hired two coders and one consultant. The consultant identifies as indígena and all three participants are Ecuadorians. For this particular exercise, we followed Schreier (2012) in the coding process. We had one training session and two review rounds. During the training session we went over **our** proposed understanding of racism and the resulting racist manifestations. It was important to emphasize that we were labelling content according to our proposed understanding of racism. Coders come with certain preconceived notions and understandings of racism that might not be entirely equal to the one we use. After this first training session, we gave reviewers 500 tweets to code. In the first review round we went over discrepancies and identified cases we did not initially consider. After a second review round (500 tweets), coders independently coded 2750 tweets (Cohen score = 0.9 or strong agreement). During these rounds, the input of our consultant was crucial. They were key to identify content that fell within one of our categories but initially were not identified as racist. They also pointed out how certain seemingly benign expressions were only used to address the indígena identity.

The rest of the lessons learned throughout this process are in **Pages S.9-S.17** in this Appendix. We added them as notes for the coders and were elements that came up during our review sessions.

Coding scheme – project: Covert and overt racism in Ecuador

This project aims to identify two types of racist discourse: overt and covert racist discourse. We work with two definitions for covert and overt racism in Ecuador:

Overt racism: any discourse that falls within one of the following categories: 1) discourse that explicitly includes derogatory terms or phrases that have been historically used to characterize the indígena population (either as individuals or as a community) as the lesser and dominated group in Ecuadorian society; 2) insults directed towards members of the indígena community that explicitly include their identity; 3) aggressive or denigratory language that includes the word 'indio'; 4) racialized phrases or idioms; and 5) violence or incitement to violence towards members of the indígena community

Covert racism: any discourse that describes the actions or character of the indígena population (either as individuals or as a community) by reproducing the idea of them as the lesser and dominated group in Ecuadorian society through masked, sanitized, or de-racialized language.

Building on these two definitions, we set out to code overt and covert racism in tweets. What follows is a set of rules with detailed descriptions and examples. After the table, we include advice on identifying the "subject" of the tweet, how to handle unclear examples, and how to handle sarcasm in tweets. We also discuss common questions from the coders and lessons learned throughout the process that can be generalized to other cases and can be helpful to researchers.

Coding rules:

Overt racism			
Category	**Definition**	**Examples**	**Comments/advice to coders**
Racialized or racial slurs	Racist expressions that use terms used to degrade members of the indigenous community or the indigenous community in general.	• Guangudo • Longo • Emplumado	Also include tweets in which these words have been adapted. As you will code expressions in Spanish, keep in mind that these words can be used with a suffix to indicate smallness, such as emplumad-ito. Additionally, and particularly focusing on the case of emplumado, words referencing birds or characters that are birds, such as "Condorito" are other forms of slurs.

Insults plus identity reference	Insults directed at members of the indigenous community	• Indio/indigena hijo de puta
		These words are also considered insults:
		    • Inhumanos
		    • Desalmados
			Keep in mind that some tweets will insult individuals that are known (to you) as indigenous but will not include a reference to that identity. Such as: Jaime

	or the indigenous community in general, and that also mention their identity. Only those tweets that are a direct insult + reference to their identity should be coded as racist. The form will be: "el indígena/indio XXX es un idiota."	• salvajes • mafiosos • facineroso burropie	Vargas es un hijo de puta. In that case, absent the reference to their identity the tweet should not be coded as racist. Additionally, keep in mind the difference between an insult to an individual that highlights their roles as leaders of the indigenous movement: "los dirigentes de la comunidad indígena son uno hijos de puta" (which is not coded as racist), and a tweet in which the insult is directed at these individuals AND their identity: "los dirigentes indígenas son unos hijos de puta" (this one will be coded as racist).
Use of the Word indio plus insult of mildly aggressive or negative statements.	While the word "indio" is not by definition a slur, it is often used as such. If a tweet includes the word and an insult or a mildly aggressive statement, it should be coded as racist.	El indio este, necio y terco como mula lo negaba…	
Racialized expressions that convey disdain.	Racialized expressions that convey disdain	Indio comido, indio ido (and varitions)	
Violence or calls for violence	Expressions that call for or incite violent acts against the indigenous community.	• "@CONAIE_Ecuador Toque de queda, Estado de Excepción, ayuda a indígenas terroristas, destrucción de Quito, intento de golpe de Estado... Debieron darte más duro."	

