The impact of hosting refugees on the intra-household allocation of tasks: A gender perspective

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Today

- In this study
- Refugees in Tanzania
- Gender impacts
- Data and methodology
- Results
- Conclusions

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In this study …

- Focus on household dynamics.
- The consequences of hosting refugees are not gender neutral.
- Explanations of channels.
- Differences across women.
- Evidence from Tanzania.
  - Longitudinal from 1991 (before arrival of refugees) and 2004 (after refugees).
  - Quasi natural experiment.

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Refugees in Tanzania: the refugee shock

- Major ethnic civil conflicts in Burundi and Rwanda during the years 1993 and 1994.
- Over 1 million abandoned these two countries and moved to neighbouring Tanzania in order to escape the violence.

Video 1 Video 2

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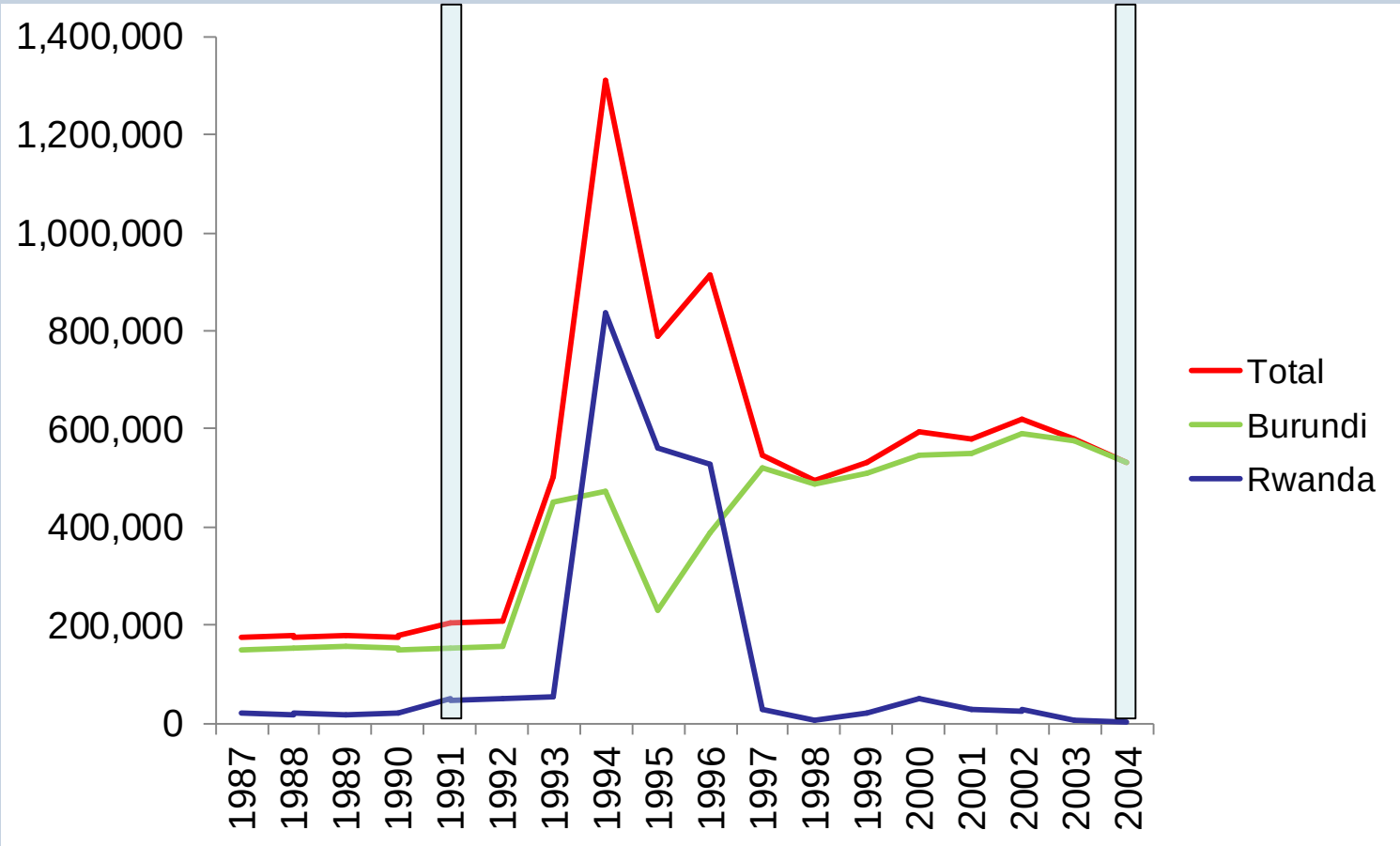
Refugees from Rwanda and Burundi in Tanzania



