Propaganda and Nation Building
(Mis)Trust and Identity in Kagame's Rwanda

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March 8, 2017

Ideas, Policymaking and the Politics of Identity

- Political Economy of Ideas. Liberal Democracy.
  (with Dani Rodrik)

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  versus Immigration Shocks
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- Tribe or Nation? Propaganda and Economic Development
  (with Arthur Blouin)

Motivation

- Ethnically diverse and polarized countries:
    - more conflict
    - higher corruption
    - weaker institutions
    - lower economic growth

- Key challenge for economic development: some degree of 'Nation building' that aligns preferences and increases inter-ethnic trust & co-operation

- Europe. Yes. But (given artificial borders/countries): what about Africa??

Context: Hutu and Tutsi in Rwanda-Burundi

We examine this question in Rwanda

- One of the poorest countries in the world

- Historically weak institutions (Belgian colony).

- Inter-ethnic conflict (Hutu versus Tutsi) that is (at least) half a century old

- ....culminating in the 1994 Genocide

Ethnic Conflict and Development

- April 1994: genocide over a 100 day period ("The Machete Season"). 1 million Rwandan deaths (over 20% of population).

  Tutsi population: over 70% or wiped out.

Ethnography I

- MUDAHERANWA: "I burned her house. I attacked her in order to kill her and her children...When I was released from jail, if I saw her, I would run and hide. Then AMI started to provide us with trainings. I decided to ask her for forgiveness. To have good relationships with the person to whom you did evil deeds - we thank God."

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- MUKAMUSONI: "He killed my child, then he came to ask me pardon. I immediately granted it to him because he did not do it by himself - he was haunted by the devil. I was pleased by the way he testified to the crime because it hurts if someone keeps hiding a crime he committed against you. Before, I treated him like my enemy. But now, I would rather treat him like my own child."
  "Potraits of Reconciliation" NYT Magazine April 2014

Ethnography II

- Innocent Rwililiza: "If you think about it, who is it talking about forgiveness? The Tutsis? The Hutus? The free prisoners? None of them. It's the humanitarian organizations. They are imposing forgiveness to Rwanda and they wrap it in lots of dollars to win us over. There is a Forgiveness Plan just as there is an AIDS Plan led by super-polite Whites in all-terrain turbo vehicles,...we speak of forgiveness to earn their good opinion...

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- but when we talk among ourselves, the word 'forgiveness' has no place. For example: you see Adalbert return who led the killings on Kibungo Hill. He parades around Kigali, he wields his machete once more living five hundred meters from his house, and you lost your mama, papa, two sisters, wife and little boy. You run into Adalbert downtown. He to you, and you to him - who's going to say that word 'forgiveness'? It's outside of nature."
  Jean Hatzfeld (2007) The Antelope's Strategy

Questions

- Is 'nation building' (i.e. reconciliation, inter-ethnic trust, alignment of preferences) possible in highly polarized societies?

- How is change in inter-ethnic attitudes/behaviour achieved?
  - through external constraints (fear of gov't/social sanctions) preventing discrimination?
  - through internal constraints (attitudes/preferences) facing an individual?

- Can government 'erase' ethnic identity?

Nation building: Kagame's policies

Kagame: a de facto autocrat. Govt. controls media, forbids mention of ethnicity in public, let alone collecting data on it.

Several nation building campaigns to 'erase ethnicity' - centrepiece of strategy is mass-propaganda

Nation building: Kagame's policies

- External constraints (social or government sanctions)
    - Severe law against crime of "genocide ideology" (Article 2 and 3) which comes with mandatory jail time.
    - Ethnic slurs are a jail-able offence.

- Internal constraints (beliefs, attitudes or preferences)
    - *Itorero* (re)education camps.
    - *Umuganda* collective work gangs.
    - *Gacaca* trials: Equal treatment under law.

- Policies that influence both:
    - Erasure of ethnicity in official discourse. Even mention of ethnicity is taboo. No census/data recording ethnicity.
    - Tight control of media. Radio Rwanda. Marketing of 'New Rwanda' and reconciliation.

What we do:

We argue that the ethnic climate in Rwanda has achieved a remarkable turnaround:

- Data from 52 villages in Rwanda using survey and experimental methods to measure inter-ethnic trust and attitudes

- We exploit the mountainous topography to compare people from villages that receive government propaganda over the radio to those that don't
  - similar strategy to Yanagazawa-Drott, 2014

Data

Data was collected in Rwanda and Burundi:

1. Lab-in-the-field experiments:
   - One shot inter-ethnic trust games: decisions completely private
   - Public information trust game to see if social punishment or fear of gov't reprisal is influencing behaviour
   - Salience of identity test (SIT). Do individuals 'categorize' on the basis of ethnicity?

2. Field survey

3. GIS data on radio towers, topography, village locations, geographic controls.
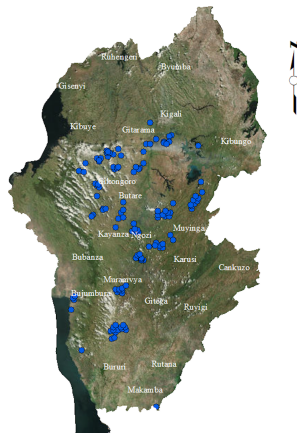
Survey Locations

Data: Collecting ethnicity in Rwanda

First piece of data we need is ethnicity, a big challenge in Rwanda:

- Proxy for ethnicity using eligibility for FARG - a genocide reparations fund for "genocide survivors"

    - Hutu victims are officially: *"victims of massacres that occurred during the genocide against the Tutsi"*
    - Tutsi are officially: *"Survivors of the genocide against the Tutsi"*

- Question placed within a long module about income, and further nested within a section about government support

- To be eligible for FARG Rwandans need to (a) be from a genocide village and (b) be a "survivor" (i.e. Tutsi)

    - we only survey genocide villages – didn't want people to be ineligible because of (a)
    - all respondents were aware of the fund.