Overt racism			
Category	**Definitions**	**Examples**	**Comments/advice to coders**
No-difference racism	These racist expressions "eliminate" or deny the identity of individuals. The clothing worn by indigenous nationalities is assumed to be disguises. Indigenous identity is used to belittle a person's identity or behavior. It uses their minority status to detract from their representative capacity, or assumes that to be indigenous is not to be Ecuadorian.	"Esa sería justicia indígena contra estos magnates pelucones *disfrazados con pintura en la cara y los otros con poncho rojo* incumplen los 3 principios resumidos en no robar no mentir no ser ociosos" "Y si a eso vamos todos los somos xq los de Latinoamérica todos SOMOS MESTIZOS. Entonces xq unos van a tener más derechos q otros sin trabajar para obtenerlos? Además muchos Indígenas se comportan como criminales. Hacen falta gobernantes q' los pongan en su lugar!!" "@David_Olivo @virgiliohernand Y tu qué muy ario? Ubicate david q todos somos guangudos. Y si no, mirate en el espejo. Q comentario tan racista, viniendo de ti no me sorprende.. Busca argumentos más importantes que ese para insultar." (224) "El que no tiene de INGA tiene de MANDIGA"	This denial can take several forms: (a) suggesting that individuals "pretend" to be part of a group as in the example "disguised". b) make reference to a shared identity "we are all..." c) uses indigenous identity to disparage another individual's identity. d) makes reference to their minority status e) use references to "mixing" of races (mestizaje) to deny the existence of indigenous identity.
Attacks on the capabilities	These racist expressions assume that indigenous	"Este pobre Indígena resentido social q no representa a nadie,solo	These tweets can be directed to both indigenous and non-

	community members do not have the capacity to govern themselves. They are represented as ignorant, manipulable, and without skills or education. They can, therefore, only occupy certain workspaces.	sirve para destruir los bienes públicos y privados, debería estar preso con Correa,opinando d lo q no entiende ni conoce,q sabe d riesgo País y economía,y quiere ser presidente,ni imaginarlo,sería peor q Castillo!" "Esta indígena analfabeta ni para limpiar casas sirviria, al igual que su jefa tiene que estar presas." "Lamentable es que uses la ignorancia y necesidad de los indigenas para defender tu subsidio mojigato hipocrita"	indigenous individuals. When the subject of message is a non-indigenous individual the message will highlight the *use* of the indigenous individuals, i.e., how they are being manipulated/used. The message is that indigenous peoples are being manipulated and cannot think or rule themselves. When the message addresses the indigenous peoples (they are the message's subject), the attack is directed at their skills. They are described as ignorant, illiterate, or unable to perform any function. Note, however, that if the messages include insults then the text should be coded as overt racism.
Infantilization	It is suggested that the indigenous population is akin to "abused children, not responsible for their condition as a miserable race". Therefore, they have no agency and	"Masones asesinos de un pueblo indígena muy pobre e ignorante que no saben quién los gobierna secretamente"	Members of the indigenous community are perceived as infants (lacking agency or requiring protection) or the tweets are phrases that are not grammatically

