Resource Unpredictability and Conflict in Eastern Africa: A Cross-Cultural Regional Comparison

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Wider context

- This research is part of a larger project (led by Claudio Cioffi-Revilla at George Mason University) designed to develop agent-based computer models to predict the conditions under which violence occurs in eastern Africa, an area that has been frequently plagued by famine and drought. The GMU team is working on agent-based modeling. The HRAF team is focusing on ethnographic and other comparisons of violence. Today I am going to describe some preliminary results from our research at HRAF.

- Ecological conditions are one of the main sets of conditions being modeled, along with subsistence/economic strategies, social organization, and the effects of international and national actions and conditions. To be maximally useful these models need to be based on empirically-based knowledge of how people behave under different conditions. To this end the HRAF team is testing hypotheses about violence with ethnographic data.

- One of our first steps is to see if previous worldwide cross-cultural findings regarding warfare frequency (Ember and Ember 1992) replicate in the broad eastern African region.

Overview of Ember and Ember (1992) research

1. We previously tested a considerable number of theories about warfare that might explain why some societies would have more warfare. These included: cultural complexity, punitive socialization, low need satisfaction in infancy/childhood, protest masculinity, and resource scarcity.
2. Only two factors received much support
   - ❑ Resource scarcity, particularly as measured by the frequency of natural disasters that seriously destroyed food supplies—we call this **resource unpredictability**
   - ❑ Low need satisfaction in infancy/childhood (strongest relationship was with socialization for mistrust—as measured by Barry et al. 1976)

3. Chronic resource problems, while related to warfare bivariately, had no independent effect on warfare frequency when resource problems caused by natural disasters were regressed out

4. Since disasters did not occur that frequently, but warfare occurred almost all the time in societies with unpredictable scarcity, we suggested that it was the **fear of loss**, rather than the actuality of loss that was the biggest driver of violence.

5. Results were stronger in nonstate societies. (Subsequently, Korotayev, re-analyzing our data found that the relationship in state societies is opposite.

Aims of the Eastern Africa Regional Comparison:

- Do worldwide cross-cultural findings (Ember and Ember 1992) from SCCS sample regarding resource unpredictability and warfare replicate in eastern Africa?

- Do resource problems affect other aspects of warfare, such as the taking of resources and atrocities committed?

Sample:

- About 40 societies (e.g., Ganda, Somali, Gikuyu, Rwandans) from the broad eastern African region (from the Horn of Africa in the east; the eastern Congo in the west, southern Sudan in the north, and the northern parts of Zambia, Malawi, and Mozambique in the south) were sampled.

- Our sample included:

    - all societies in the HRAF Collection of Ethnography in this region; and
    - a random sample of societies from the Ethnographic Atlas.

Method:

- With a few exceptions, we largely followed the coding procedures in Ember and Ember (1992a, 1992b):
  - a focal 25-year time period used for rating the warfare variables and resource variables.
  - Societies that were partially or fully pacified prior to the focal time were not included
  - ethnographies from the 40 societies were read using HRAF materials whenever possible
- Chronic scarcity was recoded to distinguish seasonal scarcity from chronic poverty
- We do not have measures for socialization for trust which was one of the significant predictors in Ember and Ember 1992.

The next slide shows the bivariate results in nonstate societies between measures of resource scarcity and warfare

Predictors of Warfare Frequency in Non-State Societies in Eastern Africa

unpredictable resource problems (famine and natural disasters) predict positively

	Overall Frequency	Internal Frequency	External Frequency
Famine	**.40***	.25	**.44***
Natural disasters that destroy food supplies	**.42***	.37	**.43***
Chronic hunger for none/some/ all of the population	-.13	-.17	-.13
Chronic—yearly hungry seasons	.06	.04	.24

Gammas shown
* $p < .05$ (one tail)

Table 1--first view

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chronic problems have no effect

Gammas shown
* p < .05 (one tail)

Table 1--2nd view

But look at the bivariate results in state societies between measures of resource scarcity warfare

Predictors of Warfare Frequency in State Societies in Eastern Africa

	Overall Frequency	Internal Frequency	External Frequency
Famine	-.15	.10	.23
Natural disasters that destroy food supplies	-.58	.23	**-.67***
Chronic hunger for none/some/ all of the population	**-.76+**	**-.75+**	-.67
Chronic—yearly hungry seasons	.14	.43	.05

significantly negative; opposite from nonstate

Gammas are shown
+ p < .10 (two tails)
* p < .05 (two tails)

Table 2--first view

Predictors of Warfare Frequency in State Societies in Eastern Africa

	Overall Frequency	Internal Frequency	External Frequency
Famine	-.15	.10	.23
Natural disasters that destroy food supplies	-.58	.23	**-.67***
Chronic hunger for none/some/ all of the population	**-.76+**	**-.75+**	-.67
Chronic—yearly hungry seasons	.14	.43	.05

almost significant negative results compared with nonstate

Gammas are shown
+ p < .10 (two tails)
* p < .05 (two tails)

Table 2--2nd view

To sum up so far:

Resource Unpredictability and Warfare Frequency

- In non-state societies, more resource unpredictability (e.g., severe drought, locust infestations), but not chronic scarcity, predicts more warfare. **Replicates the world-wide comparison, although results are not as strong.**

- Consistent with Korotayev's (2008) reanalysis of our previous worldwide comparison, the relationships in state societies in eastern Africa appear to be opposite—that is, more unpredictability is associated with less warfare in state societies. Some of the relationships with chronic resource problems are also marginally significant in the same direction—-chronic hunger is associated with less warfare.

Outcomes of Warfare—Taking of Land, Territory and People

- In nonpacified societies, some kind of resource is almost always taken.
- For everything but land, the modal response is to always take at least some resources.
- There appears to be somewhat more restraint when warfare is internal, rather than external. However, 80% of the societies have both types of warfare, so resources will be almost always taken.

Resource Unpredictability and Taking of Resources

- Unpredictability of resources does not predict taking of land

- In nonstate societies the more frequent the unpredictable resource problems, the **more** frequently nonland/nonpeople resources are taken in the course of a society's internal war

- The opposite is true for external warfare. The more resource unpredictability, the **less** frequently nonland/nonpeople resources are taken in external war. In addition, the more resource unpredictability in nonstate societies, the less likely people are taken.

- State societies mostly do not show the same direction of relationships. The sample is smaller, but many of the correlations are opposite.

- For example, the more the natural disasters, the more likely state societies take people in external warfare. (Possibly this result is due to the slave trade, where slaves were an important source of revenue for state societies.)

Resource Unpredictability and Atrocities

With a few exceptions, resource problems generally do not predict degree of harm inflicted on noncombatants.

Here is a summary of results

- Killing noncombatants, rape, and torture are not predicted by resource problems

- In nonstate societies, destruction of resources is less likely to occur when there are more resource problems

- In state societies, the Ns are very small and only a few results are significant. Where famine is higher, noncombatants are more likely to be killed.

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