Culture and Contracts: The Historical Legacy of Forced Labour

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Motivation

▶ Hutu-Tutsi divide has been one of the most contentious inter-group relationships in the postcolonial era
  ▶ Despite same language / religion (Desmet et al, 2011)
  ▶ Despite not being economic competitors (Jha, 2013)

▶ Prominent narrative: Belgian colonizers imposed arbitrary ethnic divisions that had not previously existed, favoured the Tutsi politically, sparking a rivalry
  ▶ Suggests socio-political construction of ethnic rivalry that hasn’t been systematically explored.

▶ Why understudied? difficult measurement challenge
  ▶ Measurement of ethnic distrust in post-conflict / reconciliation region
  ▶ Even measurement of ethnicity itself is not straightforward in this context
“The rigid dichotomy between Hutu and Tutsi was constructed by colonial authorities in collaboration with Rwandan elites and hardened as a result of political conflict.” (Fearon, 2000)

Survey & lab data from 143 villages in Rwanda and Burundi

- Forced labour in the ’30s is thought to have exacerbated ethnic rivalry
  - Under forced labour Tutsi chiefs mistreated (only) Hutu farmers
  - Do their grandchildren now use an ethnicity-heuristic for trust?

- Examine persistent effects of historical forced labour on ethnic preferences & contract outcomes
  - Study crop insurance, where we expect inter-ethnic agreements
(Some) related work

1. *Origins of Attitudes*
   - Nunn and Wantchekon (2011); Alesina, Giuliano and Nunn (2013); Voors et al. (2012); Guiso, Sapienza, Zingales (2014)

2. *Institutions and development*
   - Acemoglu, Johnson, Robinson (2001); Glaeser et al (2004); Sanchez de la Sierra (2014); Nunn (2008)

3. *Culture and economic outcomes*
   - Alesina and Giuliano (2013); Algan and Cahuc (2010); Knack and Keefer (1997)

4. *Forced Labour*
   - Dell (2010); Bobonis and Morrow (2013); Acemoglu and Wolitzky (2011); Chwe (1990); Lowes and Monterro (2019)
Historical background: before colonization

Not much precolonial evidence of Hutu/Tutsi conflict - but also - no written record

- Prominent lineages acted as government, offered protection of land rights, resolved disputes, etc.

- This service was offered in exchange for: (1) cattle; (2) taking care of cattle; (3) labour (called *Ubureetwa*)
  - Only Tutsi kept cattle so (1) & (2) common in Tutsi villages. (3) used in Hutu villages

- Transformed under king Rwabugiri (r. 1863-1895). The Tutsi king appointed Tutsi chiefs almost everywhere and made (3) mandatory for Hutu
  - 1st version of Hutu forced labour that we know of
  - This version existed throughout German colonization, until the Belgians took over
Historical background: Belgian colonization (post-WW1)

Belgium’s main goal was modernization: abolishing traditional institutions & transitioning away from barter economy:

- Coffee was pushed to increase exports and taxes
- 1931: export quotas introduction, to be filled with forced labour
  - Coffee started to dominate industry.
  - Chiefs retained profit from trees, which was taxed by Belgians
  - Uniform quotas across all villages
  - Variation in coffee suitability meant quotas were binding for some and not others

“In 1927 colonial authorities in Rwanda began aggressively promoting coffee production. By 1931 they adopted official policies enabling chiefs and sub-chiefs to force their subjects to cultivate coffee for export. Tutsi chiefs were encouraged to use their ‘traditional authority’ to levy labour tribute, or Ubureetwa, forcing the peasantry to work on the chiefs plantations.” (Kamola, 2007)
Culture and Contracts: The Historical Legacy of Forced Labour

Historical context

Colonial Experience

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Production of crops in 1000 H 1925-1938

- Coffee (exp)
- Tea (exp)
- Jute (exp)
- Peanut (exp)
- Sesame (exp)
- Maize (exp)
- Banana (sub)
- Rice (sub)
- Manioc (sub)
- Potato (sub)
- Sorg. (sub)
- Vegetables (sub)
Quotas and forced labour: which regions were impacted?