	require protection. This type of racism also suggests that the indigenous population does not understand the complexity of language. Hence they are spoken to as children.	@CONAIE_Ecuador Muy orgullosa de ustedes mis indígenas Héroes de nuestra Patria #YoApoyoaLosIndigenas https://t.co/ZbiWDQp3hj	correct and that in another context could be used to communicate with infants. The indigenous community is treated as belonging to the speaker.
Hygienic racism	This type of racism refers to ideas of lack of cleanliness on the part of the indigenous population. Alternatively, they refer to the fact that the indigenous population can only survive through improper or criminal acts.	"Que lenin traslade la sede a galapagos y los haga nadar a los indios a ver si así se bañan" "Oye terrorista indígena, el patrimonio nacional lo saqueas tu, cuando sales a delinquir disfrazando tus actos como "protesta social", saqueas el patrimonio nacional pidiendo estupideces en las mesas de diálogos, terrorista disfrazado de político" "Será símbolo del indio ladino, mentiroso y ladrón. Tu @titowankalaw te debes sentir representado por ese choro." "Viveza criolla naaaaa Viveza Indígena 2.0"	These are expressions relating to cleanliness. If the expression is "indio sucio" or a variation of this, then the tweet should be coded as overt racism. These references can also address the "cleanliness" of actions.
Ventriloquism	This type of racism uses expressions that suggest that indigenous people have no agency and are manipulated by other (non-	"Les llevan y les traen" "Que tristeza lo que le pasa al movimiento indígena. Más de 500 años de lucha y resistencia, para acabar manipulados por unos	These are expressions that deny that the acts/events in which the indigenous population participates are organized by them or

	indigenous) individuals.	pocos líderes peones del crimen organizado. En el tablero del ajedrez político, Iza no es más que un peón, una ficha descartable que protege a sus amos."	that those who participate do so for their own interest and/or agency. Expressions may refer to being "used" and also that there are "infiltrados" who manipulate individuals.
Uncivilization	This type of racism uses expressions that equate the indigenous community and everything related to the indigenous community to the uncivilized or savage (and, consequently, this assumes the white-mestizo as civilized and modern). It demarcates specific spaces for the indigenous community (e.g., páramo, jungle) and specific physical characteristics. This also refers to the indigenous justice as synonymous with punishment.	"no se que vienen a la ciudad. los indios que se quedan en la selva y dejen de molestar"	a) They are expressions that describe the indigenous population or the actions of the indigenous community as uncivilized or savage. b) They are expressions that determine the spaces that members of the indigenous community can inhabit. c) They are expressions that characterize the appearance of the members of the indigenous population in a certain way.
Word games	Word games they use try to modify racist expressions or slurs so that their meaning is not understood.	"@RADIOAMERICAEC @jaimevargasnae @OnaJorge @RamiroDiaz64 @longogalo @CONAIE_Ecuador Este tiene plumas por dentro y por fuera de su cabeza".	

Notes to coders:

1. One of the most important choices you will need to make is: who is this tweet talking to. Who is the subject of this tweet? Your choice should be guided by a couple of clues:
   1.1. Context and mentions. Take for example:
      1.1.1. "@constanzapaler1 @CONAIE_Ecuador Los tienen secuestrados, hacen el show hechos los bravucones y de salida un piedrazo. Ya la paciencia tiene un límite. Puse un twitt tratando q no haya violencia, pero estos hdp la están buscando. Ya nada @Lenin o actúa o actúa."
         1.1.1.1. **Overt racism:** in this tweet two clues matter. First, that a known indigenous organization is mentioned @CONEAIE_Ecuador. The second is context: the author is asking "Lenin" who is the president of Ecuador to act. Further, there is a direct insult.
      1.1.2. "@RADIOAMERICAEC @jaimevargasnae @OnaJorge @RamiroDiaz64 @longogalo @CONAIE_Ecuador Díganle alguien a ese bruto que se DEJÓ DE VENDER durante esos días. Y si se cierra una llave de agua la que deja de facturar es la empresa de Agua. Eso en la China y en cualquier parte del mundo, forma parte de las PÉRDIDAS. "Ahí está guardado el petróleo" Gran argumento PENDEJO."
         1.1.2.1. **Covert racism:** this tweet is questioning the skills/abilities of an indigenous leader. Context: there are clear claims against the skills abilities of an individual. Mentions: @CONAIE_Ecuador and @jaimevargasnae are mentioned.
      1.1.3. "@FcoBrionesR @CONAIE_Ecuador @CONAIE_Ecuador dejen limpiando todo el desmadre que hicieron"
         1.1.3.1. **Covert racism:** hygienic racism plus an attack to the skills of the indigenous population.Context and mentions work together in this example.
2. The second important choice you will need to make relates to unclear/ambiguous tweets. If this happens, it is safer to code the tweet as not racist. Ambiguity can come from unclear content and/or based on the lack of clarity about who the subject of the tweet it.
   2.1. Examples:
      2.1.1. "@GuambraQ Si hablamos de llevarse méritos entonces reconoce que todavía Ecuador sería más indio aún si no fuese por todo lo que le robaron a Venezuela junto a Chávez y Correa. Chávez salía en cadena mostrando como inauguraban casas en Ecuador y Uruguay mientras en Vzla ni luz hay."
         2.1.1.1. **Not racist**: the tweet is vague despite using the word indio. There are no clear insults attached or connected to the use of the word.
      2.1.2. "BALANCE: Los indígenas, prevalidos del poder exhibido en las calles, no se piensan interlocutores del poder elegido, sino prácticamente sus tutores. Esto es un enorme problema para el país y también para ellos. Ahora son amos del vacío. El análisis de 4P- https://t.co/b8hJLb0Olx."
         2.1.2.1. **Not racist**: the content is suggestive of covert racism. However, it is unclear and does not fall within any of the set rules. Thus, the tweet should not be coded as racist.
      2.1.3. "Ese es su líder mafioso... escuchenle y sepan realmente quien es y que es lo que busca. Despierten y hagan consciencia, no sean tontos útiles. https://t.co/UKz1jeUyDy"
         2.1.3.1. **Not racist**: It is unclear who the subject of the tweet is. See note 1, there is not enough context or mentions to make a choice.