Also need respondents to be able to infer ethnicity

- We *need* the experimental data to overcome the ethnicity issue
    - Only works if resp. can tell who's Tutsi/Hutu

- Genetic studies: Tutsi are Afro-Asiatic and Hutu are Bantu
    - Even if socio-political construct (RW gov't teaches this): physical differences due to assortative matching
    - Belgians classified based on nose size, eye shape, skin colour, height, etc. (Welsh, 2012)

Tutsi Cartoon
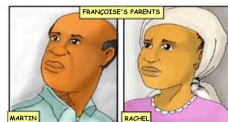
Hutu Cartoon

Outcome 1: the trust game

The game is a standard way to elicit trust/tensions across communities (Fershtman and Gneezy (2001))

- How is the trust game played?
    - Two strangers from different villages play one shot game (partners randomized)
    - Player 1 receives a days wage (600 RWF $\approx$ \$1.00 USD)
    - Player 1 may share a fraction of that money into a pot
    - Pot is multiplied by enumerator and collected by Player 2
    - Player 2 can choose to keep all the money in the pot or share with Player 1

- Public vs. Private information (also randomized)
    - Some people play a version where offers are confidential
    - Others play a version where offers and returns are written on a poster board on the wall of the hall
    - Helps to distinguish between results driven by internal vs. external constraints

Outcome: Salience of Identity Test

We want to measure whether people are using Hutu/Tutsi as a marker when they process information

- We use scores on a simple association recall task

- We show pictures of Hutu/Tutsi with an associated statement

- We then read back a statement and ask respondents to remember which picture it was linked to.

- We look at how frequently people make within-ethnicity errors (i.e. mistake a Hutu for another Hutu or a Tutsi for another Tutsi)

Salience of Identity Test: Example

Salience of Identity Test: Example

Salience of Identity Test: Example

Salience of Identity Test: Example

Module C: Photo #4

Statement:

The person pictured on the other side of this card has 2 brothers

Salience of Identity Test: Example

Recall Task:

- Which person has four children?

Salience of Identity Test: Example

- If I know it was one of the Tutsi, but not which one

- Then it would suggest that I use ethnicity to categorize.

- Formally:
$$SIT = \frac{\sum WithinMarkerErrors}{1+\sum Errors}$$

Empirical Strategy: Radio Rwanda

- Radio Rwanda: national radio; main source of news/infotainment/Kagame propaganda; markets itself as Radio of 'New Rwanda'.
    - Strict gov't control on radio.
    - *Reporters without Borders*: alleged that threat of suspension of radio licenses is real
    - World Press Freedom Index: Rwanda ranks 161/179

- Rwanda is "land of 1000 hills" so radio reception varies, even within small regions, depending on which side of a hill a village is on. (Yanigazawa-Drott, 2014)

- Look at variation in Radio Rwanda reception **within sectors** to see if Kagame propaganda has increased inter-ethnic trust

Rwanda: Land of 1000 Hills

Radio Tower Locations
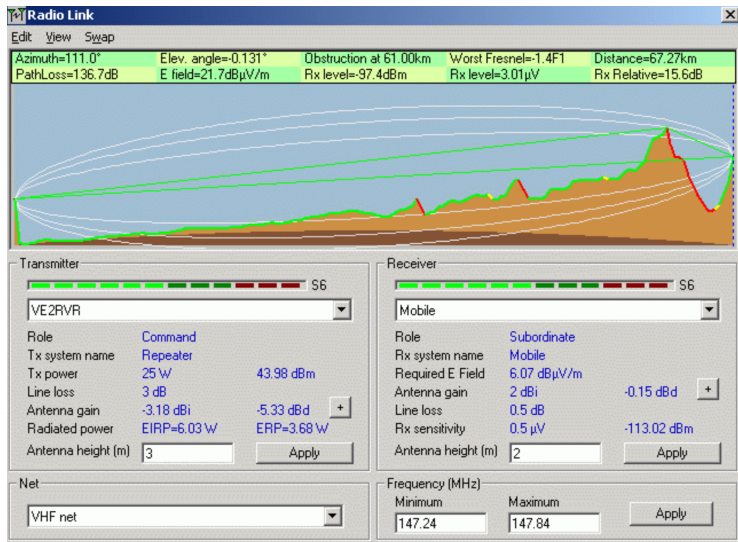
Measuring Radio Signal

The radio signal measure is based on engineering models that calculate theoretical signal strength based on:

- Location of radio towers relative to each village; topography of Rwanda; height of tower; power of signal from tower

We load the data into the software and it provides us with a signal strength in db/μ

- Continuous variable may not be sensible
  - e.g. Can't hear any better/worse between 10-20 db/μ or between 70-80db/μ
- Our main estimates use a threshold of 45 db/μ based on:
  - FCC October 2007 which states that radio reception is guaranteed in the 40-45db/μ range
  - We take the upper end of the range because Rwandans may have low quality radios
  - Will show results are robust to a range of plausible choices. Also robust to using (less preferred) continuous measure

