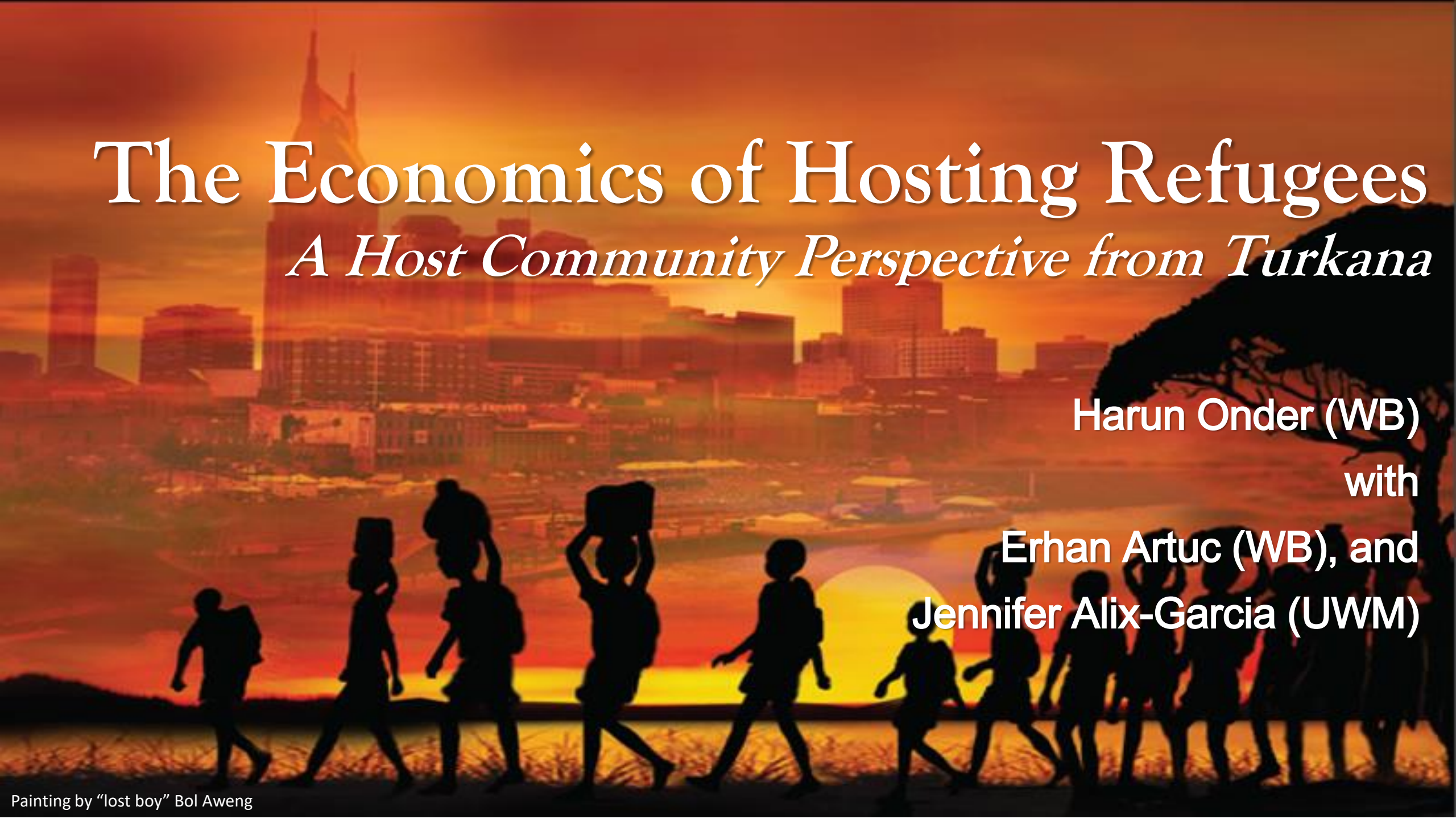
The Economics of Hosting Refugees

A Host Community Perspective from Turkana

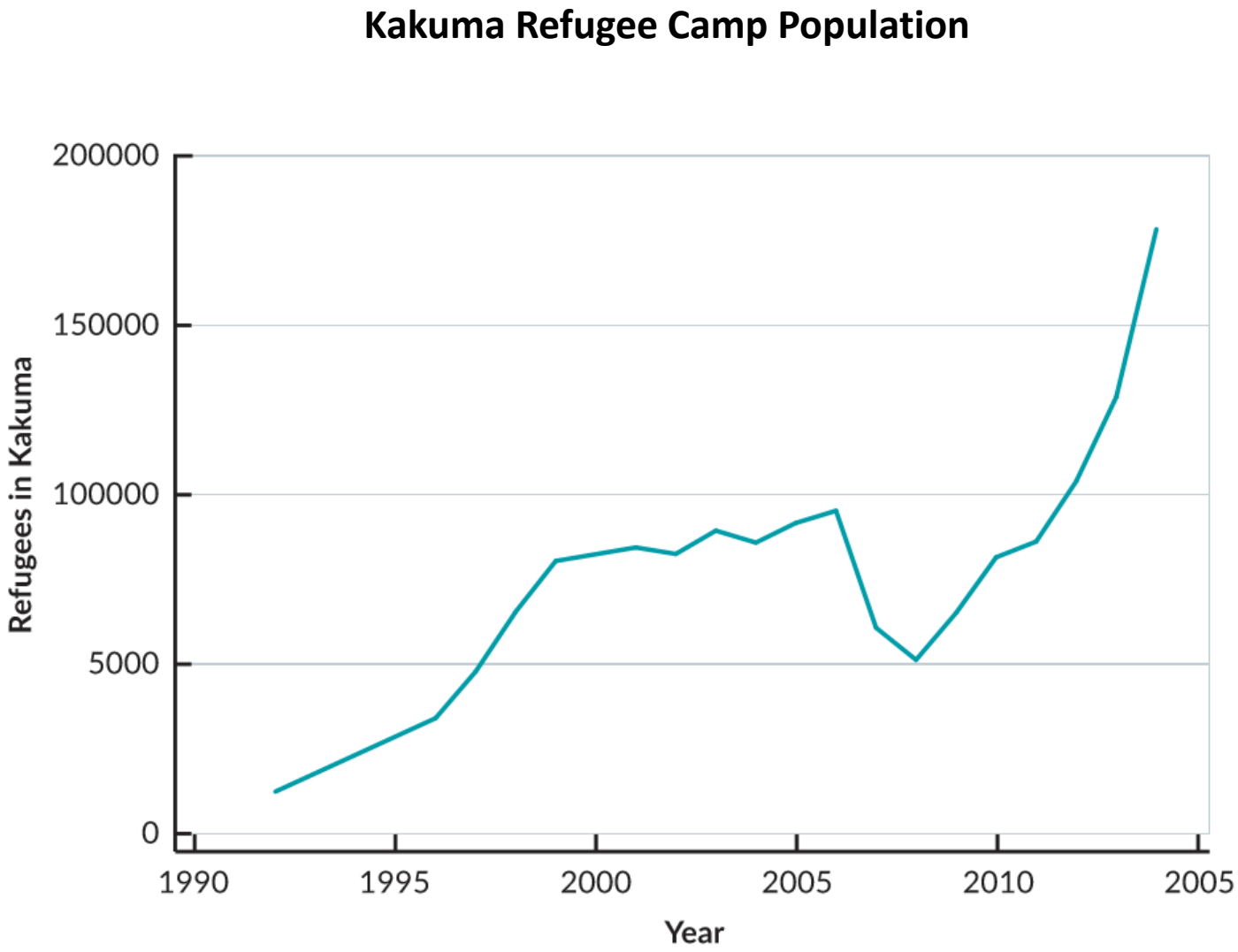
Harun Onder (WB)
with
Erhan Artuc (WB), and
Jennifer Alix-Garcia (UWM)