3. The last issue you will deal with is sarcasm or sarcastic claims. Some users will "repeat" racist claims but "tweak" the content to show disdain towards the original message.
3.1. Examples:
   3.1.1. "Freddy Paredes, pobrecito todos a solidarizarnos con el, los medios de comunicación debe darle mucha cobertura. A el le duele mucho su cabecita; el no es como esos indios a los que se puede atropellar con motos, tanquetas y caballos." (199)
      3.1.1.1. **Not racist:** This tweet includes racist content. Yeti t also includes references that suggest mockery of the content, such as the use of the suffix -ito and -ita in everything that relates to non-indigenous content. Although being comfortable repeating racist claims even to mock the original source may be a sign of covert racism, the tweet does not provide enough information to make that inference.
   3.1.2. "Prohibido olvidar! Este es el que se postulará para presidente de TODOS LOS ECUATORIANOS (incluido los del páramo). Regionalista y racista a mas no poder!!!"
      3.1.2.1. **Not racist:** this is another example of a user repeating others' claims. This example is easier to code as the user denouences the racist content of the repeated message.

Appendix D: Masked Language Modeling (MLM)

In MLM, 15% of all tokens in the training data are replaced with a <MASK> token, and the model is tasked with predicting the word by taking into account the full sentence around it. By using 'bidirectional' information and relating all words to each other via multiple weight matrices, these models have more information to predict the masked word. Previous state-of-the-art models, such as LSTM Recurrent Neural Networks, can only read text sequentially in one direction, effectively only using text before a token. For instance, in the sentence 'I love visiting the big apple, <MASK>, the cultural and commercial capital of the Northeast,' RoBERTa and XLM-RoBERTa will use information before and after <MASK> to predict 'New York.' While 'big apple' may provide a strong clue, the fact that the city is an important Northeast metropolis is key in predicting it correctly. This MLM pretraining technique makes RoBERTa and XLM-RoBERTa models highly accurate at understanding the meaning of words and, therefore, context. This is crucial to building a classifier capable of understanding nuanced language.[1]

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[1]For example, Arora et al. (2020) find that BERT-based models substantively outperform regular word embeddings in data containing complex structure, ambiguous word usage, and words unseen in training.