“This was ubureetwa, one ‘imposed specifically on Hutu’ and left unreformed because officials argued that to do away with it would be to ‘undermine the chiefs’ authority over the population. The chief who came out of the interwar period was expected to enforce and supervise obligatory cultivation of food exports...and even to become majority coffee producers by using corvée labour.” (Mamdani, 2014)

Some differences between Belgian forced labour and traditional Ubureetwa:

1. Workers worked on chiefs plantations producing the (coffee) crop that chiefs needed to produce; previously farmers were free to pay with the production of any crop
2. Coffee farmers were targeted as the population from which to draw recruits, and faced severe migration restrictions
3. Punishments for rejecting or fleeing forced labour were brutal: ‘You whip the Hutu or we will whip you.’ (Gourevitch, 1998)
Data overview

- Total of 880 farmers from 143 different villages
- Of 880: 628 are Hutu, and 242 of those played the trust game against a Tutsi, the rest played against another Hutu
- Tutsi were in 83 of 143 villages, but at least 1 Tutsi was at each session
- Sessions included about 20 people from 4-5 villages in a district
Before getting into empirical details

There are a few major challenges to studying this question in this context:

1. It is illegal, under (frighteningly vague) genocide ideology laws, to ask respondents about their ethnicity.

2. The government does not approve projects containing questions about ethnic beliefs, detailed experiences with the genocide, experiences regarding other ethnically sensitive subjects.

3. Variation is at the ancestral location level, we will get at best a noisy measure.
Outcomes: Collecting ethnicity in Rwanda

- Can’t make ethnicity salient - can’t even ask in Rwanda

- Proxy for ethnicity using eligibility for FARG - a genocide reparations fund for “genocide survivors”
  - Hutu victims are officially recognized by the government as “victims of massacres that occurred during the genocide against the Tutsi”
  - Tutsi from genocide regions are officially recognized by the government as “Survivors of the genocide against the Tutsi”

- We know ethnicity (without error) in Burundi and can restrict results to this sample
  - Estimates from just Burundi are similar - slightly larger - relative combined sample: any error likely orthogonal to FL
Also need respondents to be able to infer ethnicity

- I 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 (gov’t teaches this): physical differences due to assortative matching
  - Belgians classified based on nose size, eye shape, skin colour, height, etc. (Welsh, 2012)
Interethnic attitudes: the trust game

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

- How is the trust game played?
  - Player 1 shares into a pot
  - Pot is multiplied by enumerator
  - Divided between players by Player 2

- 2 strangers play face-to-face for high stakes (endowment = $1US)

- One-shot game: ethnicity ‘rules-of-thumb’ to get at cultural aspect of trust (Boyd & Richardson (2005), Nunn (2012))
Interethnic attitudes: the SIT

Half Tutsi photos, half Hutu photos (4 of 8 to the left):

- Person in top left has a red moto
- Person in bottom left has 4 children
- Person in top right likes bananas and dislikes guavas
- Person in bottom loves to watch basketball
Interethnic attitudes: the SIT

Recall Task:

- Which person has four children?
  - If I know it was one of the Tutsi, but not which one
  - Then it would suggest that I use ethnicity to categorize.
- Formally:
  \[
  SIT = \frac{\sum \text{WithinMarkerErrors}}{\sum \text{Errors}}
  \]
Survey data: contract outcomes

- **Measurement Challenge:**
  - I’d like to analyze how low inter-ethnic trust influences economic relationships
  - I’m not allowed to ask respondents about willingness to do business with Hutu / Tutsi

- **Solution:**
  - Analyze a type of contract where incentives are strongly to making inter-ethnic partnerships
  - Agricultural insurance contracts

- **Outcomes:**
  - Revealed preference: are forced labour Hutu less likely to make these agreements?
  - Outcomes: Does low trust induce default? What kind of default?
Survey data: contract data

- Survey data on inter-household crop insurance contracts
  - Historically different agricultural practices between Hutu/Tutsi
  - Incentive to enter into mixed-ethnicity contracts (for typical households)
  - In my data: still a Hutu/Tutsi crop/cattle divide

- All respondents answer questions about these (real world) contracts
  - Self-reported, so I don’t focus on outcomes implying ‘bad’ respondent behaviour

- Main outcomes of interest: do they enter into these contracts; reasons for default (honesty/effort vs. quality of partner match)
Data Challenge 3: Family history

To know who may have been exposed to forced labour we need to know where they lived. To get this:

- Family migration histories going back 3 generations
  - Matched as early as possible
  - Have tried matching based on father of father (ethnicity is determined patrilineally) & averaging across all ancestors
- I exploit grandparent village level variation in FL - within a grandparent district - between two people who currently live in the same district.
Parameter of Interest

- Of interest is $E(T_{1i} - T_{0i} | FL_i = 1)$.
  - $FL_i$ denotes whether individual $i$ has ancestors that were exposed to forced labour.
  - $T_{1i}$ denotes the level of trust of individual $i$, for those exposed to forced labour.

- The best we could hope to observe in the data is $E(T_{1i} | FL_i = 1)$ and $E(T_{0i} | FL_i = 0)$.

- The difference between these means is $E(T_{1i} - T_{0i} | FL_i = 1) + E(T_{0i} | FL_i = 1) - E(T_{0i} | FL_i = 0)$.

