

Conflict-induced emigration of scientists from Ukraine to internal and international destinations

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Motivation

- Migration theories and the highly-skilled

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Table 2 Theoretical migration categories based on positive and negative liberty types

		Positive liberty (‘freedom to’; capabilities)	
		Low	High
Negative liberty (‘freedom from’; external constraints)	Low	Precarious migration Generally short-distance, often internal, by relatively poor or impoverished people vulnerable to exploitation, i.e., poor rural-to-urban migrants, undocumented labour migrants, ‘failed’ asylum-seekers, internal displaceds) (relevant theories: historical structural; dual labour-market)	Distress migration Deprivation of mobility freedom through absence of reasonable option to stay; applies to refugees fleeing potentially life-threatening conditions but possessing the resources to move abroad and obtain legal status (relevant theories: historical structural; network; new economics of labour migration)
	High	Improvement migration Internal and international, often through networks, recruitment and pooling of family resources (relevant theories: new economics of labour migration; network and internal dynamics; cumulative causation; dual labour-market; mobility transition)	‘Free migration’ relatively unconstrained mobility in and between wealthy countries or by wealthy people, skilled workers, ‘lifestyle’ migrants (relevant theories: neo-classical; human capital; mobility transition)



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- ▶ Migration and development
 - ▶ Migration of the general population has been found to have a reverse U-shaped association with development (4), while that of scholars has been found to be U-shaped (5), which is partially due to return migration (6)

Question; and Data

How has the conflict/war in Ukraine affected **internal** and **international** scholarly migration across Ukrainian regions, and by **sub-national development**?

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We use **bibliometric data** to infer scholarly migration from two data sources:



Scholarly Migration Database
(using Scopus)
www.scholarlymigration.org

NOTE:

SMD 2.0, IN+INT, disaggregated by gender and field is just released.



OpenAlex

OpenAlex



Subnational HDI scores taken from GDL (7)

$$NMR_{i,t,k} = 1000 \times \frac{I_{i,t,k} - O_{i,t,k}}{N_{i,t}}$$

$$IMR_{i,t,k} = 1000 \times \frac{I_{i,t,k}}{N_{i,t}}$$

$$OMR_{i,t,k} = 1000 \times \frac{O_{i,t,k}}{N_{i,t}}$$

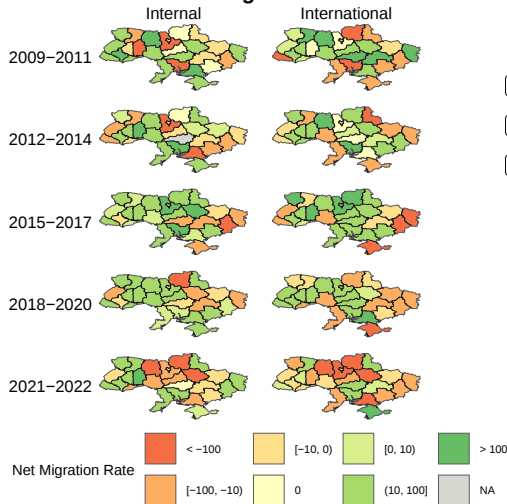
$$MEI_t = 100 \times \frac{\sum_i |I_{i,t,k} - O_{i,t,k}|}{\sum_i (I_{i,t,k} + O_{i,t,k})}$$

$$DT_t = \frac{\ln(2)}{R_t}$$

Net Migration Rate, In-migration Rate, Out-Migration Rate,
Migration Effectiveness Index and Doubling Time