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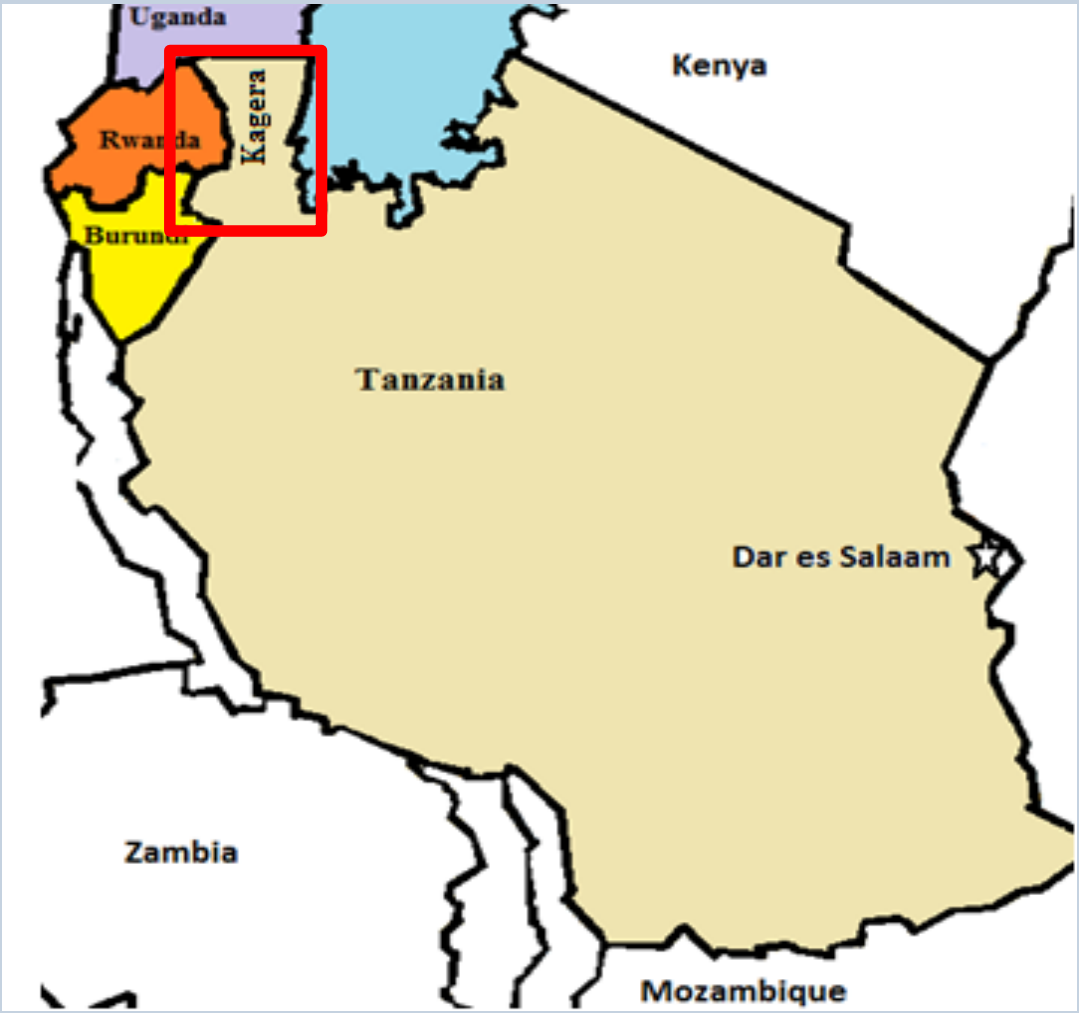
Tanzania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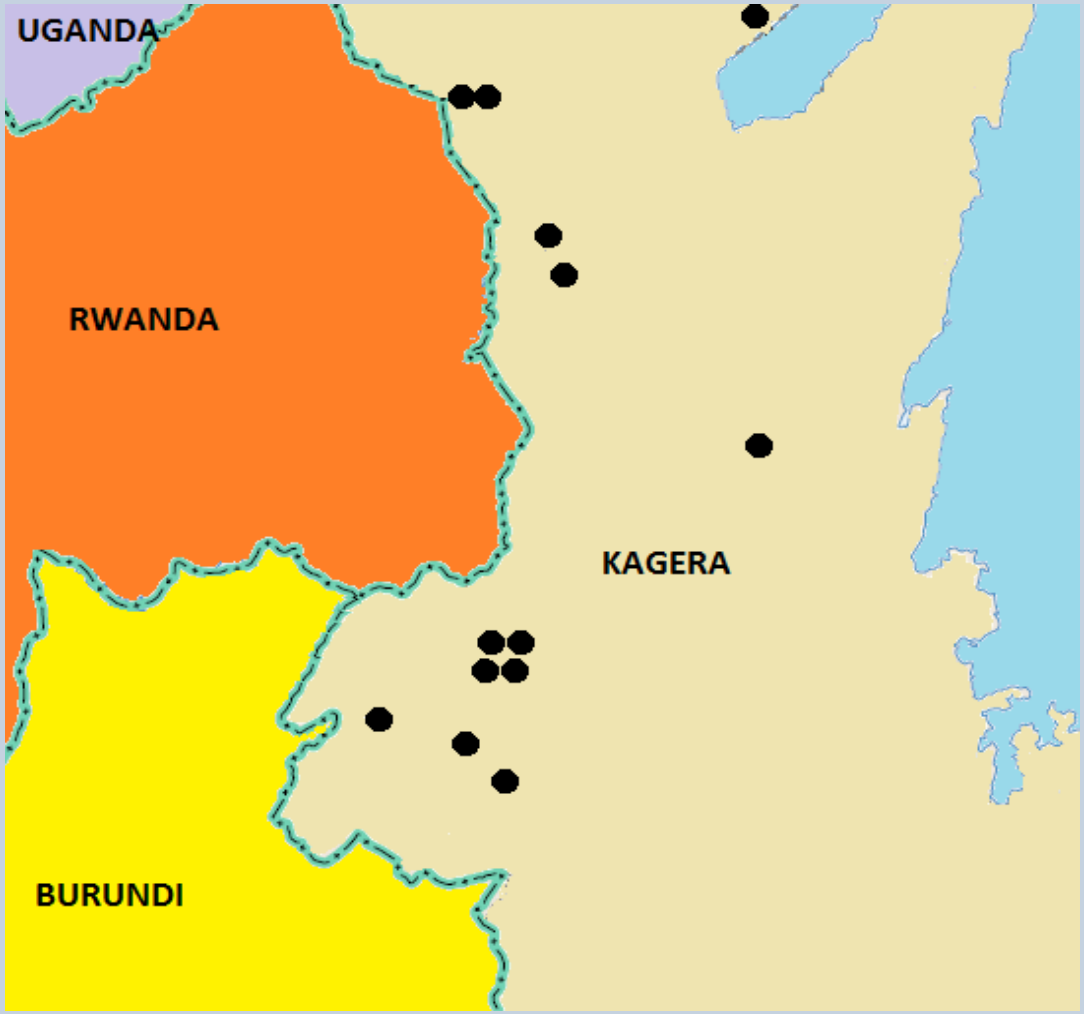