- Of particular concern is that $E(T_{0i} | FL_i = 1) < E(T_{0i} | FL_i = 0)$.
  - that Hutu who were distrustful of Tutsi anyway were more likely to be assigned to forced labour.
Measuring $FL_i$

To account for this endogeneity, consider the two criteria that determined selection into forced labour:

- An individual had to live in a forced labour region, and be selected for forced labour themselves
  - Let $\mu_{lgp}$ capture that some grandparent locations (denoted $lgp$) were exposed to forced labour and others were not
  - Let $\theta_i$, captures that some individuals within each village were selected into forced labour by the chief, and others not.

- This implies $FL_i = \mu_{lgp} \cdot \theta_i$
  - Big measurement challenge: We don’t observe $\theta_i$ and therefore $FL_i$ but can measure $\mu_{lgp}$, though crudely
  - Big identification challenge: $\mu_{lgp}$ is endogenous.
Measuring $FL_i$

Accordingly, consider the causal model of interest:

$$T_i = \alpha_0 + \alpha_1 FL_i + \alpha_2 \theta_i + \Gamma_{gp} + \lambda_{lr} + \gamma' X_i + \epsilon_i$$  \hspace{1cm} (1)

$\Gamma_{gp}$ is grandparent location fixed effects; $\lambda_{lr}$ is respondent location fixed effects; $\gamma' X_i$ is a set of controls
Measuring $FL_i$

The best we can do is to proxy for $FL_i$ (no hope of measuring $\theta_i$)

- Propose exploiting that coffee farmers were overwhelmingly selected to work on the Chiefs’ coffee plantations.
- Consider $C_i$, a proxy denoting whether the grandparents of the individual produced coffee prior to 1931.
  - Accordingly, in the survey I asked respondents about grandparent crop production
- Define:
  $$\tilde{FL}_i = \mu_{gp} \cdot C_i \quad (2)$$
- This is observable, but we still don’t want to think of $\mu_{gp}$ as exogenous.
  - Let me hold-off on the measurement of $\mu_{gp}$ for a few slides, and discuss exogenous variation in it first.
Data: GIS and archival price data

Land characteristics may be related to $FL_i$ through $\mu_{gp}$ if forced labour was used to meet coffee quotas

1. Potential Quantity
   - GIS data from FAO: potential produceable tonnes per hectare for all crops
   - Estimates available for fixed inputs: cost-controlled and matched to colonial conditions

2. Colonial Prices
   - Archival price data for all crops from Belgian colonial records

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<td>1,575</td>
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</table>
Exogenous variation in $FL_i$

- Match FAO data to local price information; compute ‘historical local profits’ for each crop, $s$:
  \[
  \pi_s = q_{FAO,p}^{gp,s} \rho_s
  \]  
  (3)

- Consider the profitability of coffee relative to the next most profitable crop:
  \[
  \Pi_{gp} = \frac{\max\{\pi_{gp,s} \mid s \neq c\}}{\pi_{gp,c}}
  \]  
  (4)

- $c$ denotes coffee and $s$ can be any crop
I said I could measure $\mu_{\gamma \rho}$. So is $\Pi_{\gamma \rho}$ correlated with $\mu_{\gamma \rho}$?

Actual forced labour data wasn't kept by Belgium, which represents an obvious challenge.

- Text Analysis: reports of forced labour in Google Books (incl. digitized colonial reports)
- Code runs in two steps:
  1. any mention of a colonial era district in my data
  2. mention of that district with forced labour
- Use % of mentions associated with forced labour to account for very active administrators
Data and empirical strategy

Empirical Details

District level Forced Labour Measure ($\mu$)

Relative profitability of coffee to other crops

kernel = epanechnikov, degree = 0, bandwidth = 0.1
Summary of identification / data
Summary of identification / data

1. Need to know where coffee is produced

- Quota Not Binding
- Quota Binding
Summary of identification / data

1. Need to know where coffee is produced

2. Need family histories: 1930 (likely) forced labour exposure

Forced Labour

Baseline % of production devoted to non-coffee

Quota

Quota Not Binding

Quota Binding

Hutu & Tutsi

Hutu

Tutsi
Summary of identification / data

1. Need to know where coffee is produced

2. Need family histories: 1930 (likely) forced labour exposure

3(i). Experimental data:
   a. Inter-ethnic Trust
   b. Measure of identity

3(ii). Real World Data:
   c. Contracts data
   d. Default reason

Forced Labour

Baseline % of production devoted to non-coffee

Quota Not Binding

Quota Binding

Hutu & Tutsi

Quota

Hutu

Tutsi
Map of calculated forced labour

Legend
- No Forced Labour
- Forced Labour

Rwanda
Burundi
Map of colonial era family locations
Summarizing the model of interest

\[ T_i = \beta_0 + \beta_1 \zeta_i + \beta_2 C_i + \Gamma_{lgp} + \lambda_{lr} + \gamma' X_i + \epsilon_i \]  