Results: Spatio-temporal overview of Net Migration Rate

Net migration rates across Ukraine regions, OpenAlex data



Region Labels



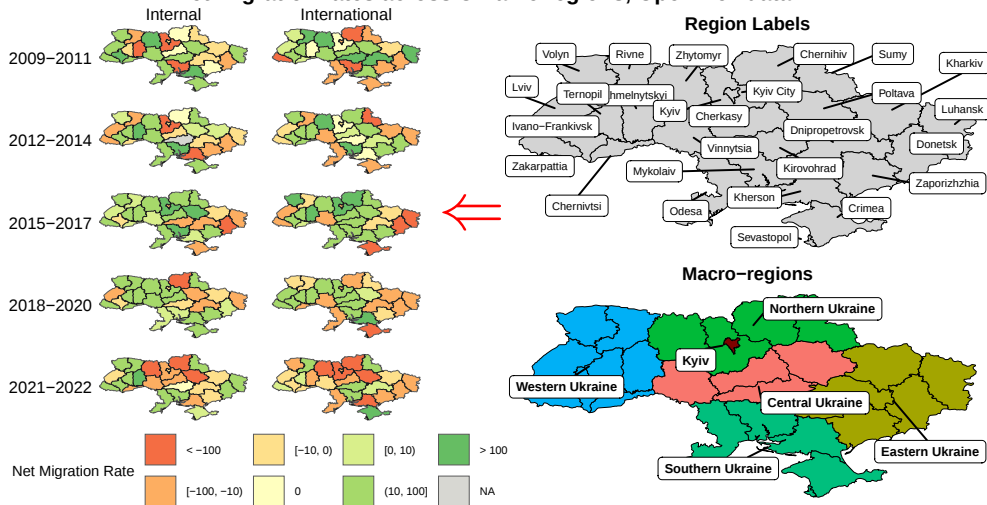
Macro-regions



$$NMR_{i,t,k} = 1000 \times \frac{I_{i,t,k} - O_{i,t,k}}{N_{i,t}}$$

Results: Spatio-temporal overview of Net Migration Rate

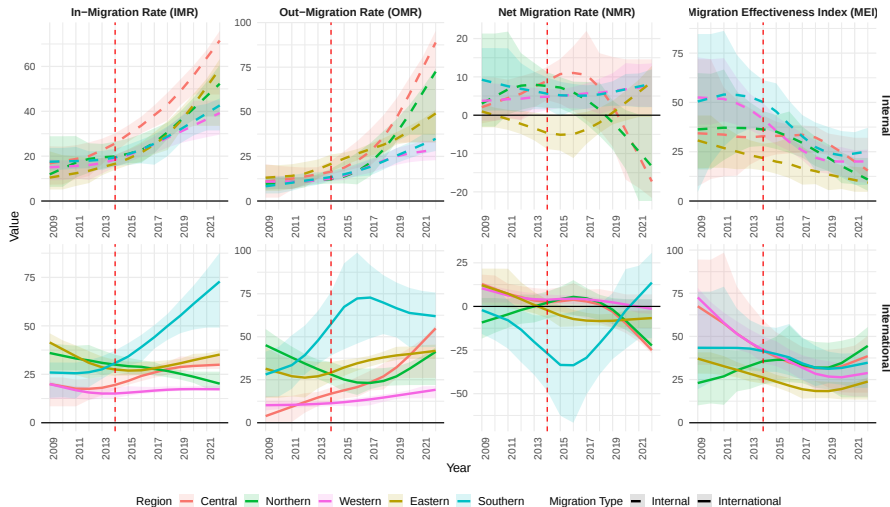
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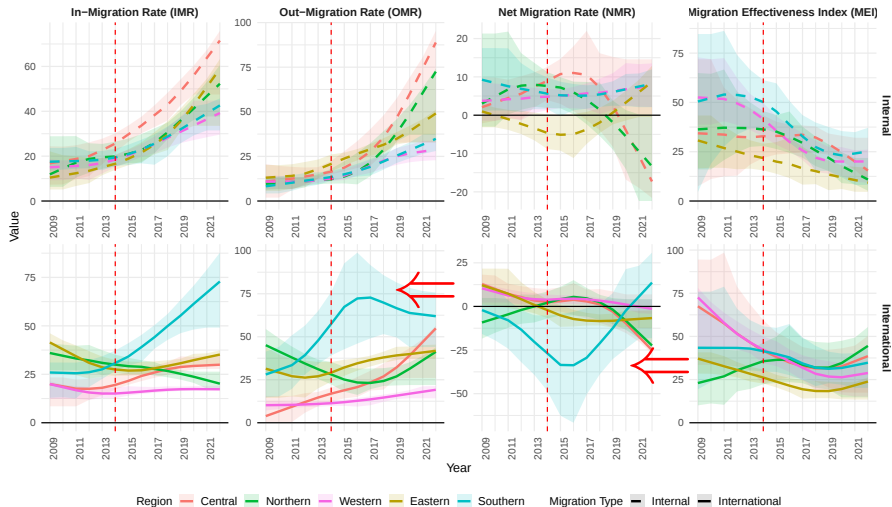
Migration measures by region