Radio Signal

Good Radio Signal

Some Radio Signal

No Radio Signal

District Boundaries

Villages Sampled
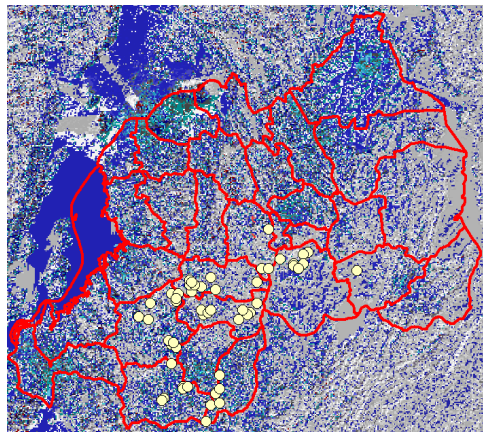
Radio Content: Radio Rwanda vs. All Other Stations
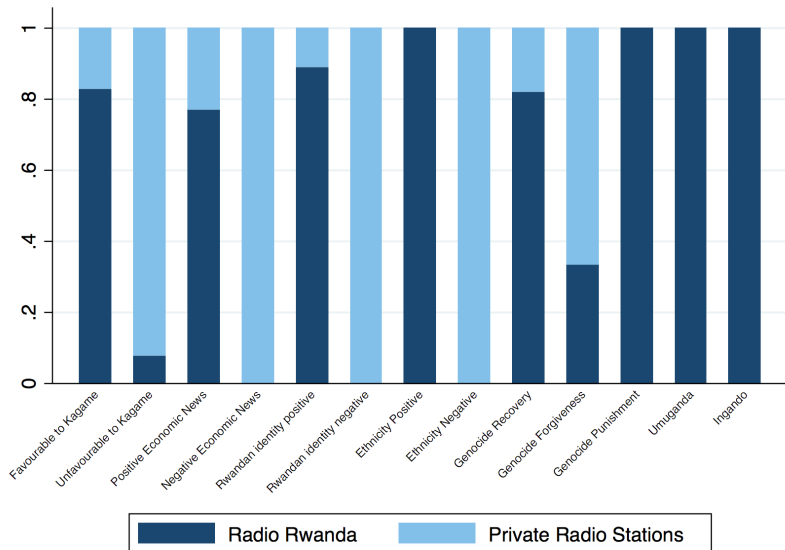
Summary Statistics

	Obs	Mean	Std. Dev.	Min	Max
Panel A: Variables of Interest					
Radio Signal	479	0.45	0.46	0	1
Public Information	479	0.49	0.50	0	1
Panel B: Dependent Variables					
Salience of Identity Test (SIT)	479	0.84	0.29	0	1
Trust Game Offer (RWF)	479	332	126	0	600
Panel C: Control Variables					
Tutsi	479	0.27	0.45	0	1
Gender	479	0.42	0.49	0	1
Age	479	43.7	12.7	19	88
Raven Score	479	5.30	1.46	1	6
Distance to Road (km)	479	1.1	0.56	0.1	2
Distance to City (km)	479	59	26	10	105
Light Density at Night	479	0.55	1.08	0	4.25
Panel D: Other					
Education years	479	5.5	3.4	0	19
Income (USD/yr)	479	242.04	503.34	0	6,299

Results: the plan

- Did the interventions (radio, public/private) actually influence inter-ethnic behaviour?
- Internal factors: how individuals in radio versus non-radio villages behave when their offers are private?
- External factors: what happens when we introduce public information?
- Are differences in behaviour driven by differences in salience of ethnicity?
- Heterogeneity
    - Was nation building able to reach the individuals that discriminate most?
    - Can we see this on other dimensions? (born before genocide, family history, etc.)

Did the interventions influence behaviour?

	Dependent Variable: log(Trust Game Offer)					
	Rwanda		Burundi		Rwanda	
	Inter-ethnic	Co-ethnic	Inter-ethnic	Co-ethnic	Inter-ethnic	Co-ethnic
	(1)	(2)	(3)	(4)	(5)	(6)
Public Information Treatment	0.255**	-0.109	0.194	0.0837		
	(0.108)	(0.126)	(0.148)	(0.0781)		
Radio Rwanda Reception					0.194**	-0.000295
					(0.0800)	(0.0710)
Sector Fixed Effects	Y	Y	Y	Y	Y	Y
Enumerator Fixed Effects	Y	Y	Y	Y	Y	Y
Gender	Y	Y	Y	Y	Y	Y
Age	Y	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y	Y
Raven Score	Y	Y	Y	Y	Y	Y
Light Density at Night	N	N	N	N	N	N
Distance variables (nearest road, city)	N	N	N	N	N	N
Observations	159	267	205	172	159	267
R-squared	0.277	0.144	0.304	0.797	0.287	0.142

Trust Game Specification

$$Trust_{ivs} = \beta_0 + \beta_1 Radio_v \cdot Interethnic_i + \beta_2 Radio_v + \beta_3 Interethnic_i + \alpha_s + \gamma X_{iv} + \epsilon_{ivs}$$

- We run this separately for the public and private versions of the trust game.