(5)

\( \beta_1 \) identifies a lower bound of the causal effect of differences in \( FL_i \) on differences in \( T_i \) under the following assumptions:

1. \( \text{cov}(\Pi_{lgp}, \epsilon_i) = 0 \) and \( \text{cov}(C_i, \epsilon_i) = 0 \) (not testable)
2. \( \text{cov}(\Pi_{lgp}, \epsilon_i) = 0 \) and \( \text{cov}(C_i, \epsilon_i) = 0 \) (suggestive evidence)
3. \( 0 < \frac{\text{cov}(\theta_i, C_i | \Pi_{lgp})}{\text{var}(C_i | \Pi_{lgp})} \leq 1 \) (not testable since \( \theta_i \) is not observable) and \( \frac{\text{cov}(\mu_{lgp}, \Pi_{lgp})}{\text{var}(\Pi_{lgp})} > 0 \) (suggestive evidence available)
4. \( \frac{\text{cov}(\mu_{lgp}, \Pi_{lgp})}{\text{var}(\Pi_{lgp})} \leq 0 \forall \Pi_{lgp} \) and \( \frac{\text{cov}(\theta_i, C_i | \Pi_{lgp})}{\text{var}(C_i | \Pi_{lgp})} \geq 0 \forall i \) (not testable)
## Summary statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Panel A: Outcomes - Historical Forced Labour</th>
<th>Panel B: Outcomes - No Historical Forced Labour</th>
<th>Panel C: Controls</th>
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<tbody>
<tr>
<td></td>
<td>Hutu</td>
<td>Tutsi</td>
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<td>Mean  Std. Dev. N</td>
<td>Mean  Std. Dev. N</td>
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<td>Trust Game Offer</td>
<td>269.4 97.6 85</td>
<td>275.0 126.3 48</td>
<td>32% 0.47 422</td>
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<td>Default Rate</td>
<td>20% 0.15 75</td>
<td>11% 0.15 43</td>
<td>0.60 0.49 422</td>
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<td>Partner Preference - Tutsi</td>
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<td>0.17 0.32 48</td>
<td>46.2 109.7 422</td>
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<td>Total Income (USD)</td>
<td>283.25 561.35 72</td>
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Differential Hutu trust of Tutsi with diff. forced labour definitions
Differential Tutsi trust of Hutu with different forced labour definitions
Some additional robustness tests for inter-ethnic trust

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<th>Hutu to Hutu (2)</th>
<th>return offers (3)</th>
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<td>(63.63)**</td>
<td>(30.54)</td>
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<td>Risk Preference</td>
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<td>Clusters: Historical Districts</td>
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<td>$R^2$</td>
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Hutu ethnic salience with diff. forced labour definitions
Tutsi ethnic salience with diff. forced labour definitions
Implications for value of insurance contracts?

- Could go either way:

  1. Increased reliance on ethnic community ↑ information flow, monitoring, ↓ enforcement inefficiencies, ↑ co-ordination (Greif, 1993; Ostrom, 1990; Munshi, 2003)
     - better contract outcomes

  2. Restricting partnerships to ethnic community ↓ search/match efficiency → ↓ partnership suitability
     - worse contract outcomes

- Assess value of inter-ethnic contracts using revealed preference approach
  - How often do people agree to a particular type of contract that is typically inter-ethnic in nature?
Hutu with inter-household ag. insurance contracts
Mechanism 1: low agreement value driven directly by inter-ethnic distrust?

Mechanism 1: If the continuation value of the relationship is low due to low inter-ethnic trust, we might expect strategic default in these relationships (e.g. Blouin and Macchiavello, 2019)

Tests:

- Differences in perceived strategic default?
- Chose some variation for default reason of: “Found a better partner match with someone else.”
Mechanism 1: Hutu experiencing strategic default
Mechanism 2: low value driven by Hutu-Hutu partnerships?

Another possibility: Insurance contracts are less valuable because Hutu avoid Tutsi contracts, and insure with Hutu partners that have more correlated incomes and are therefore **unable** to insure.

Question:

- Default reason: “Did not have the financial ability to follow through on the agreement.”
- Note: inability due to illness is a separate category (and nothing shows up using that)
Mechanism 2: Hutu defaults due to financial ability (correlated shocks)
Tutsi defaults due to financial ability (correlated shocks)
Concluding remarks

1. It does seem that divisive colonial experience worsened Hutu-Tutsi attitudes in Rwanda / Burundi, as historians suggest.

2. We also find evidence to corroborate that this occurred alongside an ethnic salience mechanism, as historians suggest.

3. The changes to ethnic identity and rivalry have real world economic implications.