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  - Competition for resources
  - Role of casual labour
  - Changing demand
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Competition for resources

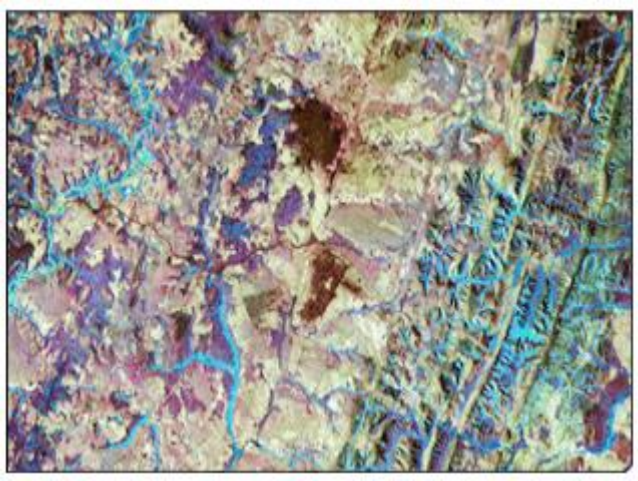
- Refugees often categorised as “resource degraders”.
  - Refugees had to cut trees in order to use the wood for shelter and cooking, and to clear space for cultivating crops.
  - Soil erosion, depletion and pollution of water resources.
- Whitaker (1999): refugees in Tanzania used more firewood per person than locals.
  - Less likely to put out fires in between meals because of the lack of matches.
  - Depended more on dried food rations that take longer to cook than the crops consumed by locals

UNHCR estimates

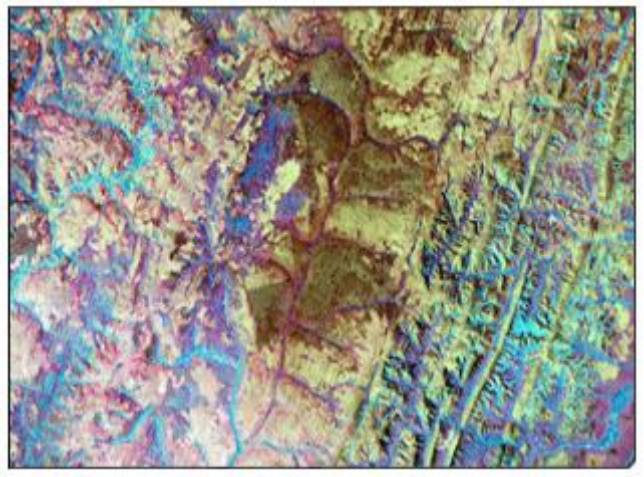
- At the peak of the refugee crisis in Kagera, the camps consumed about 1,200 tons of firewood each day.
- By 1996 225km^2 had been completely deforested and 470km^2 had been partially deforested.

Benaco and Mushuhura: 1994 vs 1996

1994



1996



Firewood and drinking water

- In rural Tanzania it is common for households to collect firewood for cooking and fetch drinking water on a frequent basis.

- Additional time spent on these activities can restrict involvement in other activities.

Water sources

	Dry season		Rainy season	
	1991	2004	1991	2004
Public tap	4%	10%	6%	14%
Well no pump	12%	14%	8%	12%
Well with pump	2%	10%	2%	10%
Natural	82%	65%	84%	63%

Competition for resources

- Berry (2008): the presence of refugees meant that it was necessary to “travel much greater distances to find firewood and wood for construction than was necessary 10 years ago.”
- Whitaker (1999): “Those responsible for collecting firewood, generally women and children, spent more time and energy going further away in their search for wood. This reduced time available for other productive activities. Many women either farmed or got firewood on any given day, rather than doing both.”

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Evidence for high income countries

- Cortes (2008): low-skilled immigration lowers the price of household services.
- Cortes and Tessada (2011): for individuals with high enough productivity outside the household it is optimal to outsource household chores and increase time dedicated to outside employment.
  - Low-skilled immigration increases hours of work and the probability of working long hours of women at the top quartile of the wage distribution.
  - These women decrease the time spend in household work and increase expenditures on housekeeping services.

In the low-income country/refugee context

- There is a surplus of casual labour.
- Reports suggest that in some areas close to the camps, the wage rate for casual work decreased by 50% (Whitaker, 2002) and there is evidence that the refugees substituted casual local workers (Ruiz and Vargas-Silva, 2015, 2016).
- Some local women could employ refugees willing to work for a low pay to help with their household chores and dedicate more time to other activities.
- More likely for women with "higher productivity".

Literacy and math skills

Basic literacy and math skills could make a difference.

