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Discrete Choice Model workshop

Migration Aspiration in the Mixed-Forced Situation in South Asia

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Motivation

Spectrum Hypothesis of Factor **Forcing and Voluntariness** in Estimation of Potential Migrants at the Individual Level

- The controversial binary definition of forced/voluntary as outcome is widespread.
- In a life-threatening situation: Stay or move? Achieve wealth or safety?
- However, the factors of aspiration are not binary.

Focus point

Heterogeneity: by **threat** in the origin and **attraction** in the destination of many forced migrants in the discrete choice model for potential migration

Purpose and Contribution

Purpose

- **Clarify the impact of threats, the main cause of forced migration, on the migration aspiration with other voluntary-like factors**
  - Comparison between **Afghanistan** and **Pakistan** that have the highest refugee status globally and are geographically and culturally close to each other

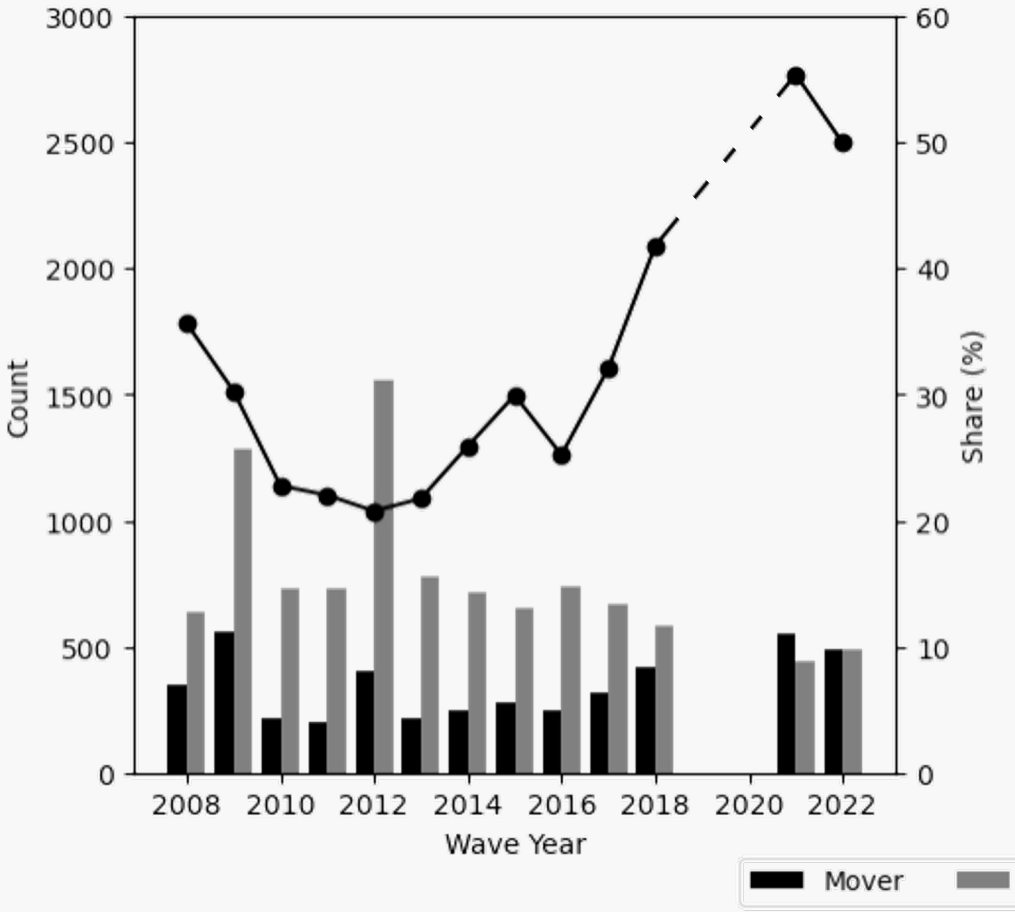
Findings

- Finding different trends from the latest model.
  - No gender or age differences in migration preferences, etc.
- Only threats cannot express the heterogeneity within the sample.