- i is an individual, v is a village, s is a sector

- $Radio_v$ is a village that receives Radio Rwanda; $Interethnic_i$ is whether an individual played an interethnic game

- α_s are sector fixed effects

- X_{iv} is a vector of controls:
    - Village level: light density at night, reception of the hate radio station RTLM, distance to roads and major cities
    - Individual level: scores on cognitive tasks (Raven test), gender, age, ethnicity

Teasing out internal versus external constraints

- Ex-ante 3 possibilities could generate fair offers:

  1. Radio had no effect on either internal or external constraints:
     $\beta_1^{public} = \beta_1^{private} = 0$

  2. Radio influenced external but not internal constraints:
     $\beta_1^{public} > 0; \beta_1^{private} = 0$

  3. Radio influenced trust through internal constraints:
     - If external constraints are not important in non-radio regions:
       $\beta_1^{public} > 0; \beta_1^{private} > 0$ because the same internal constraints that generate fair offers in private, generate fair offers in public. Further: if $\beta_1^{public} > \beta_1^{private}$ Radio operates through *both* mechanisms

     - If external constraints *do* matter in non-radio regions:
       $\beta_1^{public} = 0; \beta_1^{private} > 0$ because in public everyone makes fair offers but internal constraints Δ private offers only in radio regions

Private Information Trust Game: Inter-ethnic Games

Dependent Variable:	log(Trust Game Offer)				Trust Game
	(1)	(2)	(3)	(4)	(5)
		Panel A: Private Offer Trust Game			
Radio Rwanda x Inter-Ethnic Game	0.241**	0.242***	0.265***	0.239**	71.39**
	(0.102)	(0.0901)	(0.0937)	(0.0939)	(31.04)
Radio Rwanda Reception	-0.0820	-0.0110	-0.0138	-0.00342	2.570
	(0.0696)	(0.0827)	(0.0804)	(0.0662)	(20.95)
Inter-Ethnic Game	-0.0899	-0.0937	-0.103	-0.0758	-16.23
	(0.0876)	(0.0767)	(0.0750)	(0.0733)	(23.56)
N	242	242	242	242	242
R^2	0.021	0.132	0.174	0.231	0.232
		Panel B: Public Offer Trust Game			
Radio Rwanda x Inter-Ethnic Game	0.0364	-0.0222	-0.0254	-0.0279	8.584
	(0.113)	(0.108)	(0.119)	(0.118)	(36.09)
Radio Rwanda Reception	-0.0855	-0.0492	-0.0618	-0.0617	-13.30
	(0.0927)	(0.0952)	(0.0910)	(0.0799)	(23.66)
Inter-ethnic Game	-0.0244	0.0243	0.0247	0.0229	-6.347
	(0.0773)	(0.0751)	(0.0893)	(0.0899)	(28.72)
N	196	196	196	196	196
R^2	0.008	0.123	0.158	0.190	0.201
Sector Fixed Effects	N	Y	Y	Y	Y
Enumerator Fixed Effects	N	N	Y	Y	Y
Gender	N	N	Y	Y	Y
Age	N	N	Y	Y	Y
Ethnicity	N	N	Y	Y	Y
Raven Score	N	N	Y	Y	Y
Light Density at Night	N	N	N	Y	Y
Distance variables (nearest road, city)	N	N	N	Y	Y

Public information: a puzzle

- Surprising that radio influences private decisions and not public
    - We thought: if radio highlights how bad discrimination is that should work *especially well* in public

- Exposure to radio seems to have positive impact on *internal* constraints
    - ...and undermines external constraints. These important, but only in non-radio regions?
    - i.e. all of the other Kagame policies (Ingando, Umuganda, etc.) establish external constraints

- If true we should see sensitivity to public information is much lower in the radio regions relative to the non-radio regions
    - in public everyone (radio/non-radio) behave fairly well
    - in private only radio regions behave well

Public Information Trust Game: inter-ethnic games

	Dependent Variable: log(Trust Game Offer)					
Sample:	Inter-ethnic Games					
Empirical Model:	OLS			Ordered Probit		
Dependent Variable:	log(Trust Game Offer)	Trust Game		log(Trust Game Offer)	Trust Game	
	(1)	(2)	(3)	(4)	(5)	(6)
Radio Rwanda × Public	-0.272***	-0.254***	-61.88**	-0.761***	-0.735***	-0.735***
	(0.0907)	(0.0890)	(27.34)	(0.258)	(0.259)	(0.259)
Radio Rwanda Reception	0.264***	0.256***	91.56***	0.957***	0.978***	0.978***
	(0.0849)	(0.0902)	(26.83)	(0.260)	(0.295)	(0.295)
Public Information Treatment	0.414***	0.391***	102.2**	1.204***	1.144***	1.144***
	(0.123)	(0.125)	(41.11)	(0.388)	(0.393)	(0.393)
Sector Fixed Effects	Y	Y	Y	Y	Y	Y
Enumerator Fixed Effects	Y	Y	Y	Y	Y	Y
Gender	Y	Y	Y	Y	Y	Y
Age	Y	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y	Y
Raven Score	Y	Y	Y	Y	Y	Y
Light Density at Night	N	Y	Y	N	Y	Y
Distance variables (nearest road, city)	N	Y	Y	N	Y	Y
Observations	163	163	163	163	163	163
R-squared	0.309	0.321	0.325	.	.	.

