Mapping Refugee Camp Economies in Rwanda

Brian Tomaszewski, Ph.D.
Associate Professor
Center for Geographic Information Science and Technology
Rochester Institute of Technology, USA
Outline

• Economic Benefits of Refugees
• Research Context
• Field Data Collection
• Select Results
• Conclusions
Refugees Benefits

• Improved infrastructure (security)

• Economic development

https://www.unhcr.org/rw/livelihoods-2
Research Context

• Policy change: in-kind food supply to cash
• Potential to create camp-based business - surplus cash to create businesses
From this..... ......to this
Field Research Activity

1. **Baseline**: economic and spatial business conditions last in-kind system (Kigeme)

2. **Investigate**: business conditions camp on a cash-for-food (Mugombwa)
Prior - Rwanda
Humanitarian Mapping
Prior - Rwanda

Humanitarian Mapping

Kigeme Refugee Camp General Administrative Boundaries Map - DRAFT (15 March 2016)
Field Data Collection

Rwanda 2017

Do you have a lot of competition from businesses outside the camp? (0-5; 0-none-5 high competition) *
- 0
- 1
- 2
- 3
- 4
- 5

When you compare last month to the same month last year, has your income decreased, increased, or remained the same? *
- Decreased
- Remain the same
- Increased
- Don’t Know/Not Sure
- Not Applicable

Relationship of refugee business within camp economy

When did you start your business? (day, month, year if possible) *
Select Results
Economy of a Refugee Camp

124 small business run by Congolese refugees were found and surveyed in Kigeme & Mugombwa Camp, Rwanda.

Employment
who’s being employed
- 22.6% Also Employ Family
- 36.3% Employ Multiple People
- 63.7% Employ Just Themselves
- 13.6% Employ Anyone
- 12.6% Also Employ Other Refugees

Income
in the last year
- 64.2% saw an increase
- 26.7% saw a decrease

Savings
where people save
- 54
- 35
- 16
- 3
- 8
- 25
- No Plan

When Business Opened

Market Conditions in Kigeme

Correlation between:

- Refugee ID problem
- Customer locations
- Market security

Market conditions of Kigeme viewed as a decision tree
Multi-Distance Spatial Cluster Analysis (Ripley’s K Function) (Spatial Statistics Tools)

Determines whether features, or the values associated with features, exhibit statistically significant clustering or dispersion over a range of distances.

---

**Business Materials Clustering**

![Graph showing observed and expected values for Business Materials Clustering with confidence envelopes.](image-url)
Conclusions

• Persistent challenges: Identification

• Refugee camp economies >10 km radius
  – Spatial statistical significance
  – Refugees travel great distances
Murakoze!
Danke!
شكرا!
Brian Tomaszewski
bmtski@rit.edu