Food Aid and Refugee Coping Strategies
Evidence from a Regression Discontinuity Design

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Motivation

- In 2020, 82 milion individuals were forcibly displaced, among them 26 milion were refugees (UNHCR, 2021). Many live in exile for several years, relying on service and aid provisions from the international community.

- Funding-shortages lead to aid reductions for certain groups of refugees. Self-reliance is often taken as a criterion and proxied by time passed since arrival.

- However, are refugees living for many years in a camp indeed more self-reliant? How do they fare when faced with a reduction in ration entitlements?

- Little to no empirical evidence of the longer-term impacts of ration reductions on health, nutritional and employment outcomes due to a lack of exogenous policy variation.

Background

- Nakivale is located in a remote yet fertile area in Southern Uganda and is one of Uganda's largest refugee settlements, housing 105,000 refugees.

- Progressive refugee policy framework: right to access employment, establish businesses, freedom of movement, integration in national service delivery.

- Arrivals are granted a plot of agricultural land for cultivation and are eligible for distributions from WFP. Assistance in Nakivale is only in-kind.

- **BUT:** In 2015 a sudden influx of South Sudanese refugees resulted in funding shortages and a change in food policy. Refugees arriving before 2013 had their rations reduced by 50%. Later arrivals remained eligible for the full ration.

Ration size

Table 1: Nakivale settlement ration entitlements per person

Ration size	Standard			Half-ration		
	Monthly (kg)	Daily (g)	Daily (kcal.)	Monthly (kg)	Daily (g)	Daily (kcal.)
Cereal (maize)	12	400	1461	6	200	731
Pulses (beans)	2.4	80	273	1.2	200	137
Pulses/MM	2.1	70	239	-	-	-
Corn-Soy-Blend	1.5	50	190	1.5	25	95
Vegetable oil	0.9	30	265	0.45	15	132
SUM	18.9	630	2428	9.15	280	1095

Example of daily and monthly ration entitlements per person in 2018. Table contents obtained from Development Pathways (2020).

Discontinuity in ration size
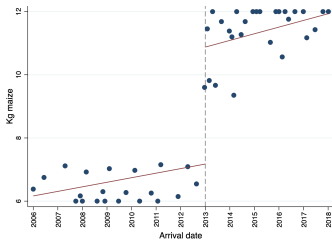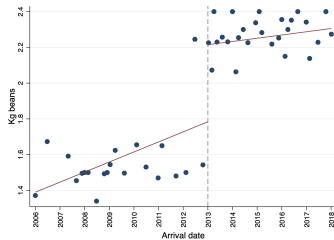
(a) Kg of maize: 50 bins   (b) Kg of beans: 50 bins

Figure 1: Discontinuity in ration size

Discontinuity in ration size

- Clear discontinuity visible in beans and maize rations: pre-2013 arrivals receive half the ration as post-2013 arrivals.

- No anticipation effect: In 2015 the cutoff was set retrospectively to 2013.

- Unexpectedness: The policy was implemented as a crisis response to the influx of 138,000 South Sudanese refugees to the North of Uganda.

- The influx was limited to the North and unlikely to affect Nakivale policy through other means than WFP's policy change.

Estimation and Data

- Few exceptions imply the RD design is fuzzy.

- Nonparametric local linear estimation with MSE-optimal bandwith selectors developed by Calonico et al. (2014) and Calonico et al. (2020). SEs clustered at the EA level.

- Cross-sectional household survey conducted in Nakivale between March and April 2018. The sample comprises 1598 refugees, 803 are Somali and 795 Congolese.

- Two-stage cluster sampling: first villages were selected with probability proportionate to size, stratified by nationality, from the 2014 cenzus. A mapping exercise was performed using sattelite imaginary and local informants to list all households. In the second stage, draw a fixed number of households per village at random.

Main Findings

Table 2: Treatment effects

	Calorie intake p.c. (log) (1)	Food exp. p.c. (log) (2)	Food insecurity (3)	Dietary variety (4)	Health index (5)	Job (dummy) (6)	Travel Uganda (dummy) (7)
Panel A: Non-parametric approach without control variables							
Robust RD	0.321*	0.297	-8.281***	-0.548	1.337	0.0544	0.351*
	(0.179)	(0.192)	(2.997)	(2.165)	(3.182)	(0.315)	(0.198)
Panel B: Non-parametric approach with control variables							
Robust RD	0.447**	0.430**	-5.164*	-0.579	1.085	0.0458	0.401*
	(0.193)	(0.180)	(2.751)	(2.241)	(3.353)	(0.323)	(0.214)
Observations	523	523	523	1442	1429	1431	1442
Bandwidth	479.5	486.5	617.0	496.0	999.6	494.2	279.3
Eff. obs. (right)	92	96	116	272	428	272	166
Eff. obs. (left)	34	34	38	96	201	96	58
Mean if Full Ration	9.18	9.3	13.33	8.19	4.59	0.24	0.18

Notes: This table reports RD estimates using "rdrobust". Controls include gender, age, marital status and the father's and mother's educational attainment. Standard errors in parentheses are clustered at the level of the enumeration area. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Main Findings

- Refugees on lower rations consume 36% less calories per week or 513 kcal per day and spend 35% less on food. Aid and expenditure are complements.