Sensitivity of inter-ethnic offers to public information by signal strength
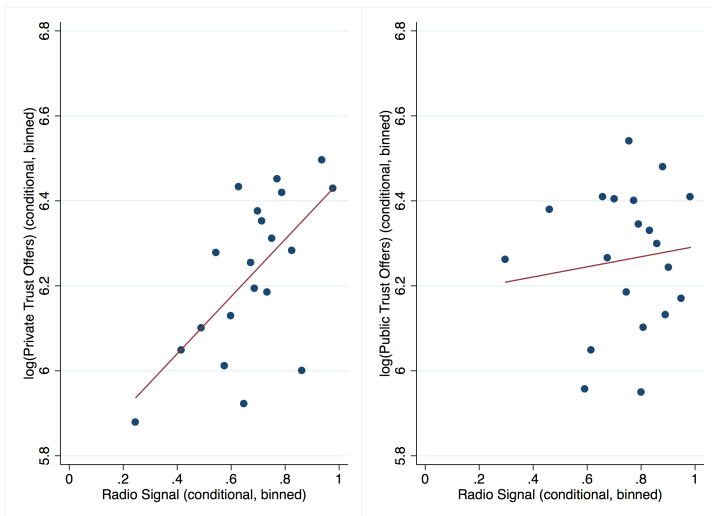
Public Information Trust Game: co-ethnic games

	Dependent Variable: log(Trust Game Offer)					
Sample:	Co-ethnic Games					
Empirical Model:	OLS			Ordered Probit		
Dependent Variable:	log(Trust Game Offer)	Trust Game		log(Trust Game Offer)	Trust Game	
	(1)	(2)	(3)	(4)	(5)	(6)
Radio Rwanda × Public	0.00934	-0.0171	2.097	0.0685	-0.00136	
	(0.106)	(0.103)	(33.22)	(0.288)	(0.285)	
Radio Rwanda Reception	-0.0426	-0.0327	-12.95	-0.128	-0.104	-0.178
	(0.0708)	(0.0663)	(21.91)	(0.196)	(0.187)	(0.216)
Public Information Treatment	-0.118	-0.0778	-29.94	-0.332	-0.227	
	(0.140)	(0.139)	(48.82)	(0.389)	(0.395)	
Sector Fixed Effects	Y	Y	Y	Y	Y	Y
Enumerator Fixed Effects	Y	Y	Y	Y	Y	Y
Gender	Y	Y	Y	Y	Y	Y
Age	Y	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y	Y
Raven Score	Y	Y	Y	Y	Y	Y
Light Density at Night	N	Y	Y	N	Y	Y
Distance variables (nearest road, city)	N	Y	Y	N	Y	Y
Observations	275	275	275	275	275	150
R-squared	0.152	0.185	0.191	.	.	.

Summarizing trust game evidence

- We find that:
    - Public information in Rwanda increases *inter-ethnic* trust game offers but *not* co-ethnic trust offers
        - Why? *Social/govt sanctions target Hutu-Tutsi interaction*

- Exposure to Radio Rwanda propaganda:
    - increases private inter-ethnic trust offers
    - decreases responsiveness to actions being made public

- Why does exposure to Radio Rwanda seem to undermine effectiveness of fear (i.e. external constraints) on inter-ethnic?

    - Could it be that ethnic identity has become *less salient* for some individuals?
    - If so: suggests people have perhaps internalized gov't exhortation of treating those of other ethnicity like their own.

Salience of Ethnicity Test (SIT)

	Dependent Variable: Salience of Identity Test (SIT) Score								
	Continuous SIT measure			Binary SIT measure					
	OLS			OLS			Probit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Radio Rwanda Reception	-0.0835***	-0.0923***	-0.0886***	-0.104**	-0.115***	-0.110**	-0.408**	-0.440**	-0.425**
	(0.0317)	(0.0315)	(0.0324)	(0.0481)	(0.0436)	(0.0435)	(0.197)	(0.196)	(0.189)
Sector Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Enumerator Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ethnicity	N	Y	Y	N	Y	Y	N	Y	Y
Gender	N	Y	Y	N	Y	Y	N	Y	Y
Age	N	Y	Y	N	Y	Y	N	Y	Y
Raven Score	N	Y	Y	N	Y	Y	N	Y	Y
Light Density at Night	N	N	Y	N	N	Y	N	N	Y
Distance variables (nearest road, city)	N	N	Y	N	N	Y	N	N	Y
N	463	423	423	479	438	438	479	438	438
R^2	0.227	0.239	0.243	0.203	0.212	0.216	.	.	.

SIT does predict both inter-ethnic offers and responsiveness to public treatment

	Dependent Variable: log(Trust Game Offer)							
	Private Inter-ethnic		Private Co-ethnic		All Inter-ethnic		All Co-ethnic	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Salience of Identity Test	-0.234**	-0.247**	-0.133	-0.134	-0.225**	-0.239**	-0.108	-0.0650
	(0.0921)	(0.0987)	(0.113)	(0.0989)	(0.109)	(0.110)	(0.108)	(0.104)
SIT x Public Treatment					0.244*	0.295*	-0.0221	-0.0451
					(0.145)	(0.166)	(0.132)	(0.129)
Public Information Treatment					0.0326	-0.0201	-0.0777	-0.0303
					(0.172)	(0.186)	(0.177)	(0.178)
Sector Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Enumerator Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Gender	Y	Y	Y	Y	Y	Y	Y	Y
Age	Y	Y	Y	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y	Y	Y	Y
Raven Score	Y	Y	Y	Y	Y	Y	Y	Y
Light Density at Night	N	Y	N	Y	N	Y	N	Y
Distance variables (nearest road, city)	N	Y	N	Y	N	Y	N	Y
N	92	92	150	150	163	163	275	275
R^2	0.318	0.349	0.226	0.305	0.288	0.309	0.157	0.187

Salience of Identity and the Social Norm

- We find that:
    1. When ethnic identity is salient, individuals are *more* responsive to the fear of sanctions, and offer *less* in private inter-ethnic trust games.
    2. Exposure to Radio Rwanda has made ethnic identity less salient (and emphasized the 'New Rwanda' Identity).