Migration Measures Over Time by Region, OpenAlex



Migration measures by region

Migration Measures Over Time by Region, OpenAlex



Comparison of model results (internal/international)

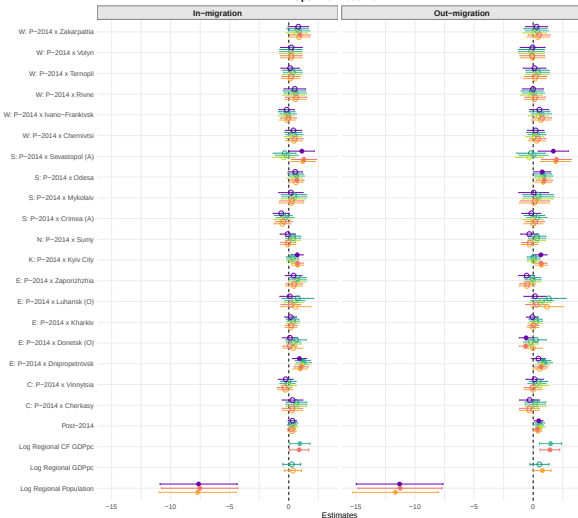
Significance ($p \leq 0.05$) ● Yes ○ No

Model

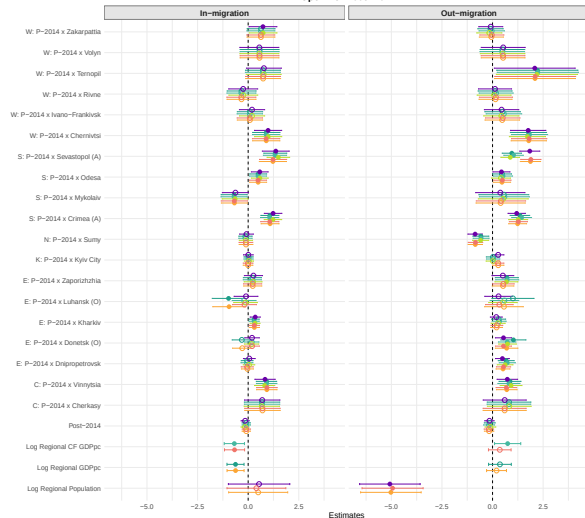
● Full model	● No pop no gdp interaction	● No pop with gdp interaction
● Full model with CF gdp	● No pop with CF gdp interaction	● With pop no gdp interaction

Comparison of model results (internal/international)

