

Forced migration and food crises

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Exodus: Movement of (Jah) people!

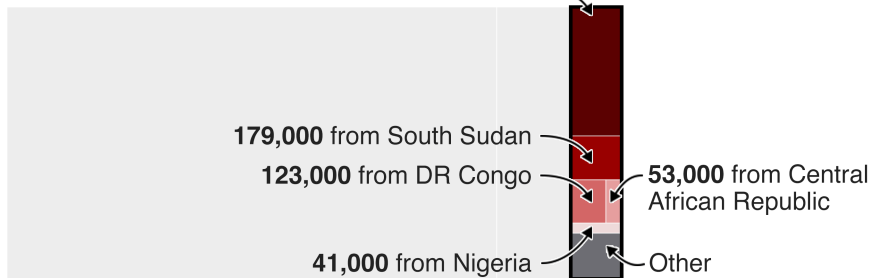


We know where we're from.

New refugees in 2018



527,000 from Syria, almost
half of all 2018 refugees



We know where we're going, uh!

Asylum in Europe

Asylum applicants January to June 2015

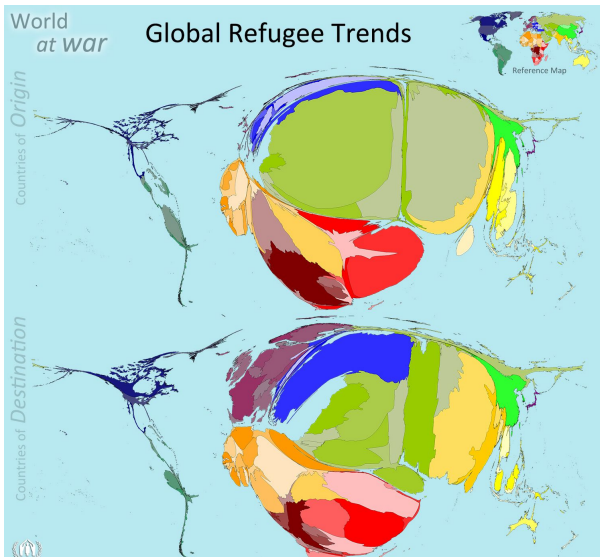


Data Source: Eurostat (2015)

Countries resized according to the absolute number of asylum applicants

Map created by Benjamin Hennig
www.viewsoftheworld.net

Open your eyes and look within:

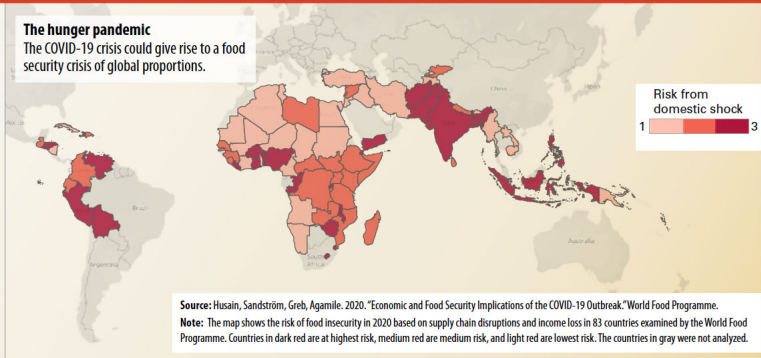


Are you satisfied (with the life you're living)? Uh!

Widespread hunger expected in 2020

The hunger pandemic

The COVID-19 crisis could give rise to a food security crisis of global proportions.