Literate women:

- Less likely to compete with refugees in the labour market.
- Could take advantage of new work opportunities (e.g. work in administrative capacities for camps or NGOs).
- Use the cheaper labour supply represented by refugees to help with household chores.

Literacy

- Illiterate women:
  - Less likely to take advantage of the presence of the cheap refugee labour supply.
  - Still need to make adjustments for the increase in competition for natural resources represented by refugees.

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Food crops vs cash crops

- Women typically responsible for crops that are meant for household consumption (i.e. food crops).
- Men are responsible for crops that are intended to generate income (i.e. cash crops).

Changing demand

- A consequence of the refugee shock in Tanzania was an increase in demand for specific agricultural products (Alix-Garcia and Saah, 2009).
- Evidence of international agencies increasing the demand for wood and the price of tree farms (Whitaker, 1999).
- Qualitative evidence suggest that male members of the household started dedicating more time to cultivating crops that were traditionally managed by women (Whitaker, 2002).

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Identification based on natural experiment

- Forced migrants were not evenly distributed across the Kagera.
- Natural topographic barriers, logistical decisions and, above all, distance from Burundi and Rwanda resulted in a much higher concentration western part in comparison to the eastern part.
- The large majority of refugees were hosted in refugee camps. Logistically, camps were placed close to the borders (Maystadt and Verwimp, 2014).
- Possible to use distance to the refugee camps for identification.

Previous papers using this quasi natural experiment to analyse other aspects ….

- Baez (2011).
- Maystadt and Verwimp (2014).
- Ruiz and Vargas-Silva (2015).
- Ruiz and Vargas-Silva (2016).

Data

- We use two rounds of the KHDS data, 1991 (pre-shock) and 2004 (post-shock).
- Initially conducted in 51 communities, but individuals were tracked over time even if they moved out of the community.
- Over 90% of the original households were re-interviewed in the 2004 round of the survey.

Impact of refugees

- Use GPS data for distance to the refugee camps.
- S_{jt}: sum of the 1991 (i.e. pre-shock) distance (*D*) of the community of residence to each refugee camp (*r*), weighted by the peak population (*P*) of each camp.
- Interact with time dummy (τ): 1991 = 0, 2004 = 1.

$$S_{jt} = \log\left(\sum_{r=1}^{13} \frac{P_r}{D_{j,r}}\right)$$

We focus on…

… the impact of the shock on three different activities:

- Farming
- Outside employment
- Fetching water/collection of firework

- Focus on likelihood of engaging in the activity and time dedicated to the activity.

Impact of refugee shock on likelihood of engaging and time spent on a task using 1991 (i.e. pre-shock) data

Independent variable	Farming	Outside employment	Fire and water
	Likelihood of engaging		
Refugee shock	0.07 (0.54)	-0.15 (-1.16)	-0.05 (-0.26)
	Time spent on task		
Refugee shock	2.80 (0.85)	-6.15 (-0.96)	0.54 (0.37)
Controls	X	X	X
Observations	2,625	2,625	2,625

Share engaged in different tasks

Activity	1991 (pre-shock)		2004 (post-shock)	
	Women	Men	Women	Men
	All			
Farming	0.72	0.66	0.66	0.57
Outside employment	0.08	0.19	0.24	0.51
Fire and water	0.71	0.68	0.60	0.45
Observations	1,418	1,257	1,418	1,257
	Below median shock			
Farming	0.70	0.62	0.62	0.50
Outside employment	0.07	0.22	0.25	0.60
Fire and water	0.68	0.67	0.56	0.46
Observations	685	629	685	629
	Above median shock			
Farming	0.74	0.70	0.71	0.63
Outside employment	0.09	0.16	0.23	0.43
Fire and water	0.75	0.68	0.63	0.43
Observations	733	628	733	628

Hours spend per week in different tasks

Time spent on	1991 (pre-shock)		2004 (post-shock)	
	Women	Men	Women	Men
	All			
Farming	13.7 [18.9]	12.2 [18.5]	14.0 [21.1]	12.1 [21.3]
Outside employment	1.7 [21.0]	5.9 [31.1]	7.0 [29.4]	20.3 [39.7]
Fire and water	4.7 [6.5]	5.1[7.5]	3.9 [6.5]	2.6 [5.8]
Observations	1,418	1,257	1,418	1,257
	Below median shock			
Farming	12.9 [18.3]	10.3 [16.6]	12.7 [20.6]	9.3 [18.5]
Outside employment	1.8 [26.1]	7.7 [34.8]	8.2 [32.7]	24.9 [42.0]
Fire and water	4.2 [6.2]	5.5 [8.1]	3.5 [6.2]	2.5 [5.5]
Observations	685	629	685	629
	Above median shock			
Farming	14.5 [19.5]	14.1 [20.2]	15.2 [21.5]	14.9 [23.5]
Outside employment	1.5 [17.1]	4.0 [25.8]	5.9 [26.0]	15.6 [36.5]
Fire and water	5.1 [6.8]	4.7 [6.9]	4.3 [6.8]	2.7 [6.1]
Observations	733	628	733	628

Main model

$$H_{ijt} = \beta_1\mu_j + \beta_2 b_{jt} + \beta_3 r_{jt} + \beta_4 u_{jt} + \beta_5\tau_t + \beta_6 m_{ijt} + \beta_7 f_i + \beta_8(\tau_t * S_{jt})$$
$$+ \beta_9(f_i * \tau_t * S_{jt}) + \theta X_{jt} + \varepsilon i_{jt}$$

- H_{ijt} = Dummy indicating whether the individual is engaged in a given task or number of hours dedicated to the task.
- τ_t = time dummy.
- $\tau_t * S_{jt}$ = shock refugee shock.
- f_i = female dummy.
- b_{it}, $r_{it,}$ u_{it}= Distances to Burundi, Rwanda and Uganda
- X_{ijt} = other controls.
- Household fixed effects.