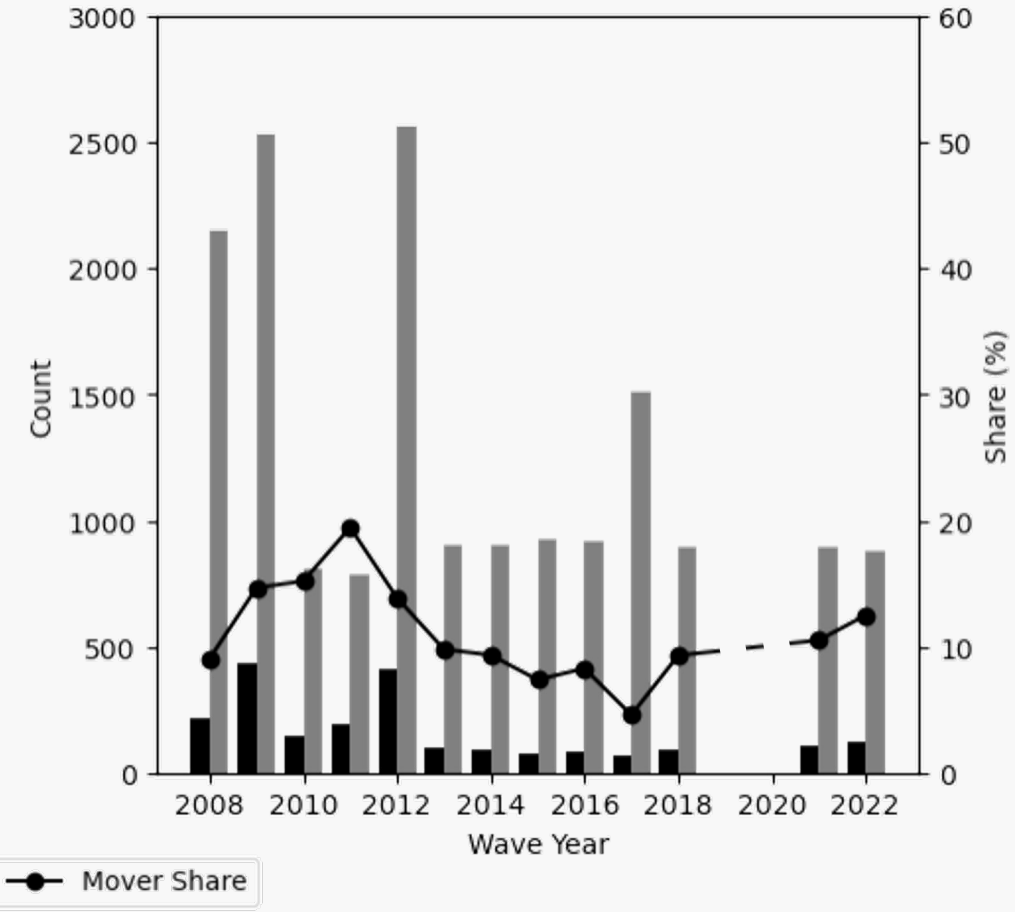
The Trend of Moving or Staying Share in South Asia