Outline

- 1 Motivation
 - Stylized Facts
 - Background & Contributions
- 2 Theoretical and empirical framework
 - Theory
 - Empirics
- 3 Data
 - Data visualization
- 4 Results
 - Baseline
 - Intensity
 - Causes
- 5 Conclusions
 - Lessons learned

Background

- Why do individuals abandon their home and cross international borders to seek asylum in a foreign destination?
 - What are the effects of food crisis on sending countries on asylum flows?
- Standard migration models (Anderson, 2011; Beine et al., 2011; Grogger and Hanson, 2011) present some shortcomings when it comes to explain forced migration (i.e., refugees and asylum seekers), which elude wage considerations.
 - distress-driven migration (Missirian and Schlenker, 2017a)
 - Temperature, floods or earthquakes (Feng et al., 2010; Gray and Mueller, 2012; Yang, 2008; Missirian and Schlenker, 2017b)
 - politics, oppression and violence in source countries (Davenport et al., 2003; Hatton, 2009; Moore and Shellman, 2004; Missirian and Schlenker, 2017b; Neumayer, 2005; Schmeidl, 1997)
 - Policies on host countries (Holzer et al., 2000; Neumayer, 2004; Thielemann, 2004, 2006; Vink and Meijerink, 2003).
 - Well-being (Paniagua et al., 2020)

Determinants of asylum seekers

- Determinants of asylum seekers using the gravity equation (Hatton, 2009 EJ, 2016 AER):
 - Origin: terror scale, political rights, civil liberties, wars, income
 - Destination: unemployment, recognition, migration, welfare
 - Bilateral: distance
- Issues:
 - Empirical bias: Multilateral resistance (time-varying third country effects) impedes the use of origin/destination variables
- Paniagua et al., (2020) solve this issues with a model that incorporates differentials (Ariely, 2009)
 - Still they cannot identify origin/destination variables

Contributions

- ① First, we construct several measures of food crisis.
- ② We construct a unique dataset with both asylum seekers and IDP.
 - ① This allows us to estimate country-specific food crisis along with Multilateral resistance (time-varying third country effects) in a structural gravity setup.

A structural gravity equation for asylum seekers

Paniagua et al., (2020)

$$A_{ij} = \underbrace{\frac{S_j N_i}{N}}_{\text{Frictionless asylum}} \times \underbrace{\frac{\varphi_{ij}/\tau_{ij}}{\Omega_j L_i}}_{\text{Asylum frictions}} . \quad (1)$$

- The second term represents frictions that impede or enhance asylum flows. In a simple two country setup, bilateral migration flows will flow towards destinations with higher well-being gain with lower travel cost.
- However, multiple alternative destination influence the migration decision. This fact is captured by Ω_j and L_i , whose interpretation is analogous to the multilateral resistance terms in a gravity model of trade (Anderson & van Wincoop, 2003).
- Importantly, the market clearing condition imposed to solve the model implies that $N_i = N_{ii} + \sum_{j \neq i} N_{ij}$ and $S_i = S_{ii} + \sum_{j \neq i} S_{ij}$

Structural Gravity

Recommendations for Estimating Structural Gravity (Piermartini & Yotov 2016)

- **Recommendation 1:** *Use Panel Data.*
 - Estimation efficiency and pair-fixed-effects methods for endogeneity
- **Recommendation 2:** *Allow for Adjustment in Trade Flows?*
 - adjustment in bilateral trade flows in response to trade policy or not (Egger et al., 2020)
- **Recommendation 3:** *Include Intra-national Trade Flows.*
 - consistency with gravity theory & identification of the effects of bilateral trade policies
 - Identification of the effects of country-specific trade policies
 - The effects on international trade are measured relative to the effects on intra-national trade
- **Recommendation 4:** *Use Directional Time-varying Fixed Effects*
 - importer-time and exporter-time fixed effects
- **Recommendation 5:** *Employ Country-Pair Fixed Effects*
 - Endogeneity and all time-invariant bilateral trade costs
- **Recommendation 6:** Estimate Gravity with PPML
 - Heteroskedasticity, zero trade flows and ensures that the gravity fixed effects are identical to their corresponding structural terms)

Estimation

We use the the Pseudo-Poisson Maximum likelihood (PPML) estimator proposed by Silva and Tenreyro (2006) using Correira's et al. (2019) procedure:

$$A_{ijt} = \exp(\beta BRDR_{ijt} + \gamma Y_{ijt} + \alpha FOOD_{it} \times BRDR_{ij} + \lambda_{ij} + \lambda_{it} + \lambda_{jt}) \times \varepsilon_{ijt}.$$