- ↑ Hutu-Tutsi trust offers in Rwanda due to both (a) changing preferences/attitudes and (b) social/gov't pressure
    - So then, which individuals are particularly responsive? We look at *heterogeneity* along a number of dimensions

Who is the improvement coming from?

One important issue is *who* is being influenced by radio?

- Ex-ante reasonable to believe that only those who already agree with the message would choose to listen

- From a policy perspective radio *should* try to target those that discriminate the most

- We try to take steps towards understanding whether those who discriminate most/least drive our results
    1. Quantile regression
    2. Het. by age (are those old enough to have experienced the genocide driving results?)
    3. Het. by colonial history (are Hutu whose families experienced historical mistreatment by Tutsi more heavily impacted?)
    4. Het. by gender/ethnicity (women/Hutu make ↓ inter-ethnic offers: do they drive results?)

Distribution of SIT in radio and non-radio regions
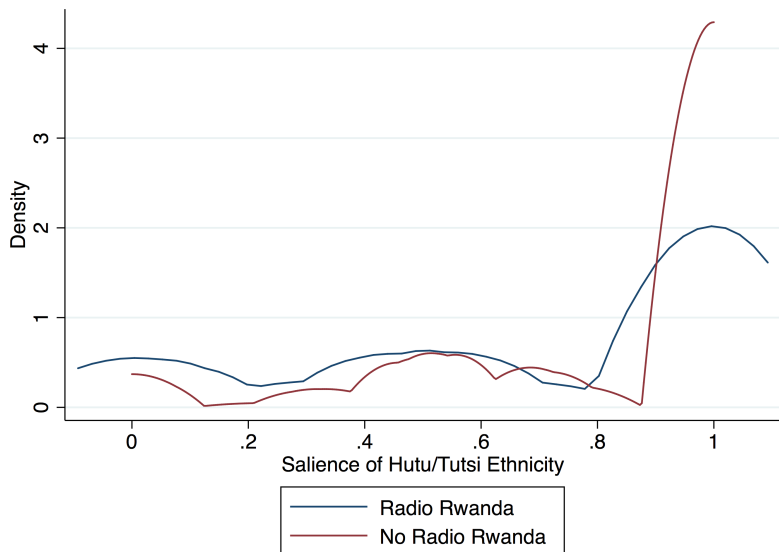
Heterogeneity: What Matters?

Some evidence to suggest that:

1. Those with family history of exposure to Hutu forced labor by Tutsi:
   - ✓ Ethnicity more salient
   - ✓ more responsive to the social norm.

2. Old versus Young
   - ✓ Ethnicity less salient for the young
   - ✓ less responsive to the social norm.

3. Gender
   - ✓ Women are more responsive to the social norm
   - × don't have higher ethnic salience

4. Hutu versus Tutsi
   - × Both similarly responsive.
   - × Ethnic salience similar.

Robustness

1. Genocide (▸ Genocide table)
   - Not genocide nor 'hate radio' correlated with our radio signal
   - Genocide $\rightarrow$ trust but not differentially in inter-ethnicity games
   - RTLM is not correlated at all with trust
   - Radio RTLM $\rightarrow \uparrow$ SIT but genocide $\rightarrow$ no Δ SIT

2. Measurement error in ethnicity (▸ Measurement Error table)
   - If radio $\rightarrow$ ethnicity mis-categorization, co-ethnic offers $\downarrow$ in radio regions. Not true for either Hutu-Hutu or Tutsi-Tutsi.
   - Difference in response to (common) FL in RW and BU (where ethnicity known). Measurement error should bias to 0 in RW

3. Endogenous tower location (▸ Tower Location table)
   - Check all village observables, find no evidence of selection

4. Alternate measure of Trust (▸ Trust survey table)
   - Effect is robust to using survey measure of trust. This data is problematic for other reasons, but broadly consistent.

Contributions

- The first rigorous evidence to suggest that even in the short/medium run and under challenging conditions, nation building can work to 'bring people together'

- This improvement been driven by both:
  i. a direct improvement in inter-ethnic attitudes and preferences
  ii. fear of social/government sanctions.

- First evidence to suggest that ethnic identity & ethnic salience is (at least in part) a political construct (Mukand and Rodrik (2016) and Blouin, Majumdar and Mukand (2016)).

- Methodological: Introduce new tool (SIT) for studying the economics of discrimination and identity.

Robustness: Genocide

| | RadioRwanda | | Trust Offer | | SIT | |
	(1)	(2)	(3)	(4)	(5)	(6)
RadioRTLM x Mixed Ethnicity			-8.410			
			(48.79)			
Genocide x Mixed Ethnicity				-0.0227		
				(0.0248)		
RadioRTLM	0.237		52.85		0.166***	
	(0.226)		(51.14)		(0.0612)	
Genocide		-0.0559		47.46**		0.0138
		(0.161)		(20.98)		(0.0489)
Mixed Ethnicity			1.991	13.27		
			(12.45)	(17.84)		
Sector Fixed Effects	Y	Y	Y	Y	Y	Y
Gender	Y	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y	Y
Age	Y	Y	Y	Y	Y	Y
Raven Scores	Y	Y	Y	Y	Y	Y
Light Density at Night	Y	Y	Y	Y	Y	Y
Distance to border	Y	Y	Y	Y	Y	Y
Observations	439	439	439	439	439	439
R-squared	0.650	0.643	0.134	0.134	0.220	0.209