Negative Binomial Internal Migration Models by Migration Type
OpenAlex 2009–2022



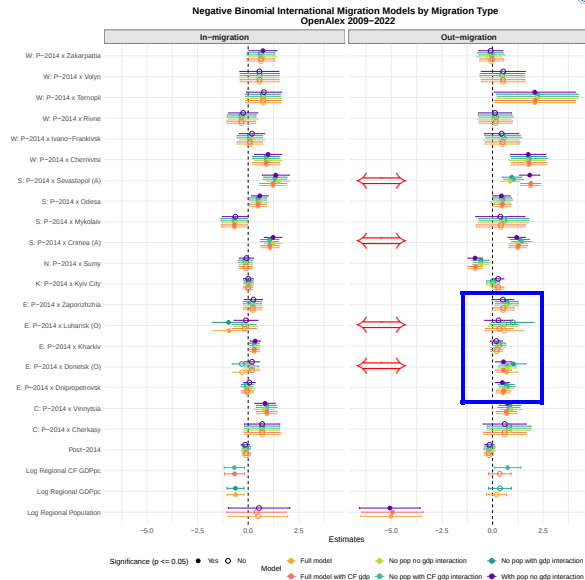
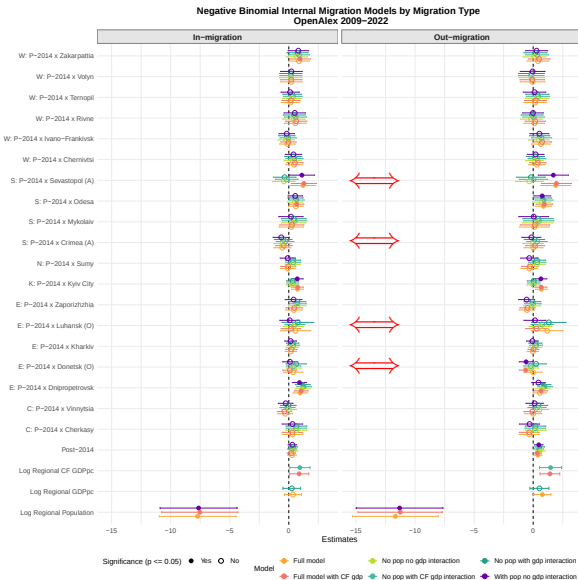
Negative Binomial International Migration Models by Migration Type
OpenAlex 2009–2022



Significance (p < 0.05) ● Yes ○ No
Model ● Full model ● No pop no gdp interaction ● No pop with gdp interaction
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Comparison of model results (internal/international)



- ▶ **Contributions:** Theoretical and empirical inclusion of “Refugee scholars”, “scholars at risk”; Simultaneous look at “internal” and “international” migration
- ▶ We found that in our observation period, Eastern Ukrainian regions experienced greatest levels of conflict-induced scholarly migration, especially soon after 2014
 - ▶ Up to 10% in Luhansk and Donetsk regions (Scopus)/6% (OpenAlex) in three years following beginning of war
- ▶ Suggestive evidence that subnational development is associated with international but not internal migration
- ▶ **Limitations:** Even OpenAlex’s higher coverage is EN-dominated, examination of differences by gender, by discipline, and inclusion of more recent years of full-scale war into the analysis

Thank you!

Questions and comments are much appreciated!

Forthcoming in PDR (to find more details beyond this 5 min).

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Back-up slides

- ▶ Ukraine gains independence in 1991 as Soviet Union dissolves
- ▶ Failed signing of a EU trade accord sparks 'Euromaidan' protests in 2013, toppling pro-Russian government
- ▶ Russia invades the Donbas and annexes Crimea in April 2014
- ▶ Conflict intensity is most intense in the first year, then plateaus
- ▶ On February 24, 2022, Russia begins full-scale invasion of Ukraine

- ▶ Two studies using survey data found that between 5 and 19 percent of scientists left Ukraine after full-scale invasion (8, 9)
 - ▶ Cross-sectional, short-term view, and no distinction between **internal** and **international** emigration, or by sub-national **development**

What is bibliometric data?

Scientometrics (2018) 114:859–882
<https://doi.org/10.1007/s11192-017-2600-0>

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The conundrum of research productivity: a study on sociologists in Italy

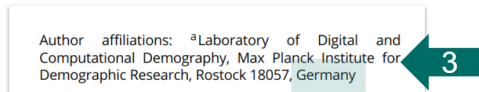
Aliakbar Akbaritabar¹  · Niccolò Casnici¹ · Flaminio Squazzoni¹

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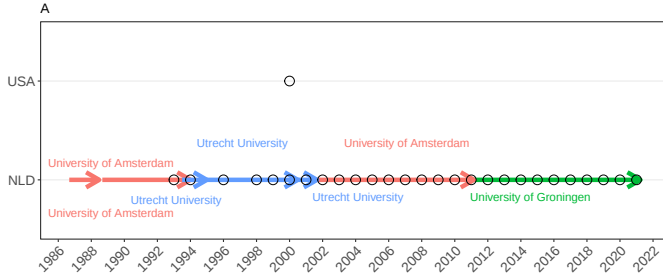
¹ Università degli Studi di Brescia, Brescia, Italy