Identifying country-specific effects in structural gravity

Heid et al (2020) & Beverelli et al (2018)

#	i	j	η_1	η_2	μ_1	μ_2	μ_3	$BRDR_{ij}$	$IQ_j \times BRDR_{ij}$
1	A	B	1	0	0	1	0	1	IQ_B
2	A	C	1	0	0	0	1	1	IQ_C
3	B	A	0	1	1	0	0	1	IQ_A
4	B	C	0	1	0	0	1	1	IQ_C
5	C	A	0	0	1	0	0	1	IQ_A
6	C	B	0	0	0	1	0	1	IQ_B
7	A	A	1	0	1	0	0	0	0
8	B	B	0	1	0	1	0	0	0
9	C	C	0	0	0	0	1	0	0

- $BRDR_{ij}$ is a dummy that identifies international flows
- $food_{it} \times BRDR_{ij}$ is not collinear with MRT and can be used to identify the effect of food crises in sending countries
 - More specifically the effect of the food crisis on international asylum relative to IDP

Data

- Asylum seekers & IDP
 - A sample of 47 origin developing countries and 155 destination countries, from which 118 are developing.
 - United Nations
 - Period: 2009-2018
- Food crises
 - GIEWS (Global Information and Early Warning System), United Nations Food and Agricultural Organisation's (FAO)
 - GIEWS reports the countries that are in crisis and require external assistance for food
- 12 of the 47 countries of origin did not suffer from a food crisis, while 10 were affected during all the years.

Food crises

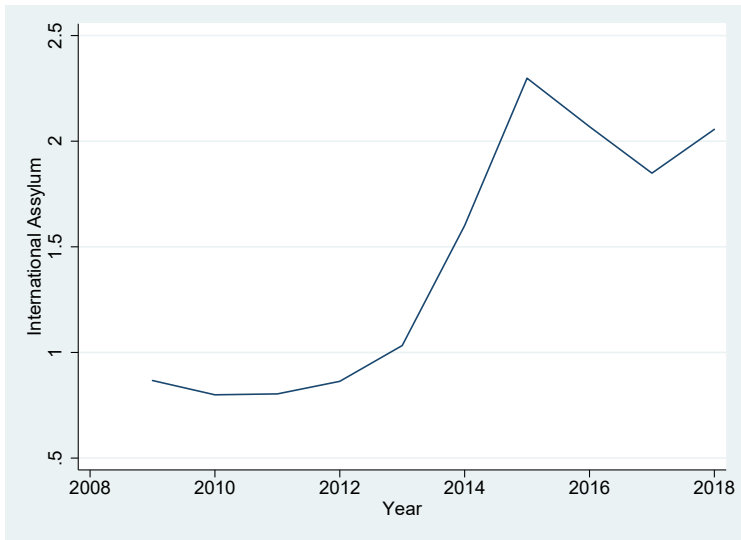
Intensity/ type

- Within GIEWS reports, countries are classified in three levels:
 - 1 exceptional shortfall in aggregate food production/supplies,
 - 2 severe localized food insecurity and
 - 3 widespread lack of access.
- Food Insecurity (type)
- Intensity Food Insecurity (number of occurrences of each type of crisis)