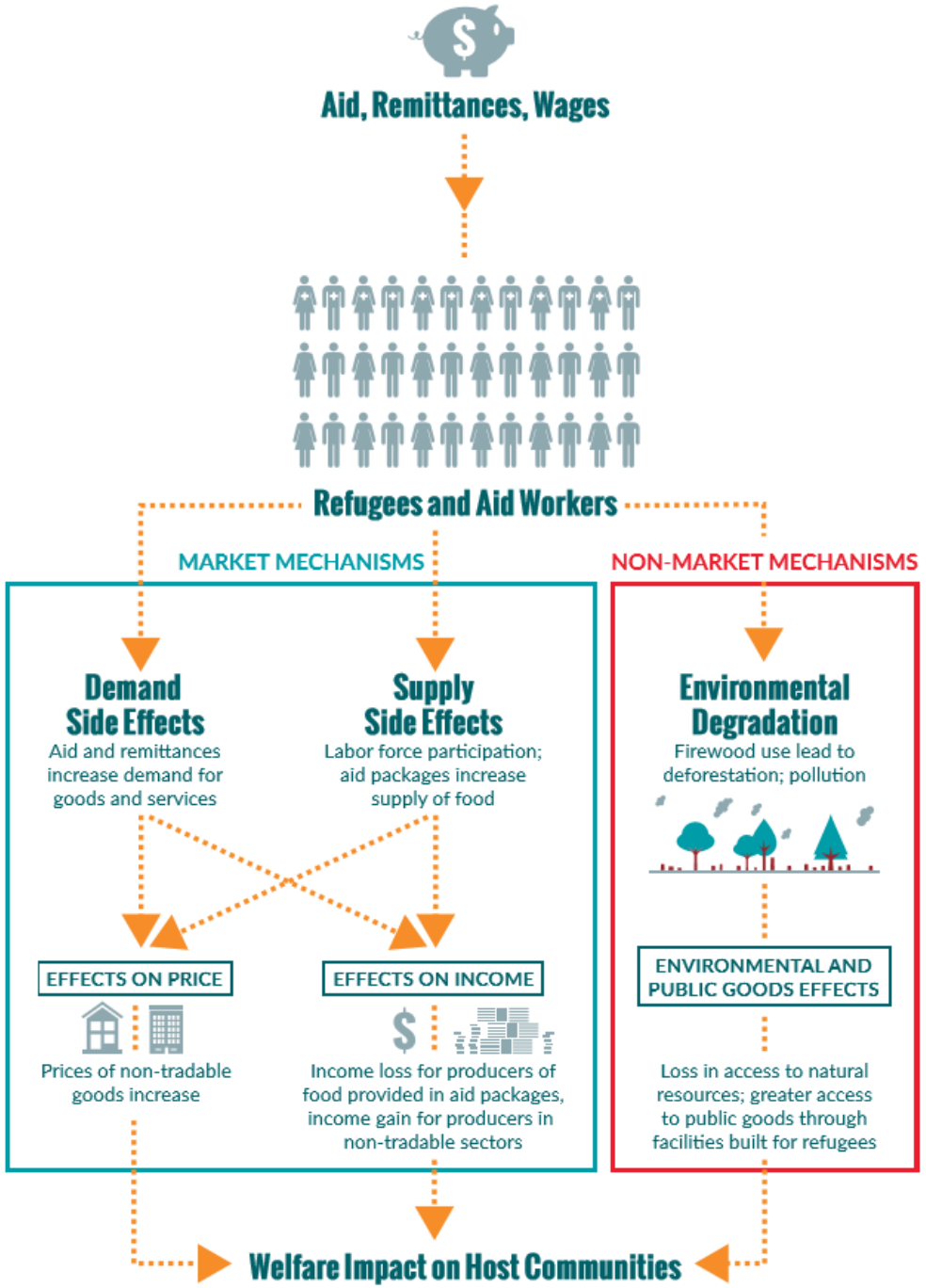
Painting by “lost boy” Bol Aweng

Painting by “lost boy” Bol Aweng

Kenya… Turkana… Kakuma… and refugees



Source: UNHCR



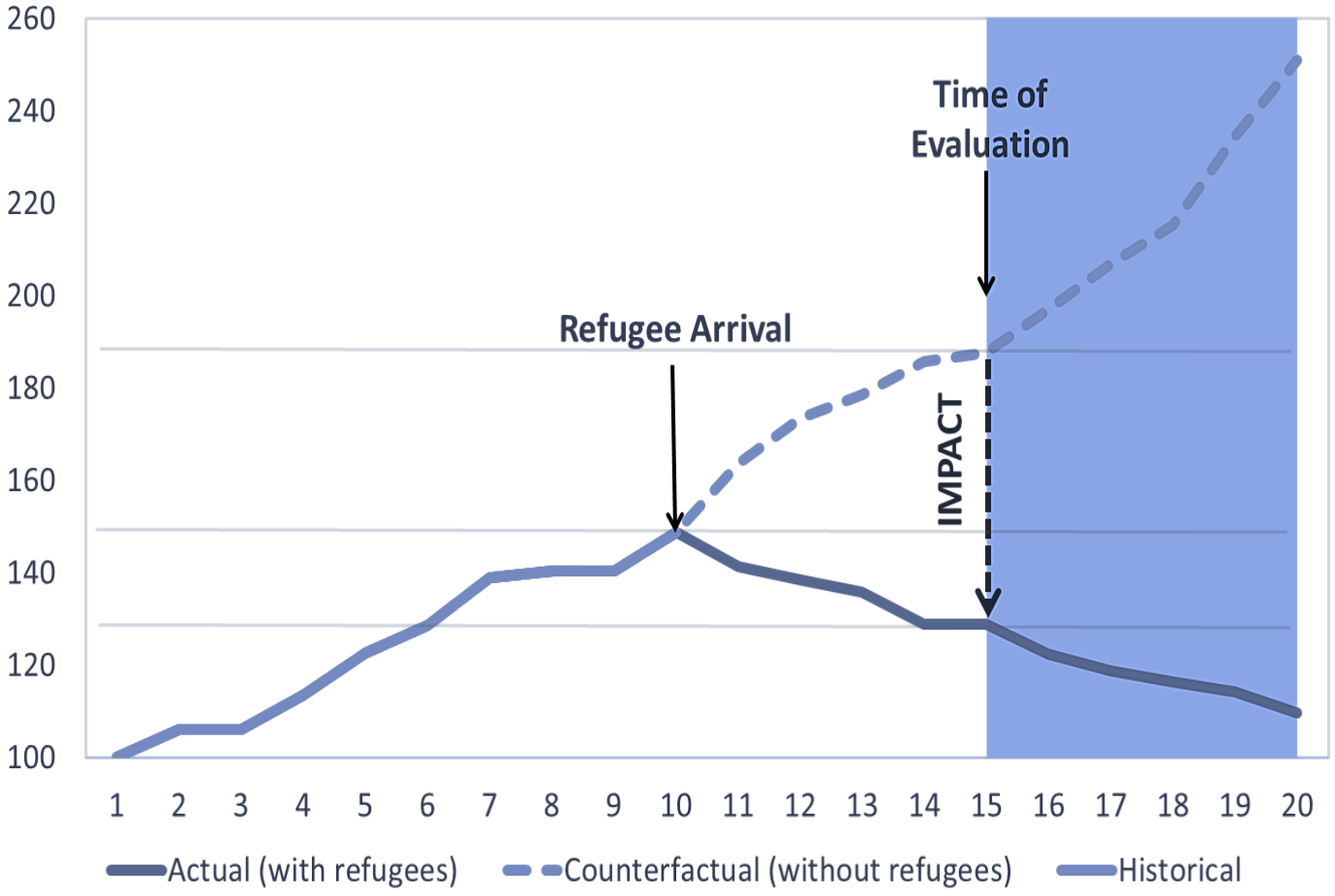
Questions

What has been the impact of refugees in Kakuma Camp on host community welfare?

Which factors (or policy choices) have magnified the positive impacts and which factors have augmented the negatives?

Going forward, what would be the economic implications of various policy options for the host communities?

The problem with measuring the impact is…



We need to know how things would be had they not happen as they did.

However, this has proven to be difficult in this case:

- No pre-refugee data from Kakuma
- No truly valid counterfactual towns

Analytical Approach

1. Use a variety of summary statistics from different sources of data to generate an empirical base.

2. Run econometric tests and exploit spatial variation when possible.

3. Build a simulation model. Use the empirical base to calibrate the model to the extent possible. Simulate the impact.

4. Map the results from econometric analyses and simulations onto each other.

5. Use the model to simulate the possible outcomes of policy actions going forward.

Sources of Existing Data