Robustness (II): Measurement Error

Measuring ethnicity in Rwanda is a significant challenge. Gov't will not give permission to do research if ethnicity is mentioned:

- We use eligibility for FARG as ethnicity proxy - only Tutsi in genocide regions are eligible for genocide reparations. We only survey genocide regions.
- Incentive for Hutu to 'masquerade' as Tutsi?
- Want to be careful we don't mis-categorize people more frequently if they're from radio regions (but no impact on SIT)

We take two strategies:

1. If Hutu masquerades as Tutsi because of radio, Tutsi-Tutsi offers should be lower than Hutu-Hutu offers in radio regions
2. We know ethnicity without error in Burundi, and try to use this to estimate extent of measurement error

Strategy 1: Tutsi-Tutsi offers versus Hutu-Hutu offers

	Dependent Variable	
	Tutsi-Tutsi	Hutu-Hutu
	(1)	(2)
Radio Rwanda Reception	-0.0159	-0.0136
	(0.285)	(0.0642)
Observations	38	237
R-squared	0.568	0.188

Strategy 2: Using known ethnicity in Burundi

Forced labour was applied equally to Rwanda and Burundi - can we use this to back out a measurement error estimate?

$$log(Trust) = \beta_v + \beta_1 ForcedLabour_{iv} + \Gamma X_i + \epsilon_{iv} \qquad (1)$$

$$log(Trust) = \alpha_v + \alpha_1 ForcedLabour_{iv} + \alpha_2 ForcedLabour_{iv} \cdot Rwanda + \Lambda X_i + \rho_{iv}$$

$$Error = \epsilon_{iv} - \rho_{iv}$$

Our test:

- How much smaller is Burundi-only estimate to full sample?
  (error should bias Rwanda estimate $\rightarrow 0$)

- Does radio predict error?

- Do results change if we include error as a control?

Strategy 2: Using known ethnicity in Burundi

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Inter-ethnic Trust | | Error | Inter-ethnic | Co-ethnic | Inter-ethnic | Co-ethnic |
	Burundi	All		Trust	Trust	Trust	Trust
Forced Labour	-0.158**	-0.108**					
	(0.0697)	(0.0529)					
Radio Rwanda Reception			0.000678	0.217*	-0.105	0.187**	-0.0412
			(0.00203)	(0.112)	(0.0875)	(0.0927)	(0.0688)
Public Information Treatment						0.267***	-0.112
						(0.0929)	(0.118)
Baseline Controls & FE	Y	Y	Y	Y	Y	Y	Y
Measurement Error Control	N	N	N	Y	Y	Y	Y
Observations	248	248	92	92	150	163	275
R-squared	0.491	0.488	0.240	0.333	0.228	0.302	0.158

Robustness (III): Endogenous Tower Location

	Dist. Border (1)	Dist. Road (2)	Dist. City (3)	Genocide (4)	Radio RTLM (5)	FL Village (6)	Math Score (7)	Raven Score (8)	Owns Phone (9)	% Hutu (10)	Land Value (11)	Risk Pref. (12)
Radio Rwanda Reception	-1.373	-0.0304	-32.88	-0.285	-0.0267	-0.295	-0.00661	-0.0118	-0.0144	0.0372	-188.0	-0.0452
	(3.756)	(0.0218)	(18.86)	(0.185)	(0.0638)	(0.322)	(0.0413)	(0.0236)	(0.0158)	(0.0557)	(4,395)	(0.0471)
Observations	483	483	483	479	479	483	483	483	483	483	468	481
R-squared	0.003	0.073	0.109	0.043	0.003	0.002	0.000	0.000	0.008	0.002	0.000	0.002

▸ Return to Robustness Table

Trust Survey

| | Dep. Variable: Out Group Trust (Survey) | | | |
	(1)	(2)	(3)	(4)
Salience of Identity Test	-0.216*			
	(0.121)			
Young		0.124		
		(0.134)		
Radio Rwanda Reception			0.184**	
			(0.0842)	
Reception of RTLM				0.0707
				(0.0815)
Sector Fixed Effects	Y	Y	Y	Y
Gender	Y	Y	Y	Y
Age	Y	Y	Y	Y
Raven Scores	Y	Y	Y	Y
Light Density at Night	Y	Y	Y	Y
Distance to border	Y	Y	Y	Y
Observations	484	484	484	480
R-squared	0.077	0.102	0.085	0.078

Government Sanctions and External Constraints

|	Dep. Variable: Will Alert Local Authorities When Wronged				
	(1)	(2)	(3)	(4)	(5)
Radio Rwanda	0.0934**	0.0972**	0.0994**	0.0972**	0.0932**
	(0.0469)	(0.0469)	(0.0422)	(0.0451)	(0.0444)
Sector FE	Y	Y	Y	Y	Y
Enumerator FE	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y
Gender	N	Y	Y	Y	Y
Age	N	N	Y	Y	Y
Light Density	N	N	N	Y	Y
Cognitive test score	N	N	N	N	Y
Observations	483	483	483	442	442
R-squared	0.488	0.490	0.495	0.542	0.543