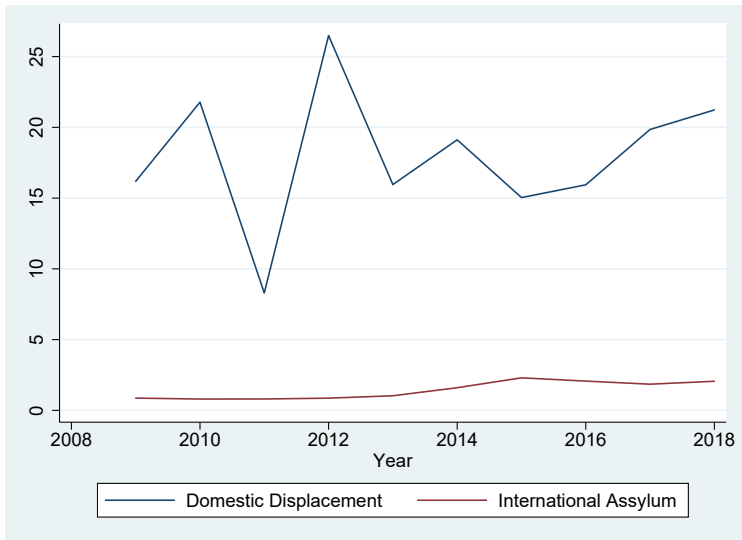
Origin

- 1 Economic
- 2 Political instability & violence,
- 3 Migration and
- 4 Weather & diseases.