Appendix E: Added Tokens and Initial Embeddings

To pre-train our own XLM-R model, we first add 20 tokens to the XLM-R tokenizer. We produced the list of 20 tokens based on our knowledge of the Ecuadorian context and what we learned while labeling our training data. Specifically, we found a series of terms that strongly signaled overt and covert forms of racism and shorthand expressions used, in part, to avoid being flagged as inappropriate content by Twitter (e.g., instead of "hijo de p*ta", users would write "hdp"). These words were either not in the pre-trained vocabulary or appeared in an unrelated context (e.g., "longo" is a derogatory term in Ecuador, yet it only appears in the pre-trained data as the Portuguese word for "long"). Tokens added to the vocabulary are given, by default, a random embedding, which we then replace with the mean embedding for similar preexisting derogatory terms. In Table E.1 we present the complete list of tokens added and the existing tokens used to provide them with with initial substantive meaning. When there is more than one token added, we added the mean value of their embeddgins.

Table E.1: Added Tokens

Added Tokens	Tokens Used for Initial Embedding
guangudo	longo
huangudo	longo
cholo	longo
indiada	longo
emplumado	longo
plumífero	longo
rocoto	longo
bobolongo	longo
longanizo	longo
jíbaro	longo
mmv	f*cker, idiot, stupid
mmvs	f*cker, idiot, stupid
mmvgs	f*cker, idiot, stupid
mamaverga	f*cker, idiot, stupid
hp	f*cker, idiot, stupid
hijodeputa	f*cker, idiot, stupid
hdp	f*cker, idiot, stupid
hdlgp	f*cker, idiot, stupid
pndj	f*cker, idiot, stupid
pendejo	stupid, idiot

Appendix F: Twitter Networks and Community Detection

As stated in the main text, social media users tend to cluster around like-minded peers, what Himelboim et al. (2013) describe as selective exposure. Selective exposure leads to homogeneous communities that are consistent across time (Calvo and Aruguete, 2020). On Twitter, communities formed around political events and cleavages often have at their center political leaders or users strongly aligned with the leadership. Influential authorities in the 2016 United States election communities included presidential candidates @HillaryClinton and @realDonaldTrump; for the 2018 #Tarifazo networks in Argentina, it was opposition leader @CFKArgentina (Cristina Fernández de Kirchner) and then-president @mauriciomacr. During the 2019 indígena protests in the Ecuadorian network, the pro-government community had at its center President @lenin, vice-President @ottosonnenh, and interior minister @mariapaularomo as other prominent pro-government users. In the center of the pro-indígena community was the institutional account of the @CONAIE_Ecuador, and its president, @jaimevargasnae. Finally, in the center of the pro-Correa community was former president @mashirafael, and high-ranking members from his party. Beyond public officials or politicians, other influential users include media personalities, media outlets, and social media commentators.

In Ecuador, we expect political communities to form around leading political figures. In Twitter, this roughly translates into pro-government users to mostly interact (retweet) with other pro-government users or pro-indigena users to interact primarily with other pro-indigena users (Vallejo Vera, 2023). Each user is a node in our Twitter network, and an edge is created when a user H (hub) retweets user A (authority). Figure F.1 shows a diagram of how a network forms in Twitter.