- **Kenyan Census:** Years 1979, 1989, 1999, and 2009 (GOK, 1989, 1999, 2009).
- **Registration Census by Hunger Safety Net Program (HSNP)**: provides data for "proxy means test"; conducted between October 2012 and June 2013.
- **Famine Early Warning System (FEWSNET):** provides monthly price data on agricultural and some livestock goods from 2000 onwards for 11 markets throughout Kenya.
- **Livestock Information Network Knowledge System (LEWS):** bi-monthly livestock prices from 37 markets between 2004 to 2013.
- **UNHCR refugee counts:** until December 2015
- **WFP Statistics:** monthly food deliveries to Kakuma from 2007 on.

Collection of new data: household survey

Two types of surveys (conducted in June-July 2015):

Kakuma Camp Survey

Ethnicity	Number surveyed	Percent of total	Number in camp	Percent in camp
Somali	40	23.4	56,178	31
Dinka	50	29.4	89,973	50
Nuba	11	6.5		
Darfuri	20	11.8	9,785	5
Congolese	20	11.8	9,045	5
Ethiopian	29	17.1	7,821	4

Turkana Survey

Subsample	Number of households
Kakuma	111
Lokichar	116
Lorugum	103
Lokichoggio	118
Total	448

Three Modules:

- **Demographics:** household, past member roster, violent incidents, education and health
- **Income:** economics activities, transfers receives/sent, consumption and assets
- **Perceptions:** risks and perceptions about the future