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Impact of the refugee shock on the likelihood of engaging in tasks

Independent variable	(1)	(2)	(3)	(4)
	Farming			
Refugee shock	0.07* (1.91)	0.07* (1.81)	0.04 (0.50)	0.01** (2.12)
Female	0.07*** (3.49)	0.04** (2.15)	0.05*** (2.70)	0.05* (1.70)
Refugee shock* Female	0.00 (1.51)	0.01** (2.40)	0.00 (1.50)	**0.01**** **(2.12)**
	Outside employment			
Refugee shock	-0.07 (-1.13)	-0.09 (-1.56)	0.06 (1.23)	0.06 (1.40)
Female	-0.11*** (-6.26)	-0.12*** (-6.78)	-0.11*** (-5.87)	-0.13*** (-6.51)
Refugee shock* Female	-0.02*** (-7.48)	-0.02*** (-6.53)	-0.02*** (-7.60)	**-0.02***** **(-6.46)**
	Fire and water			
Refugee shock	0.04 (0.73)	-0.00 (-0.08)	-0.05 (-0.88)	-0.03 (-0.44)
Female	0.03 (1.13)	0.06** (2.08)	0.04 (1.15)	0.07** (2.01)
Refugee shock* Female	0.01*** (4.10)	0.01*** (4.74)	0.01*** (4.07)	**0.01***** **(4.63)**
Controls		X		X
Household fixed effects			X	X
Observations	5,350	5,350	5,350	5,350

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Interpretation

- Using the median value of the shock, the results indicate that the presence of refugees leads to women being:
  - 9 percentage points more likely to engage in farming and fetching water/collecting firewood.
  - 18 percentage points less likely to engage in outside employment than men.

Impact of the refugee shock on time allocation

Dependent variable time spent on	(1)	(2)	(3)	(4)
	Farming			
Refugee shock	3.15** (2.11)	2.93** (2.07)	1.49 (0.60)	0.77 (0.29)
Female	1.57*** (2.77)	0.54 (0.96)	1.38*** (2.64)	-10.78 (-0.41)
Refugee shock* Female	0.06 (0.65)	0.17* (1.95)	0.06 (0.70)	**0.16* (1.86)**
	Outside employment			
Refugee shock	-0.98 (-0.89)	-2.47 (-1.26)	1.27 (0.68)	1.51 (0.86)
Female	-4.42*** (-6.93)	-4.60*** (-6.89)	-3.98*** (-5.90)	-4.64*** (-6.39)
Refugee shock* Female	-0.98*** (-8.99)	-0.89*** (-8.73)	-1.00*** (-9.21)	**-0.91*** (-8.76)**
	Fire and water			
Refugee shock	0.37 (0.65)	0.03 (0.05)	-0.68 (-1.03)	-0.40 (-0.57)
Female	-0.45 (-1.02)	-0.23 (-0.54)	-0.34 (-0.71)	-0.09 (-0.19)
Refugee shock* Female	0.20*** (4.45)	0.20*** (4.75)	0.20*** (4.57)	**0.20*** (4.88)**
Controls		X		X
Tobit				
Household fixed effects			X	X
Observations	5,350	5,350	5,350	5,350

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Interpretation

- In this case the estimates based on the median value of the shock suggest :
  - An increase of 1.4 and 1.8 hours per week in time dedicated to farming and fetching water/collecting firewood.
  - The equivalent relative decrease in outside employment for women is close to 8 hours.

Results for different skill levels

- Division by gender and (pre-shock) literacy level.
- Literate women could benefit more from the additional supply of cheap labour represented by refugees.

Results by literacy level in first round of the survey

Independent variable	Women		Men	
	Literate	Illiterate	Literate	Illiterate
	Likelihood of engaging			
	Farming			
Refugee shock	0.05 (0.38)	**0.19*** **(1.94)**	-0.11 (-1.54)	3.99 (1.30)
	Outside employment			
Refugee shock	**0.28***** **(2.68)**	-0.07 (-0.93)	0.05 (0.54)	5.03 (0.96)
	Fire and water			
Refugee shock	0.06 (0.57)	**0.26***** **(3.07)**	**-0.23***** **(-2.75)**	1.12 (0.84)
	Time spent on task			
	Farming			
Refugee shock	3.99 (1.30)	-0.34 (-0.13)	-0.22 (-0.06)	3.44 (0.62)
	Outside employment			
Refugee shock	5.03 (0.96)	-1.54 (-0.71)	-1.21 (-0.34)	3.19 (0.62)
	Fire and water			
Refugee shock	1.12 (0.84)	0.37 (-0.36)	-2.22* (-1.74)	0.91 (0.49)
Controls	X	X	X	X
Household fixed effects	X	X	X	X
Observations	1,720	1,116	1,770	744

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Results by math skills in first round of the survey