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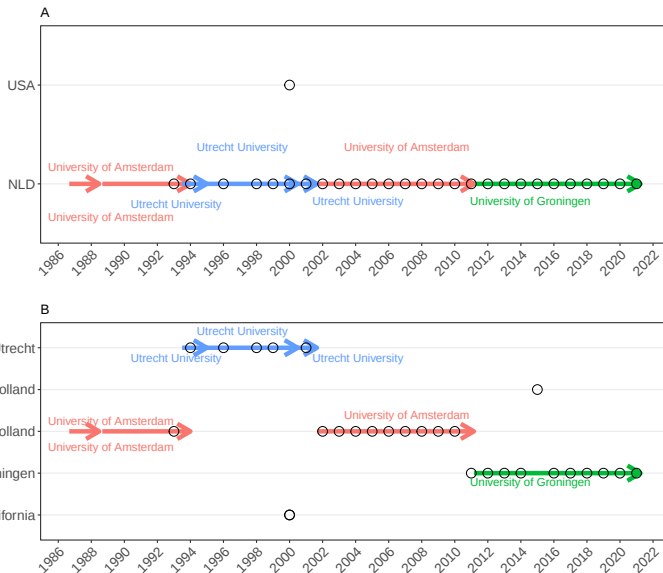
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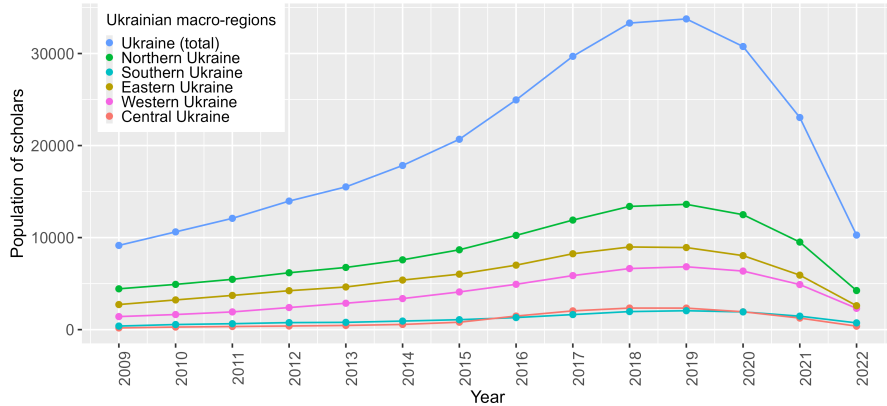
Internal and international migration of scholars



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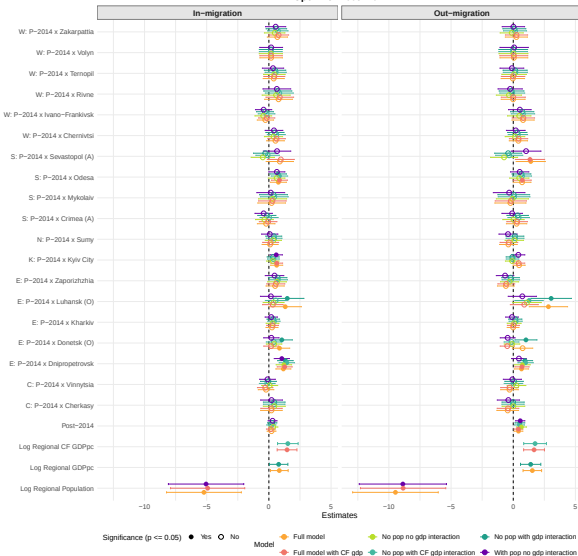


Population of Ukrainian scholars, total and by region



Comparison of model results (internal/international, 1y bkfl)

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