Simulation slides with blue side bars from now on

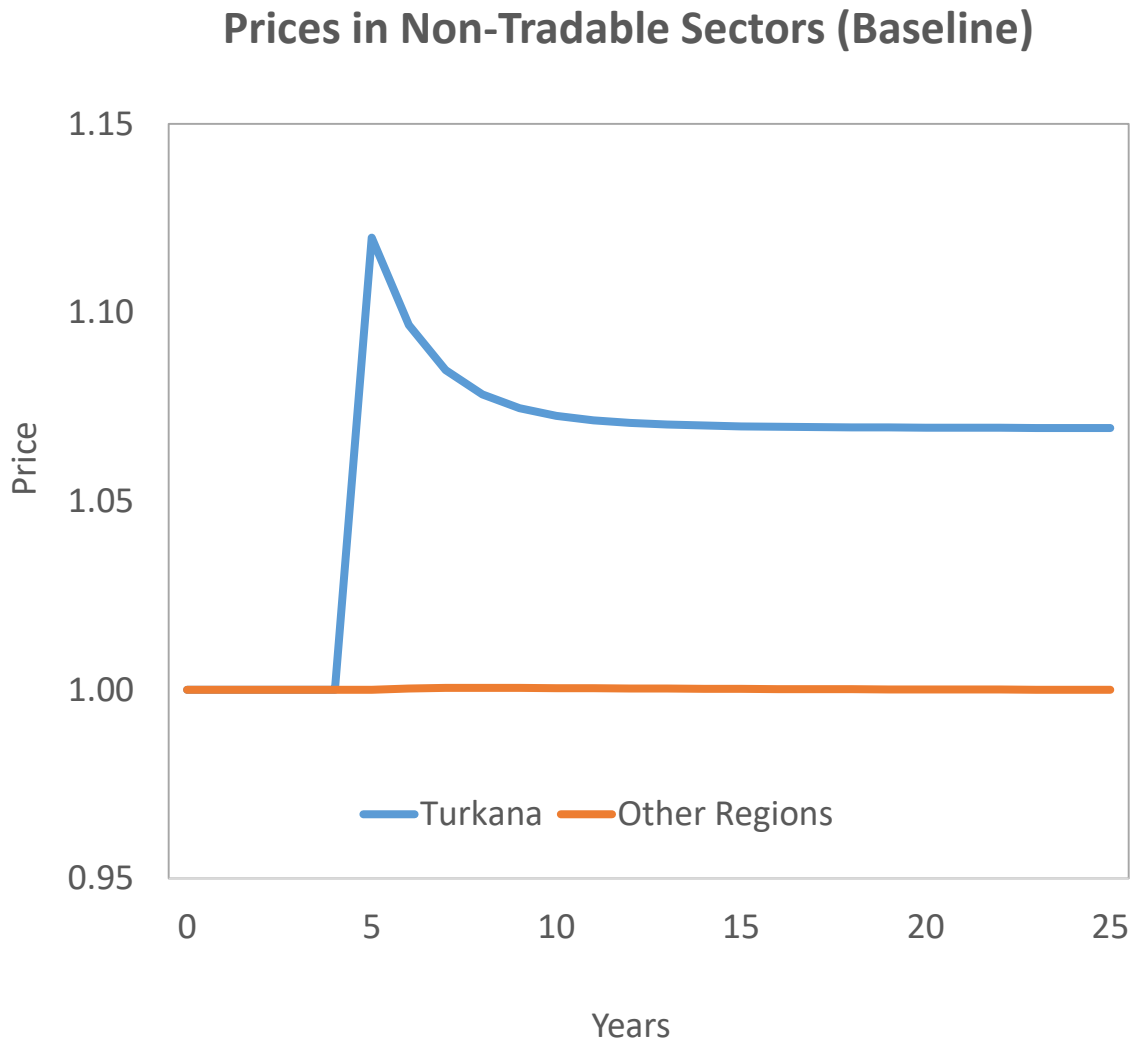
Simulation Model

- **Spatial structure:**
  - 40 identical regions, based on Turkana's population share in Kenya
- **Households:**
  - Two types of origin (local, refugee), two types of skill (skilled, unskilled)
  - Individuals change sector and/or location based on wage differentials
- **Production and Markets:**
  - Competitive labor and goods markets
  - Production uses both skilled and unskilled labor (imperfect substitutes)
  - Refugees and locals perfect substitutes

- **Policy space:**
  - Encampment/free mobility of refugees (skill-based decision possible)
  - Labor force participation of refugees (skill-based decision possible)
- **Channels/indicators of impact:**
  - Prices, wages, user fees, and lifetime income
- **Time composition:**
  - Dynamics can separate between short and medium term effects

SOME RESULTS: IMPACT

Refugee presence should boost the prices of non-tradables



- Prices in tradable sectors should not be affected
- In the medium-term a large positive effect on non-tradable prices in Turkana and, to a lesser extent, elsewhere,
- In the long-term some of this tapers off, but a large part remains permanently.

No data on effects on rental prices, but signs abound

Summary statistics from household survey, housing

	Mean Kakuma	Mean Non-Kakuma	P-value diff	Obs Kakuma	Obs Non-Kakuma
Non-traditional roof	0.171	0.256	0.084	111	219
More than one room in house	0.198	0.315	0.025*	111	219
Brick or metal walls	0.036	0.110	0.023*	111	219
Receive water from pipe	0.135	0.265	0.007**	111	219
Owns home	0.991	0.932	0.017*	111	219
Monthly rent for home	1500.000	2233.333	N/A	1	15
Year house built	2004.624	2005.410	0.465	109	212
Date household head began living in current location	1995	1990	0.027*	71	203