Independent variable	Women		Men	
	Math	No math	Math	No math
	Likelihood of engaging			
	Farming			
Refugee shock	0.02 (0.14)	**0.24**** **(2.29)**	-0.14** (-1.96)	-0.11 (-0.55)
	Outside employment			
Refugee shock	**0.23***** **(3.36)**	-0.02 (-0.24)	0.12 (1.61)	-0.12 (-1.13)
	Fire and water			
Refugee shock	0.06 (0.64)	**0.26***** **(2.98)**	**-0.26***** **(-3.37)**	-0.17 (-1.08)
	Time spent on task			
	Farming			
Refugee shock	2.82 (1.01)	0.11 (0.04)	-1.29 (-0.37)	9.30 (1.38)
	Outside employment			
Refugee shock	3.26 (0.81)	-0.11 (-0.05)	1.26 (0.39)	4.00 (0.70)
	Fire and water			
Refugee shock	1.07 (0.79)	0.50 (0.55)	-1.87* (-1.88)	0.53 (0.25)
Controls	X	X	X	X
Household fixed effects	X	X	X	X
Observations	1,726	1,110	1,830	684

Result for different age groups

Dependent variable engaged on	30 or less in 2004		Over 30 in 2004	
	Likelihood of engaging	Time spent on task	Likelihood of engaging	Time spent on task
	Farming			
Refugee shock	0.03 (0.34)	1.48 (0.42)	-0.00 (-0.04)	-0.71 (-0.30)
Female	0.01 (0.34)	-0.39 (-0.58)	0.08*** (2.85)	2.17*** (2.57)
Refugee shock*Female	**0.01*** **(1.71)**	**0.25**** **(2.47)**	0.01 (1.21)	0.05 (0.40)
	Outside employment			
Refugee shock	-0.04 (-0.86)	-0.83 (-0.38)	0.18* (1.95)	5.55* (1.82)
Female	-0.01*** (-0.39)	0.26*** (0.34)	-0.14*** (-3.20)	-9.25*** (-6.83)
Refugee shock*Female	**-0.03***** **(-8.64)**	**-1.61***** **(-8.79)**	-0.25*** (-6.78)	-0.04 (-0.25)
	Fire and water			
Refugee shock	-0.11 (-1.42)	-0.36 (-0.34)	0.05 (0.90)	-0.63 (-0.88)
Female	0.04 (1.14)	-0.85* (-1.73)	0.12** (2.55)	1.14** (2.36)
Refugee shock*Female	**0.24***** **(6.03)**	**0.33***** **(5.98)**	0.01 (1.53)	0.06 (1.44)
Controls	X	X	X	X
Household fixed effects	X	X	X	X
Observations	2,680	2,670	2,680	2,670

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Results for children

Dependent variable time spent on	Likelihood of engaging		Time dedicated	
	(1)	(2)	(3)	(4)
	Farming			
Refugee shock*Female	0.07 (0.84)	0.06 (0.71)	-0.94 (-0.53)	-1.26 (-0.55)
	Outside employment			
Refugee shock*Female	0.03 (1.46)	0.03 (1.17)	**0.73**** **(2.08)**	**1.11*** **(1.86)**
	Fire and water			
Refugee shock*Female	-0.06 (-1.11)	-0.06 (-1.11)	**2.74**** **(2.26)**	**3.23***** **(2.91)**
	Schooling			
Refugee shock*Female	-0.06 (-1.51)	-0.06 (-1.15)	-1.59 (-0.79)	-0.48 (-0.16)
Controls		X		X
Observations	312	312	312	312

Summary

- Hosting refugees had different impacts on time allocation and activity choice for women and men.
- Women less likely to engage in outside employment and more likely to engage in household chores (i.e. water fetching and firewood collection) relative to men.
- Results differ by skill level.
  - Literate women being more likely to engage in outside employment in response to the shock.
  - Illiterate women being more likely to engage in farming and collecting firewood/fetching water.