A starting point for analyzing this information is to identify communities–clusters of nodes where the same information (tweets) is shared. We implemented the following procedure to create the layout and identify the communities in the Ecuadorian Twitter network. First, we loaded all the edges from the first collection of tweets with the author of the original tweet set as the authority (A) and the author of the retweet set as the hub (H), such that $H_{retw} \rightarrow A_{tw}$; second, we estimate the layout of node coordinates using the Fruchterman-Reingold (FR) force-directed algorithm in R 3.5. igraph (Csardi, Nepusz et al., 2006) and identify communities in the Ecuadorian network by random-walk community detection. A random-walk community detection algorithm is based on the idea that a random walk (walking randomly from one
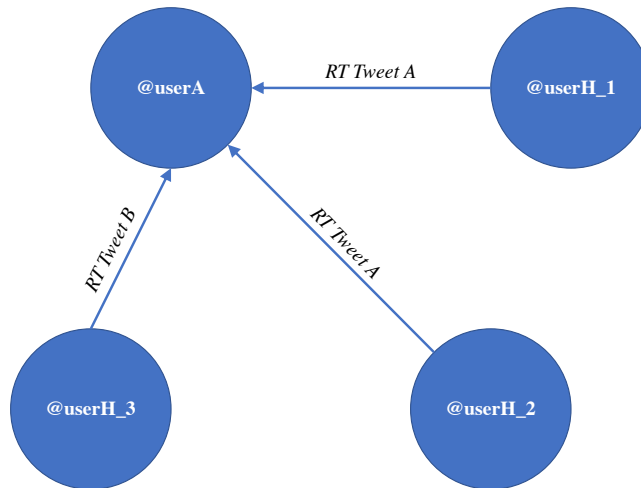
Figure F.1: In the figure, @$userA$ tweeted two tweets: "Tweet A" and "Tweet B." @$userH_1$ and @$userH_2$ retweeted "Tweet A," while @$userH_3$ retweeted "Tweet B." Each user is a node in the network. When a user (node) retweets another user (node), a link (edge) is created between them. In the diagram, each arrow is an edge. Since @$userH_1$ retweeted a tweet from @$userA$, @$userH_1$ is called a hub, and @$userA$ is the authority. Users (nodes) can be both hubs (when they retweet other users) and authorities (when other users retweet them).

connected node to another) will tend to stay within communities instead of jumping to other communities (Pons and Latapy, 2005).

The FR algorithm facilitates the visual inspection of the network, communicating information about the proximity between nodes (data reduction pull) while preventing nodes from overlapping (force-directed push). This means that, for visualization, data reduction pull will cluster together nodes from the same community, and force-directed push will avoid nodes overlapping and reduce the number of overlapping edges.

As previously described, communities in Twitter networks are consistent across time (Calvo and Aruguete, 2020). Thus, it is not surprising that the random-walk community detection algorithm identified the same three primary communities in both datasets: a pro-government network, which includes 41,493 nodes in the Protest Data and 26,036 nodes in the Indigena Data; an indígena community network of 30,244 nodes in the Protest Data and 26,110 in the Indigena Data; and a pro-Correa community network of 15,635 nodes in the Protest Data and 11,325 in the Indigena Data.

Appendix G: Response to Vargas Call in the Indígena Community

In the main text we show that challenges to the status of the white-mestizo population (i.e., Vargas calling for the police and military to join the protests) increase engagement with racist content in the pro-government community. We employ the same interrupted time series analysis to estimate average changes in time-to-retweet at the time of Vargas' call but in the pro-indígena community. We expect for there to be no statistically significant changes in time-to-retweet for any of the categories in the pro-indígena community. We show the results in Figure G.1. The plot shows no jump at the cutoff, suggesting no effect of Vargas' call on engagement with racist content for pro-indigena users.
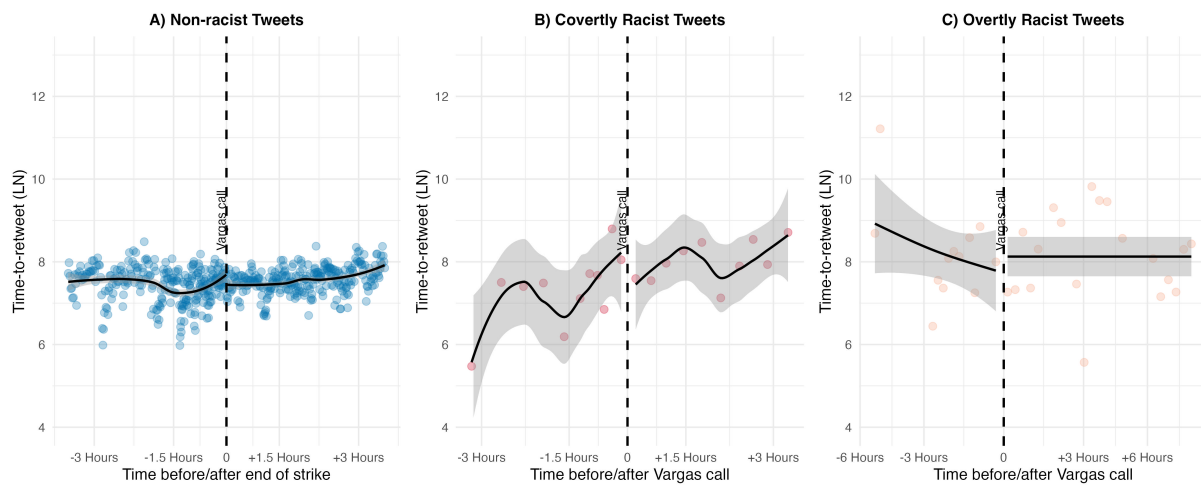