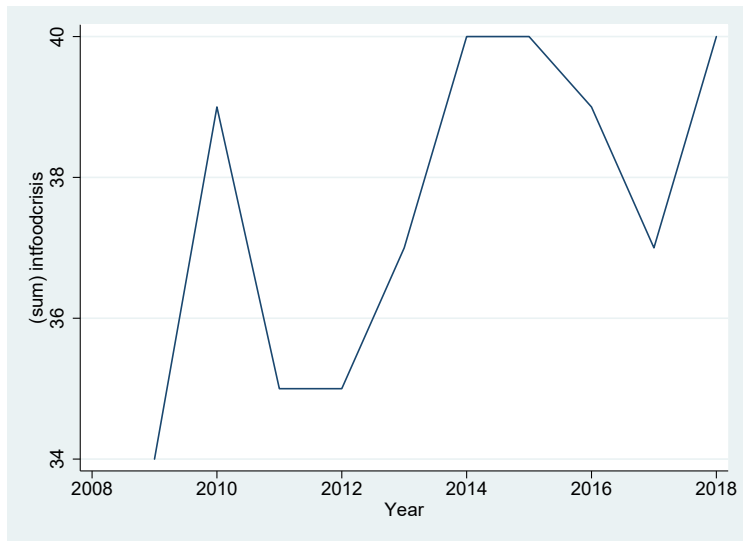
International asylum



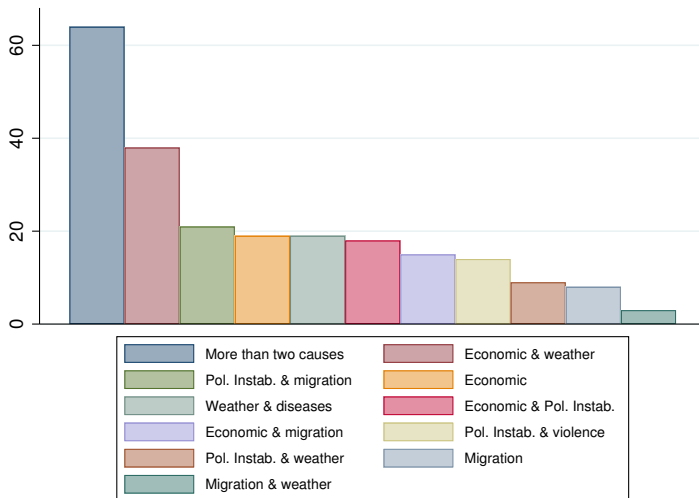
International asylum & IDP



Food crises



Food crises: causes



	(1)	(2)	(3)	(4)	(5)	(6)	(7)
border			7.979*** (2.854)		4.898*** (0.513)		
Indist	0.155* (0.094)		0.581*** (0.224)		-0.325*** (0.094)		
contig	-0.792* (0.470)		1.350 (1.054)		-0.156 (0.281)		
comlang_off	-0.319 (0.243)		-0.248 (0.271)		0.252* (0.132)		
comleg_posttrans	0.051 (0.143)		-0.113 (0.189)		-0.014 (0.094)		
colony	0.447 (0.377)		0.840* (0.447)		-0.349 (0.345)		
comrelig	-0.544 (0.588)		-0.314 (0.510)		-0.254 (0.317)		
rta	0.736*** (0.214)	0.361** (0.175)	1.026*** (0.238)	0.363** (0.175)	1.007*** (0.249)	0.172 (0.114)	0.206* (0.118)
IRefugees	0.582*** (0.037)	0.417*** (0.084)	0.178 (0.238)	0.302 (0.279)	0.525*** (0.030)	0.135*** (0.038)	0.139*** (0.038)
intfoodcrisis	-0.043 (0.158)	0.124 (0.114)	0.507 (0.322)	0.196 (0.224)	0.663* (0.367)	-1.555*** (0.555)	-2.181*** (0.920)
INTL_BRDR_2009							2.252* (1.221)
INTL_BRDR_2010							1.014 (0.955)
INTL_BRDR_2011							2.728*** (0.784)
INTL_BRDR_2012							1.145 (0.879)
INTL_BRDR_2013							1.572*** (0.568)
INTL_BRDR_2014							0.566 (0.448)
INTL_BRDR_2015							0.469 (0.681)
INTL_BRDR_2016							1.175 (0.745)
INTL_BRDR_2017							0.234 (0.309)
INTL_BRDR_2018							0.000 (.)
N	38592	36806	38788	36999	38216	36512	36512
pseudo R ²	0.529	0.858	0.776	0.923	0.992	0.998	0.998
IDP	No	No	Yes	Yes	Yes	Yes	Yes
Country Pair	No	Yes	No	Yes	No	Yes	Yes
MRT	No	No	No	No	Yes	Yes	Yes

Robust Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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IDP	No	No	Yes	Yes	Yes	Yes	Yes
Country Pair	No	Yes	No	Yes	No	Yes	Yes
MRT	No	No	No	No	Yes	Yes	Yes

Robust Standard errors in parentheses

	(1)	(2)
Regional Trade Agreement	0.195 (0.119)	0.168 (0.119)
IRefugees	0.151*** (0.037)	0.147*** (0.037)
Food insecurity, lv. 1	1.335 (1.434)	
Food insecurity, lv. 2	-1.854*** (0.703)	
Food insecurity, lv. 3	-2.411** (1.106)	
Intensity Food insecurity, lv. 1		0.403 (0.362)
Intensity Food insecurity, lv. 2		-0.564*** (0.159)
Intensity Food insecurity, lv. 3		-0.540** (0.224)
Observations	38064	38064
Country Pair	Yes	Yes
MRT	Yes	Yes
Pseudo R2	.9977	.9977

	(1)	(2)
Regional Trade Agreement	0.235** (0.120)	0.261** (0.114)
IRefugees	0.152*** (0.038)	0.155*** (0.037)
Political instability & violence	-1.704** (0.865)	-1.952** (0.887)
Migration	5.417*** (1.777)	2.437** (1.122)
Weather & diseases	-3.516*** (0.830)	-3.069*** (0.768)
More than one cause	-2.151** (0.983)	
Economic & political		-2.981*** (0.838)
Economic & migration		1.161** (0.458)
Economic & Weather		0.241 (0.583)
Political & migration		-4.453*** (0.828)
Political & weather		-3.032** (1.326)
Migration & weather		-25.590*** (1.888)
More than two causes		-1.196 (1.026)
Observations	38064	38064
Country Pair	Yes	Yes
MRT	Yes	Yes
Pseudo R2	.997	.997

Take-away

- ① The relevance of theoretically-consistent gravity estimations for asylum migration
 - ① Multilateral resistance terms and internal displaced person matter
- ② Food crises reduce international asylum flows
 - ① The reduction in asylum is higher with more intense and severe food crises
 - ② Food crises associated with weather and political instability have the larger (negative effect)
 - ③ Food crises associated with migration *increase* asylum flows