- Refugees on lower rations are more food insecure (5 points more on the HFIAS score).

- Lower rations are associated with less travel between Nakivale and other cities. Outmigration in response to ration cuts seems unlikely.

- No impact on dietary variety, health or the likelihood of being employed. Due to low job opportunities in camps or heterogeneity of TEs between subgroups.

Heterogeneity

Table 3: Treatment effects by nationality

	Calorie intake p.c. (log)	Food exp. p.c. (log)	Food insecurity	Dietary variety	Health index	Job (dummy)	Travel Uganda (dummy)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Non-parametric approach with controls - Somali subsample							
Robust RD	0.327	0.352	-7.079**	-1.106***	2.730***	0.193*	0.430**
	(0.401)	(0.353)	(5.901)	(0.397)	(1.044)	(0.106)	(0.170)
Bandwidth	786.0	784.2	745.1	741.0	708.2	824.9	577.2
Observations	243	243	243	679	679	678	679
Panel B: Non-parametric approach with controls - Congolese subsample							
Robust RD	0.694*	-0.113	5.693**	1.094	-0.514	-0.673*	-0.246
	(0.357)	(0.473)	(4.804)	(1.118)	(2.455)	(0.352)	(0.372)
Bandwidth	725.2	479.3	663.2	346.1	289.7	312.1	393.4
Observations	280	280	280	763	750	753	763

Heterogeneity

Some oddities:

- Effect on weekly calories significantly higher for Congolese refugees than Somalis.
- Dietary variety is higher and the number of health problems lower for Somalis on reduced rations.
- Somalis on reduced rations are less likely to work. Employment is not a coping strategy.
- Employment as a coping strategy very pronounced for Congolese refugees on lower rations.

Table 4: Somali consumption and remittances

	Dietary variety	Maize Cereals Patatoes	Beans Nuts	Meat	Remittances (dummy)	Remittances (Monthly amount)
	(1)	(2)	(3)	(4)	(5)	(6)
Robust RD	-1.106***	-1.415	-2.605*	3.430**	-0.314*	-3.470
	(0.397)	(0.956)	(1.454)	(1.438)	(0.179)	(2.169)
Observations	679	243	243	243	679	679
Bandwidth	741.0	782.2	616.0	583.3	766.9	766.2
Eff. obs. (right)	255	89	78	76	260	260
Eff. obs. (left)	127	46	29	28	132	132

Congolese focus

Table 5: Impact on Congolese jobs

	Job (dummy)	Non Agri Job (dummy)	Agri Job (dummy)
	(1)	(2)	(3)
Robust RD	-0.673*	-0.846**	0.208
	(0.352)	(0.348)	(0.141)
Observations	753	753	753
Bandwidth	312.1	320.8	399.9
Eff. obs. (right)	45	45	56
Eff. obs. (left)	15	15	19

Summary

- Refugee communities adopt different coping strategies.

- Somali with lower food ration consume fewer preferred food items and substitute them with other items, cheaper but richer in calories.

- Somali are better connected and those with lower food ration can rely on help from their network in the form of remittances.

- Congolese cannot rely on help from outside the household and have therefore higher incentive to take advantage of any employment opportunity, which are rare in Nakivale.

- Congolese with lower food ration are significantly more involved in non-agricultural jobs.

- Agricultural jobs are less sustainable due to decreasing land availability over time and declining land quality.

Robustness Checks

Predetermined variables are balanced at the cutoff.

Results are robust to using:

- alternative bandwiths
- noninferred arrival dates
- uniform kernels
- quadratic polynomial approximation
- alternative definitions of the score (first arrival date)
- alternative treatment indicators (beans-ration)
- alternative cutoffs (July 2013, July 2015)

Conclusion

- Refugees subject to ration cuts experience significant declines in caloric intake and food expenditure. They are also more food insecure.

- Coping strategies differ by refugee nationality:
  - Somalis substitute preferred food items with cheaper items which are richer in calories and rely on their remittances network.
  - Congolese do not have access to such a network and instead become more involved in non-agricultural jobs.

- Self-reliance is not fully achieved in the long-run.

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