Land Prices

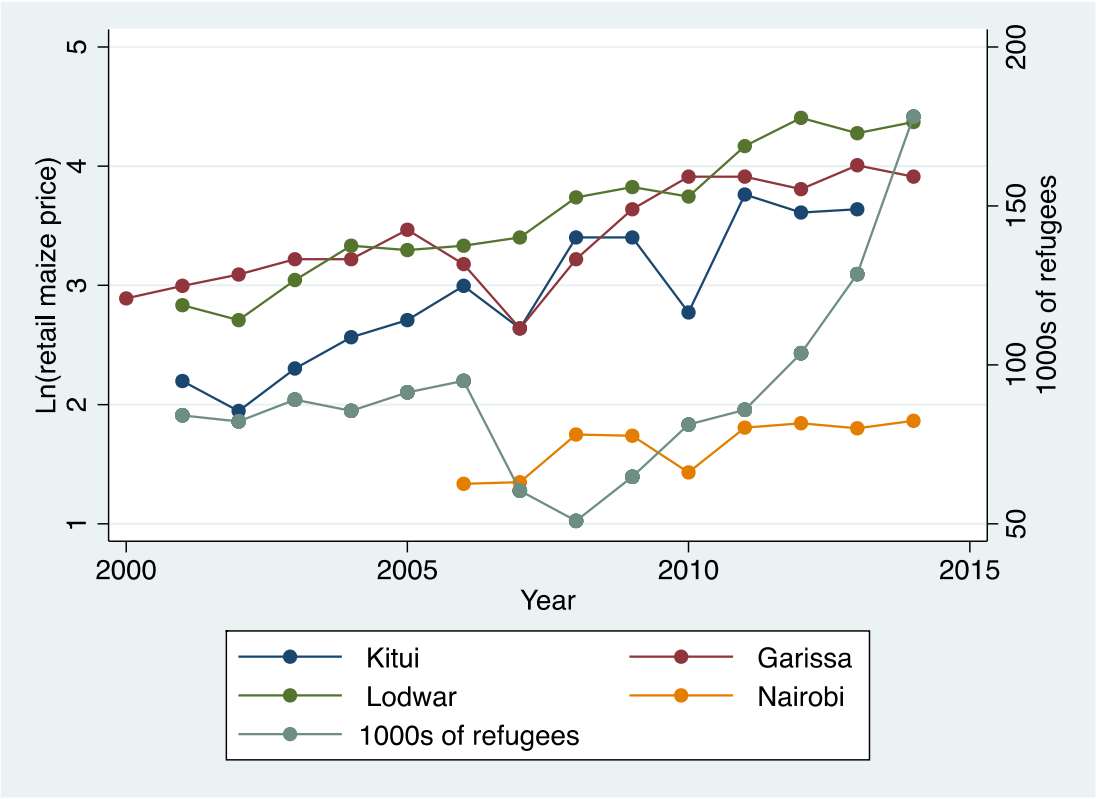
Size in meters	Price in KS
20 x 50	50,000
100 x 50	70,000
100 x 100	200,000
300 x 300	270-280,000
400 x 400	380,000
500 x 500	500,000

Source: Kakuma Turkana chief clerk, June 2015

What do we observe? Price effects

Cannot detect effect on corn; livestock prices increase with aid

Corn Prices and Refugee Population



Correlation between livestock prices and aid

Cattle	Male	Male	Female	Female
Ln(aid) x 1/(km to Kakuma)	1.6659***	1.7102***	0.8163***	0.7615***
	(0.2495)	(0.2510)	(0.1985)	(0.1997)
Ln(volume sold)	0.0774***		0.0880***	
	(0.0114)		(0.0091)	
N	2981	2986	6874	6885
r2	0.21	0.197	0.216	0.205
Goats				
Ln(aid) x 1/(km to Kakuma)	0.0898*	0.0744	0.1777**	0.1662**
	(0.0540)	(0.0545)	(0.0694)	(0.0694)
Ln(volume sold)	0.0767***		0.0419***	
	(0.0118)		(0.0121)	
N	2027	2028	3042	3042
r2	0.54	0.53	0.362	0.359

Dependent variable: ln(price in shillings). Regressions include fixed effects at market and year/month level. Data is biweekly prices. Standard errors clustered at market level from 26 markets. *p<.10, **p<.05, *** p< .01.

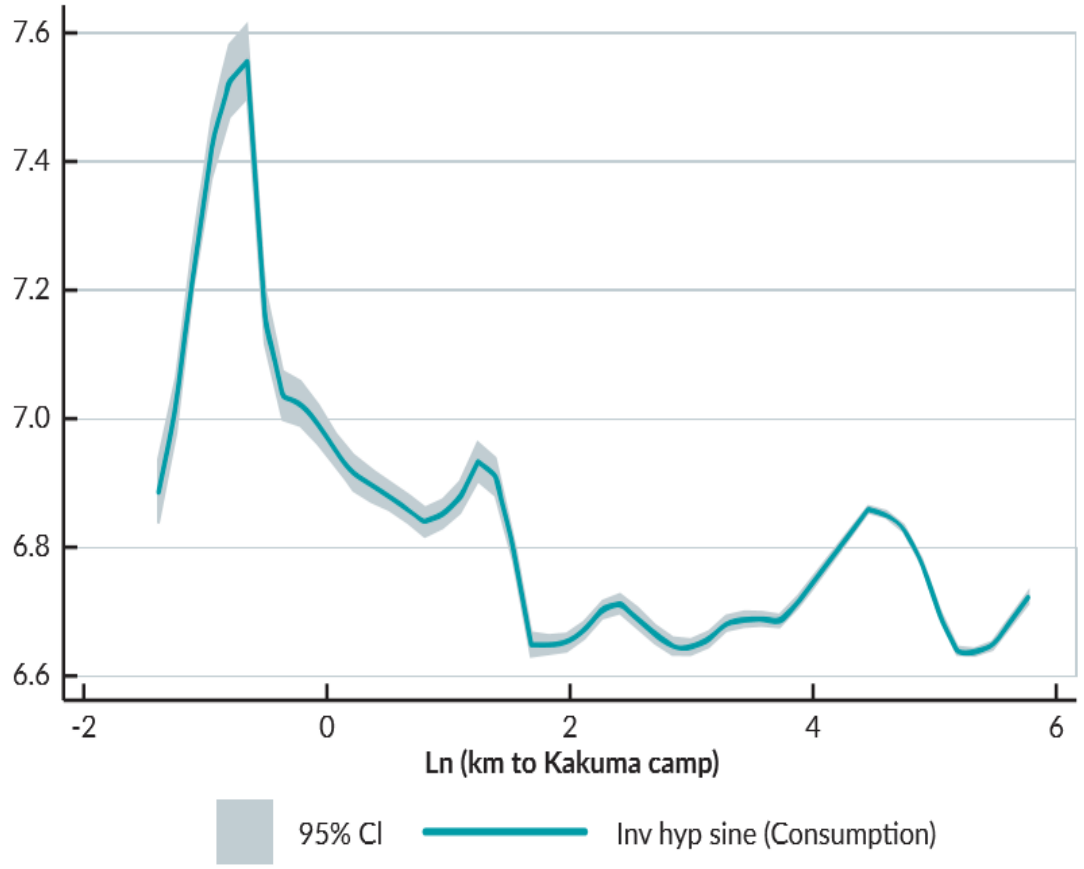
Overall, refugee arrival should boost local incomes