Figure G.1: Changes in Time-to-Retweet during Vargas' call (pro-indígena community only).

Appendix H: Limitations

While our proposed Transformers-based approach to classifying racist text improves upon the performance of other supervised machine-learning models, it is not without its limitations. First, while not uncommon, overt and covert racist discourse is not the main lexical form found in "naturally-occurring" corpora, as producing racist text is socially costly. This can lead to highly unbalanced samples (or require large samples for labeling). Unbalanced training data sets produce less accurate results than balanced data sets, particularly when using small samples to train models. Research has shown that the transformers architecture used in this paper outperforms other supervised-learning approaches (e.g., CNNs and RNNs) with small samples. Yet, it does not guarantee a baseline level of accuracy that researchers might be comfortable with. Researchers might use dictionary-based techniques to select the training set to address this limitation. Certain words might signal a higher likelihood of observing the phenomenon of interest –in our case, racist discourse.

Second, as political scientists, we are usually comfortable with error, as long as it does not overestimate our predictions (type-I error). When examining the performance of our model classifying overt and covert racism, it more often mislabelled racist discourse as non-racist than non-racist discourse as racist. That is, the model produced more false negatives than false positives. This is generally preferable over type-I error, and we can argue in our analyses that we are underestimating the effect size rather than inducing positive bias. However, this might not be the case for practitioners in other fields. For example, when applying our method to flagging potentially harmful content in social media comment sections, researchers might want to favor an over-cautious algorithm that is more likely to flag non-racist content as racist to have a human later decide on the accuracy of the prediction.

Third, to identify certain instances of racist discourse, specific *knowledge* of the case is required. For example, following our codebook, this tweet should be classified as covertly racist: "I will stop being polite to this deceitful mestizo, Carlos Perez you are an accomplice to the damage done to my Ecuador."[1] However, to recognize the racist nature of the tweet (i.e., denying the identity of Perez), the coder must know that Carlos Perez identifies as indigena and that he changed his first name to *Yaku*, a Quechua word. It is even more complicated for

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[1]The original tweet reads: "Hasta hoy fui educada con este mestizo embaucador, andate a la verga Carlos Perez, eres cómplice del daño que le hacen a mi Ecuador reflechucha de tu madre."

the machine-learning algorithm to make these connections solely from the information provided (i.e., the training set).

Fourth, for corpora covering more extended periods, researchers might also need to evaluate the robustness of the process to drift in discourse over time. While the different forms of racism are slow to change, their linguistic manifestations might not be. Furthermore, different sources of the text can also include different expressions. For example, the language used in social media will differ from that used in campaign ads or parliamentary speeches. If researchers find significant shifts in time and context, they must account for these in their training sets and validate their model across time and context.

Finally, our approach relies heavily on computational power. Not all researchers have access to the required computational power or the computational skills to implement a transformer-based machine learning approach. This perpetuates and accentuates the existing inequalities within the field and that it should not be an entry barrier to using state-of-the-art techniques. While we have tried to be as clear and comprehensible as possible, many elements of our process may be difficult to implement.[2] Our future work also aims to provide a simple and efficient library that makes using a Transformers infrastructure accessible to everybody and applicable to various types of text.

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[2]For example, we trained our model using the high-performance computing clusters from the Hewlett Packard Enterprise Data Science Institute at the University of Houston, Amazon Web Services EC2 P4 instances (provided by the Tecnologico de Monterrey), high-performance computing clusters at Purdue University, and Lambdalabs.com's cloud GPU services.

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