Thanks

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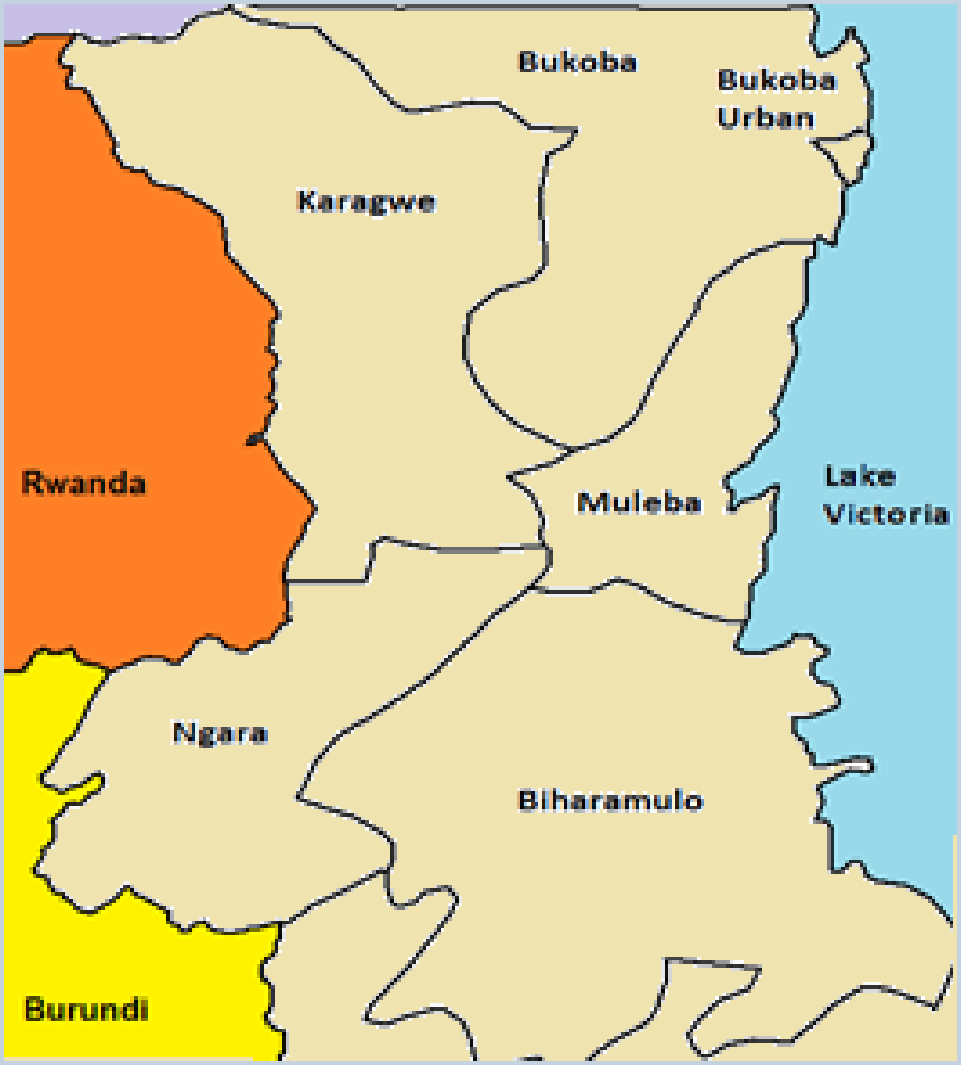
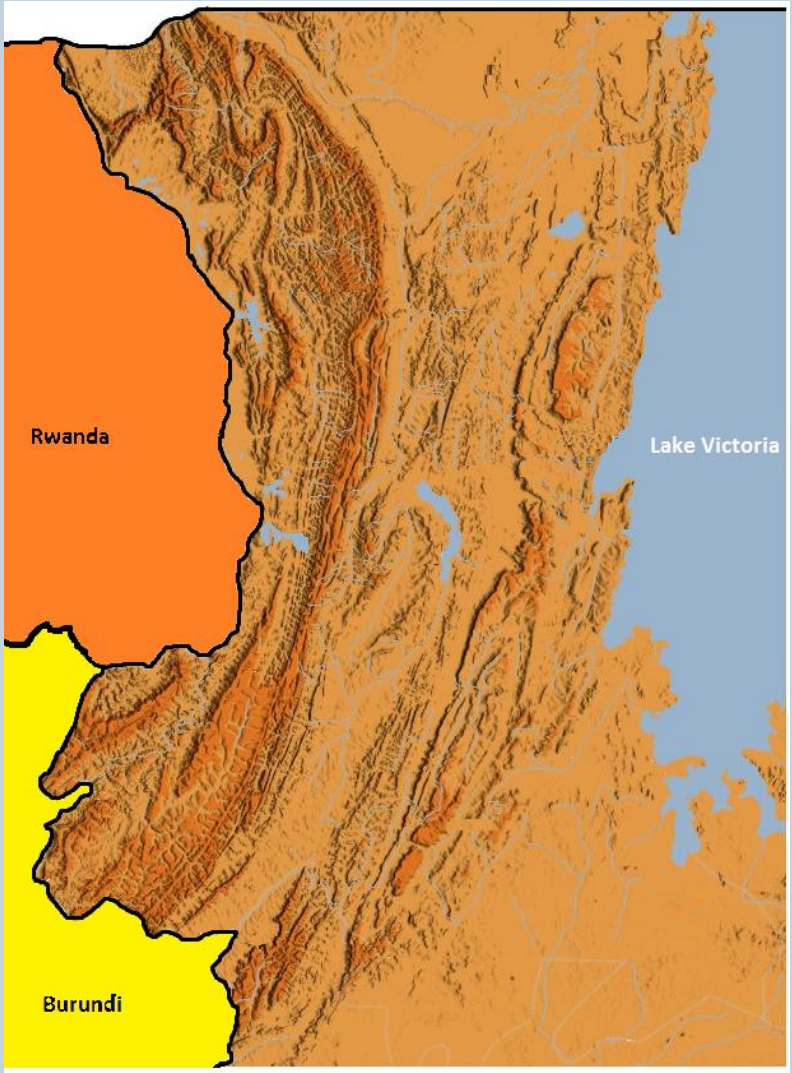
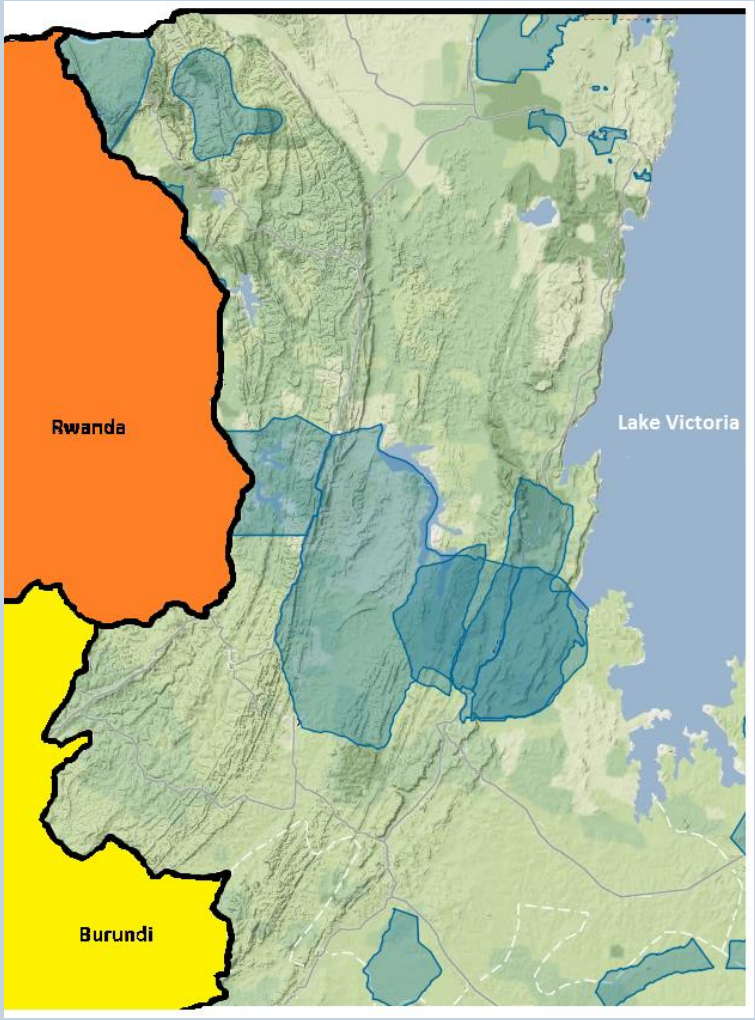