Graph of Quantile Regression Estimates
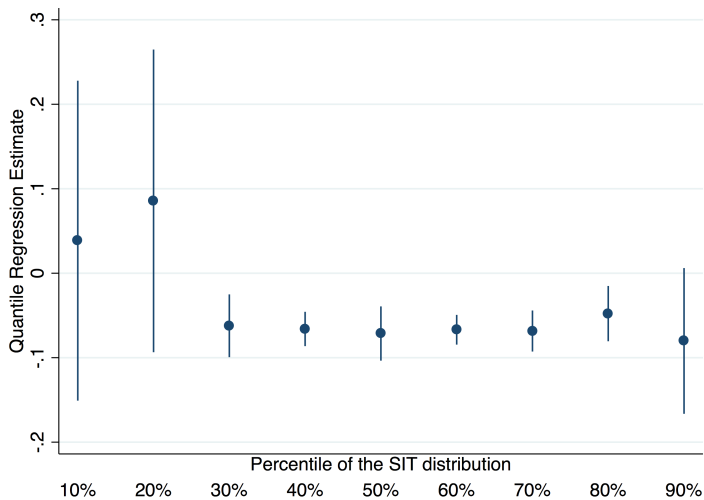
Quantile Regression of Effect of Radio on Salience of Identity (SIT)

					Dependent Variable: SIT Score				
Quantile:	10%	20%	30%	40%	50%	60%	70%	80%	90%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Radio Rwanda Reception	0.0284	0.0663	-0.0594*	-0.0619***	-0.0641***	-0.0686***	-0.0636***	-0.0705**	-0.0671**
	(0.113)	(0.0795)	(0.0313)	(0.0108)	(0.0126)	(0.0176)	(0.0162)	(0.0283)	(0.0326)
Sector Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Enumerator Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gender	Y	Y	Y	Y	Y	Y	Y	Y	Y
Age	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y	Y	Y	Y	Y
Raven Score	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	442	442	442	442	442	442	442	442	442

Private Information Trust Game Estimates at Various Signal Strength Thresholds
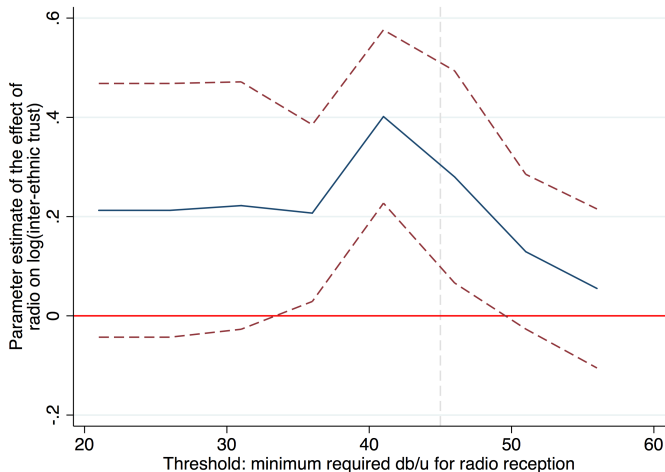
SIT Estimates at Various Signal Strength Thresholds
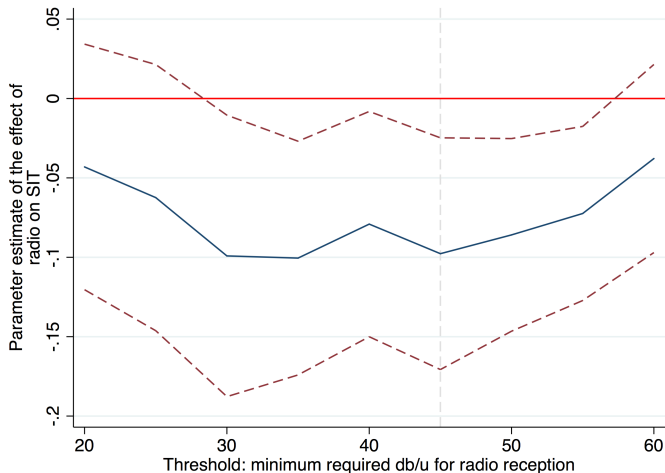
Why should we expect Radio Rwanda to make a difference?

An RA listened to all radio stations in Rwanda for several weeks and coded content:

- We can establish that Radio Rwanda is far more skewed relative to other stations in Rwanda

- Other stations aren't unfairly anti-gov't/Kagame/etc., which would make RR seem skewed even if 'fair and balanced'
    - Real threat of sanction for private stations taking a biased view against the government
    - If anything all stations are pro-Kagame relative to a truly unbiased view

- Our RA listened to about 60 hours of programming
    - Time was split about 50/50 between Radio Rwanda and all other stations within each 'listening day'
    - RA was Rwandan and knew data was for a project about media bias but didn't know about 'nation building' angle.

Heterogeneity

	Inter-ethnic Trust		SIT	Inter-ethnic Trust		SIT	Inter-ethnic Trust		SIT	Inter-ethnic Trust		SIT
	Young (1)	Old (2)	All (3)	FL (4)	No FL (5)	ALL (6)	Male (7)	Female (8)	All (9)	Tutsi (10)	Hutu (11)	All (12)
Public Information Treatment	-60.78	149.3***		113.8**	-12.07		-38.13	352.0***		96.84*	140.8***	
	(78.02)	(48.10)		(51.71)	(64.09)		(66.58)	(62.73)		(53.60)	(49.65)	
Young			-0.0176***									
			(0.00420)									
FL Village						0.00154*						
						(0.000798)						
Female									-0.0443			
									(0.0275)			
Tutsi												0.00932
												(0.0276)
Sector Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gender	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ethnicity	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Age	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Raven Scores	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Light Density at Night	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Distance to border	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	70	96	442	107	59	442	91	75	442	83	83	442
R^2	0.503	0.384	0.228	0.299	0.732	0.225	0.542	0.495	0.225	0.444	0.443	0.225