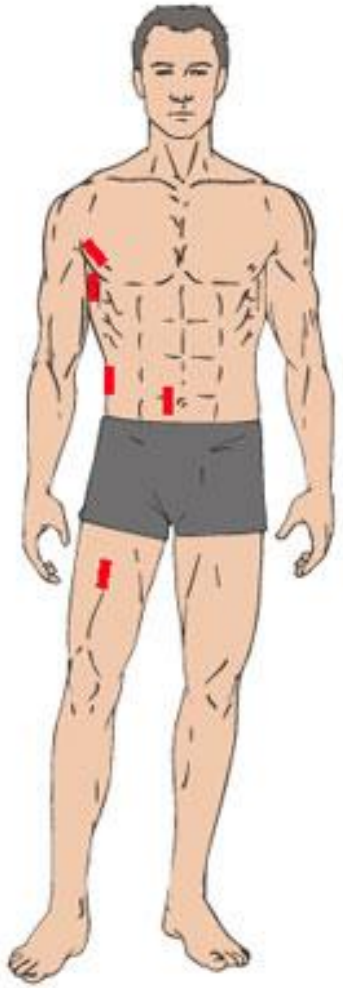
	BEFORE ARRIVAL	ARRIVAL YEAR	+5 YEARS	+10 YEARS	+15 YEARS	+20 YEARS	+30 YEARS	+50 YEARS
	(Percentage change from initial equilibrium							
TURKANA								
Gross Regional Product (GRP)	0.0	**2.6**	3.4	3.4	3.4	3.4	3.4	3.4
Tradable	0.0	**-5.7**	-7.1	-7.1	-7.2	-7.2	-7.2	-7.2
Non-tradable	0.0	**5.7**	7.3	7.4	7.4	7.4	7.4	7.4
Employment (locals only)	0.0	**1.2**	2.8	2.9	2.9	2.9	2.9	2.9
Tradable	0.0	**-2.7**	-6.0	-6.3	-6.3	-6.3	-6.3	-6.4
Non-tradable	0.0	**2.7**	6.2	6.5	6.5	6.5	6.5	6.5
Gross Regional Income (GRI)	0.0	**2.6**	3.4	3.4	3.4	3.4	3.4	3.4
GRI per local person	0.0	**1.4**	0.6	0.5	0.5	0.5	0.5	0.5
Non-tradable prices	0.0	**12.0**	7.3	7.0	6.9	6.9	6.9	6.9

	BEFORE ARRIVAL	ARRIVAL YEAR	+5 YEARS	+10 YEARS	+15 YEARS	+20 YEARS	+30 YEARS	+50 YEARS
REST OF KENYA								
Gross Regional Product (GRP)	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
Tradable	0.0	**0.0**	0.0	0.0	0.0	0.0	-0.1	-0.1
Non-tradable	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
Employment (locals only)	0.0	**0.0**	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Tradable	0.0	**0.0**	0.0	0.0	-0.1	-0.1	-0.1	-0.1
Non-tradable	0.0	**-0.1**	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Gross Regional Income (GRI)	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
GRI per local person	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
Non-tradable prices	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0

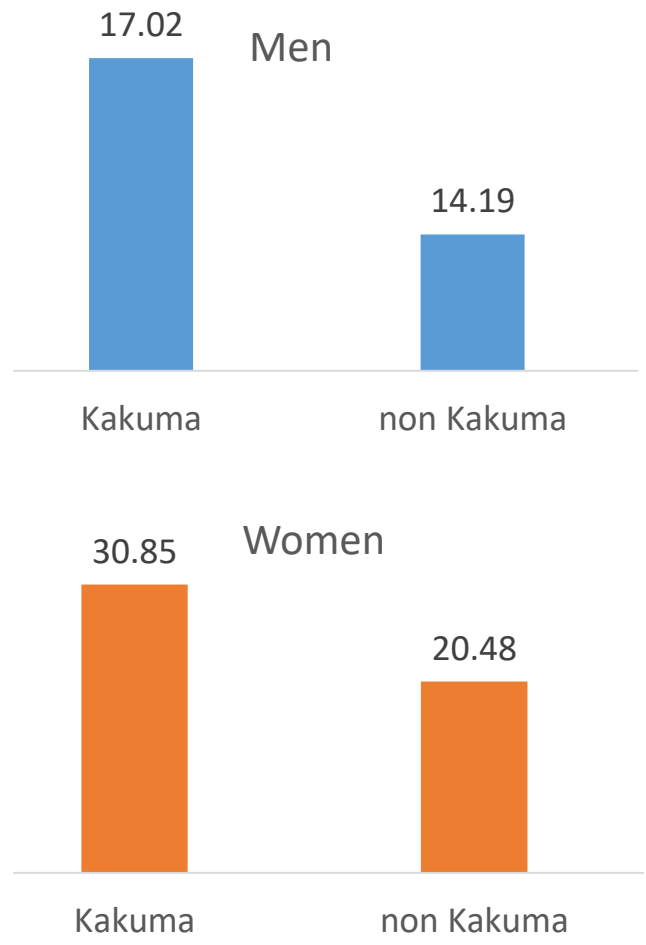
The closer to the camp, the higher the consumption

Per Capita Consumption and Distance to Camp





Sum of Skin Folds (SSF)



Source: Vemuru et al (2016)

A tragic event turned to a natural experiment

What do we observe? Income effects

Kenya shuts Somali-linked money transfer firms

8 April 2015 | Africa

Remittances to Somalia from around the world are estimated to be worth around $1.6bn a year

Kenya's government has ordered the closure of 13 money transfer firms to prevent militant Islamists from using them to finance attacks, the interior minister has told the BBC.