Bukoba
Bukoba Urban
Karagwe
Rwanda
Muleba
Lake Victoria
Ngara
Biharamulo
Burundi


Rwanda
Lake Victoria
Burundi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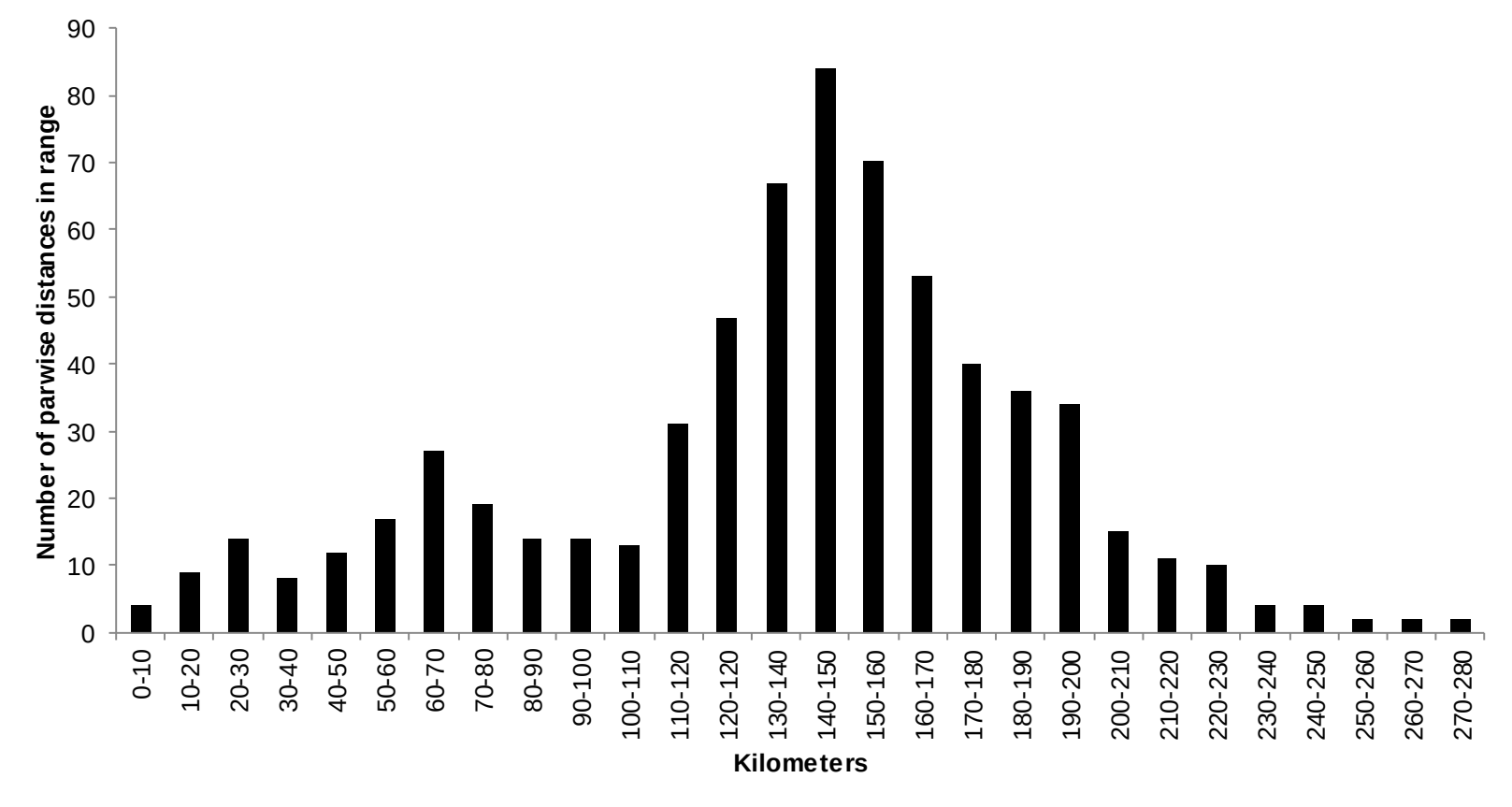
Lake Victoria
Burundi

Pairwise distances between communities and refugee camps



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Range of values for the refugee shock