MONEY MARKETS

Dahabshiil resumes operations after CBK lifts ban

SHARE BOOKMARK PRINT RATING

One of two Dahabshiil's branches in Nairobi. The money transfer firm resumed operations after CBK lifted its suspension. PHOTO | JENNIFER MUIRURI | NATION MEDIA GROUP

By BD REPORTER

Posted Monday, June 22 2015 at 18:27

IN SUMMARY

- Kenya has lifted suspension of Somali remittance firm Dahabshiil that was banned with 12 others in April following a deadly attack that killed 148 Garissa University students.
- The money transfer firms were among a list of 85 entities with alleged links to Somalia's Al Shabaab.

Remittances before the Garissa massacre

Refugee transfers

	Mean	SD	Obs
Received transfer in past 12 months	0.612	0.489	170
Receives transfers through a formal service	0.212	0.410	104
Transfers have decreased since April	0.452	0.500	104

Transfer behavior, Turkana households

	Mean Kakuma Town	Mean Non-Kakuma	P-value diff	Obs Kakuma	Obs Non-Kakuma
Cash transfers received	0.144	0.082	0.081*	111	219
Uses informal transfers	0.062	0.000	0.296	16	18
Transfers have decreased	0.250	0.056	0.117	16	18
Amount of last transfer	7700.000	1239.056	0.004**	16	18

Refugees' purchasing power has a direct effect on Turkana income

Consumption change regressions, household survey

	Sugar	Tea	Meat	Number of food items	Number of luxury items
a. Purchase good (0/1)					
In Kakuma town subsample	-0.1129*	-0.1466**	-0.0876*	-0.4299**	0.0225
	(0.0587)	(0.0587)	(0.0496)	(0.1754)	(0.0892)
N	330	330	330	330	330
r2	0.005	0.008	0.004	0.009	0

SOME RESULTS: WHAT IF?

Whither Kakuma?

- Partial Integration Scenario
- Complete Integration Scenario
- Decampment

What do we expect?

Integration dampens decampment

	INTEGRATION/ DECAMPMENT YEAR	+5 YEARS	+10 YEARS	+15 YEARS	+20 YEARS	+30 YEARS	+50 YEARS
	Turkana: Gross Regional Product (GRP)						
	(Percentage change from initial equilibrium)						
Limited integration	**4.7**	0.1	-0.3	-0.4	-0.4	-0.4	-0.4
Full integration	**15.1**	0.3	-2.1	-2.7	-2.8	-2.9	-2.9
Decampment	**-2.6**	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3
	Turkana: Employment (locals only)						
	(Percentage change from initial equilibrium)						
Limited integration	**-0.8**	-1.2	-0.8	-0.6	-0.5	-0.4	-0.4
Full integration	**-3.6**	-7.0	-5.2	-3.9	-3.3	-2.9	-2.8
Decampment	**-1.2**	-2.7	-2.8	-2.8	-2.8	-2.8	-2.8
	Turkana: Gross Regional Income (GRI)						
	(Percentage change from initial equilibrium)						
Limited integration	**0.8**	-1.6	-1.1	-0.7	-0.6	-0.5	-0.5
Full integration	**2.3**	-5.3	-4.7	-3.9	-3.6	-3.3	-3.3
Decampment	**-2.6**	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3
	GRI per local person (GRIplp)						
Limited integration	**1.6**	-0.5	-0.3	-0.2	-0.1	-0.1	-0.1
Full integration	**6.1**	1.9	0.5	0.0	0.3	-0.4	-0.5
Decampment	**-1.4**	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5

	INTEGRATION/ DECAMPMENT YEAR	+5 YEARS	+10 YEARS	+15 YEARS	+20 YEARS	+30 YEARS	+50 YEARS
	Rest of Kenya: Gross Regional Product (GRP)						
	(Percentage change from initial equilibrium)						
Limited integration	**0.0**	0.1	0.1	0.1	0.1	0.1	0.1
Full integration	**0.0**	0.4	0.4	0.4	0.4	0.4	0.4
Decampment	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
	Rest of Kenya: Employment (locals only)						
	(Percentage change from initial equilibrium)						
Limited integration	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
Full integration	**0.1**	0.2	0.1	0.1	0.1	0.1	0.1
Decampment	**0.0**	0.1	0.1	0.1	0.1	0.1	0.1
	Rest of Kenya: Gross Regional Income (GRI)						
	(Percentage change from initial equilibrium)						
Limited integration	**0.0**	0.1	0.0	0.0	0.0	0.0	0.0
Full integration	**0.0**	0.2	0.1	0.1	0.1	0.1	0.1
Decampment	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
	GRI per local person (GRIplp)						
Limited integration	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0
Full integration	**-0.1**	0.0	0.0	0.0	0.0	0.0	0.0
Decampment	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0

Conclusions

- Positive aggregate effects in net terms
- Uneven distribution of effects (both positive and negative)
- Concentration in space
- Concentration in time
- Scaling and diffusion of effects by integration

Empirical slides with orange side bar from now on

Empirical Methods Used

Summary Statistics Comparison:

	Mean Kakuma	Mean Non-Kakuma	P-value diff	Obs Kakuma	Obs Non-Kakuma
Cash income per capita	12771.446	6450.240	0.056*	111	219
Owned house 2005	0.541	0.530	0.852	111	219
Owned car 2005	0.000	0.000	.	111	219
Owned moto 2005	0.027	0.014	0.393	111	219
Owned bicycle 2005	0.117	0.027	0.001***	111	219
Owned refrigerator 2005	0.000	0.000	.	111	219
Owned television 2005	0.009	0.005	0.624	111	219
Owned radio 2005	0.117	0.082	0.306	111	219
Owned cell phone 2005	0.198	0.192	0.890	111	219
Owned generator 2005	0.000	0.000	.	111	219
Owned computer 2005	0.000	0.005	0.477	111	219
Owned camera 2005	0.000	0.005	0.477	111	219
Sum of assets 2005	1.009	0.858	0.186	111	219
Change assets 2005-2015	0.117	0.082	0.674	111	219

Spatially Stratified Differences:

	(1) Has animals	(2) Ln(livestock cared for)	(3) Ln(livestock owned)
a. Difference across subsamples			
In Kakuma subsample	0.0527	0.6547	0.1122
	(0.0876)	(0.4732)	(0.4272)
N	330	154	154
r2	0.001	0.007	0
b. Averages by distance band and subsamples			
Less than 2 km to town	0.2674***	1.5027***	2.5987***
	(0.0441)	(0.2398)	(0.3860)
Between 2 and 8 km from town	0.4443***	2.9126***	3.7280***
	(0.0678)	(0.0102)	(0.1033)
Less than 2 km to Kakuma	0.1018	1.0797***	0.5379
	(0.0708)	(0.3316)	(0.4438)
Between 2 and 8 km to Kakuma	0.0172	0.2715*	-0.2589**
	(0.1178)	(0.1330)	(0.1057)
N	330	154	154
r2	0.419	0.661	0.814

Transfers part of the income module

B3: TRANSFERS

1. Has any member of your household received any money transfers from outside of the camp during the past 12 months?

1. YES
2. NO

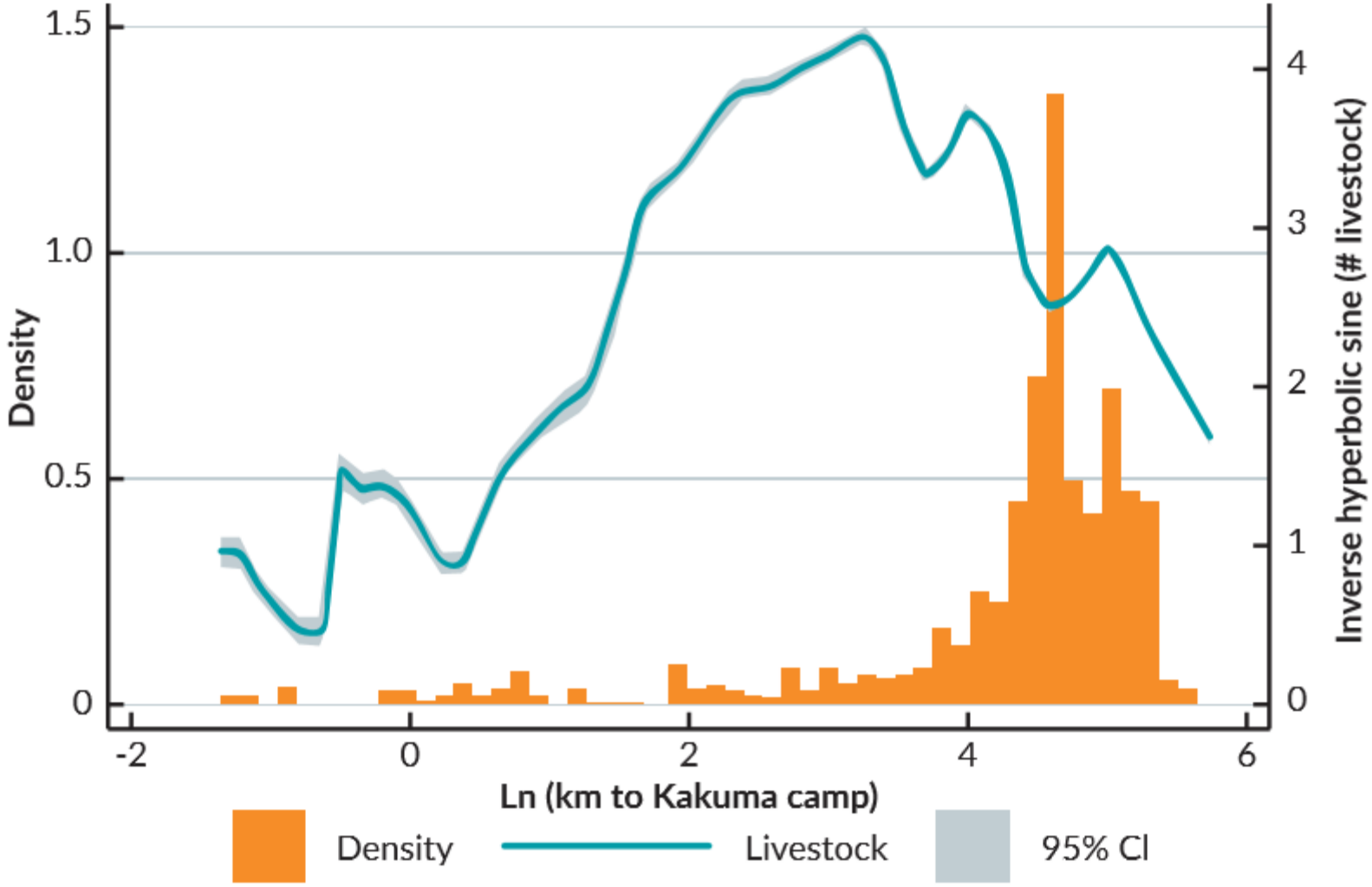
	CODE

(IF NO, SKIP TO TABLE B4 >>)

2. How often does your household receive these money transfers? **(NOTE FREQUENCY AND TIME, for example: 1 PER MONTH)**		3. How much in total did your household receive last time you received a money transfer?	4. Through which service does your household usually receive these transfers?	5. Since April of 2015, has the frequency of your transfers … **READ OPTIONS OUTLOUD**	6. IF HOUSEHOLD DOES NOT USE FORMAL TRANSFERS (i.e., anything but "2. Moneygram, Western Union" in question 4):
			1. Hawala, Amaal Express, Kaah Express, Dahabshil 2. Moneygram, Western Union, or other formal service 3. Mobile Money (MPesa) 4. Relative / friend from within Kenya 5. Other (SPECIFY)	1. Increased substantially 2. Increased slightly 3. Remained the same 4. Decreased slightly 5. Decreased substantially	Why do you prefer this system of transfer to using a formal service? (WRITE ALL THAT APPLY) 1. It is safer 2. Fees are lower 3. Currency rates are more favorable 4. Readily available 5. Other (SPECIFY)
A. NUMBER	B. UNIT (month, year, etc.)	KSH	CODE	CODE	CODE(S) SEPARATED BY COMMAS

Wage effects should be different across sectors and skill levels

The herd-displacement effect



Source: World Bank staff calculations using HNSP 2011 data