- High aspiration migration rate and rapid growth in recent years

Afghanistan Sample

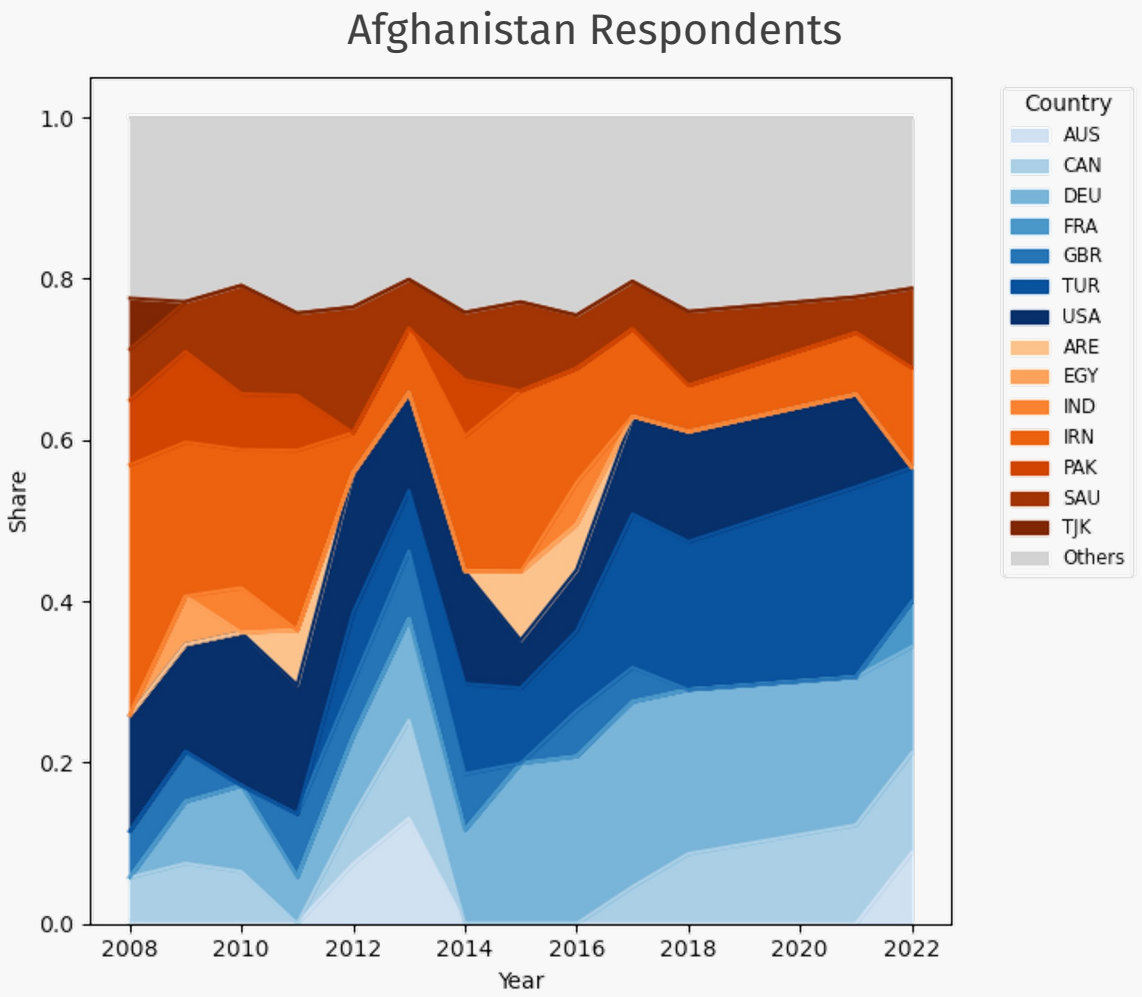


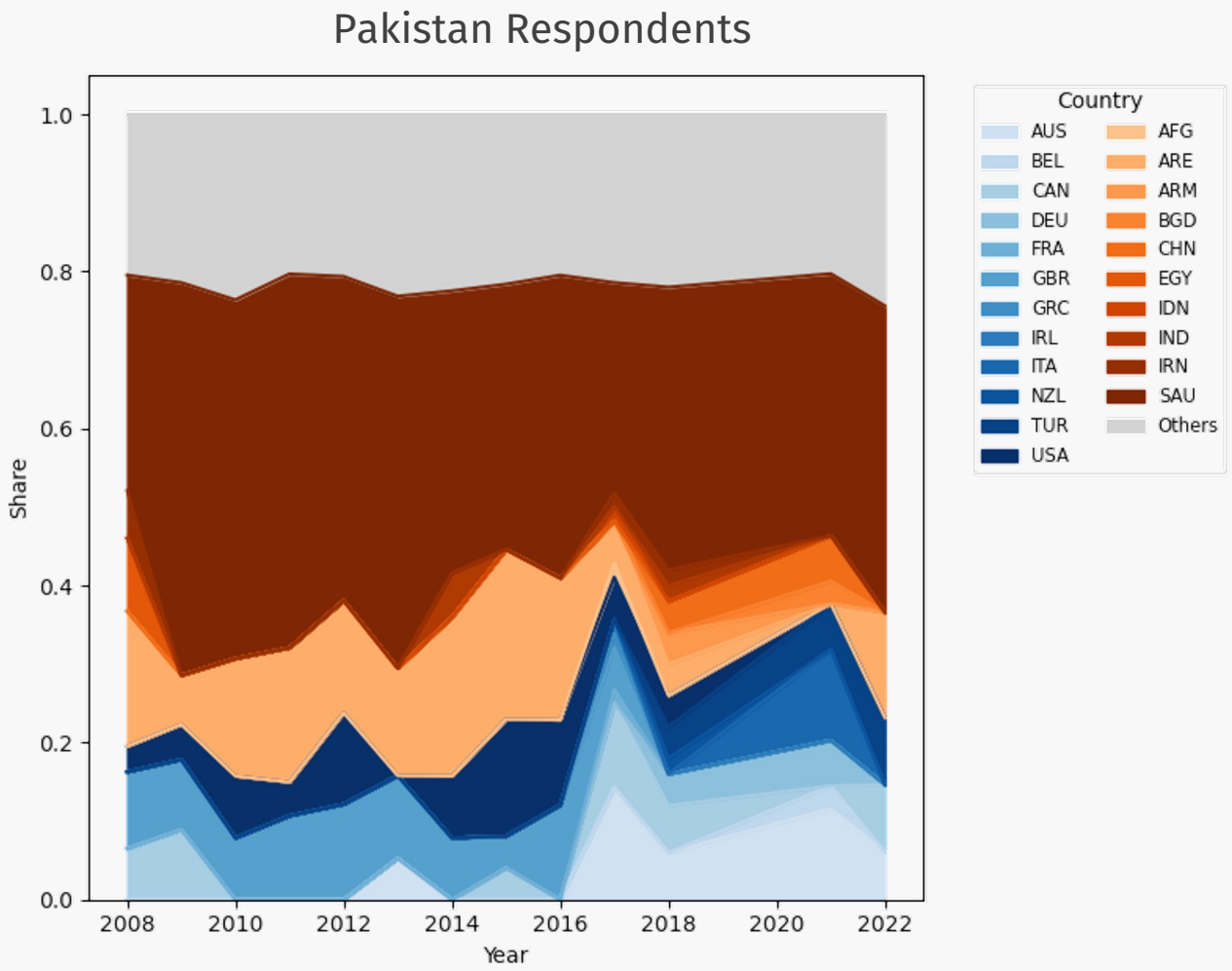
Pakistan Sample



The Trend of Destination's Share from South Asia

- Afghanistan choose OECD, Pakistani choose high-GDP Islamic countries





Threatening Situations, Urbanization, Immigrant Tolerance

- Threat Score from GWP data:
  - Sum of negative responses as a score, all questions are designed for binary.

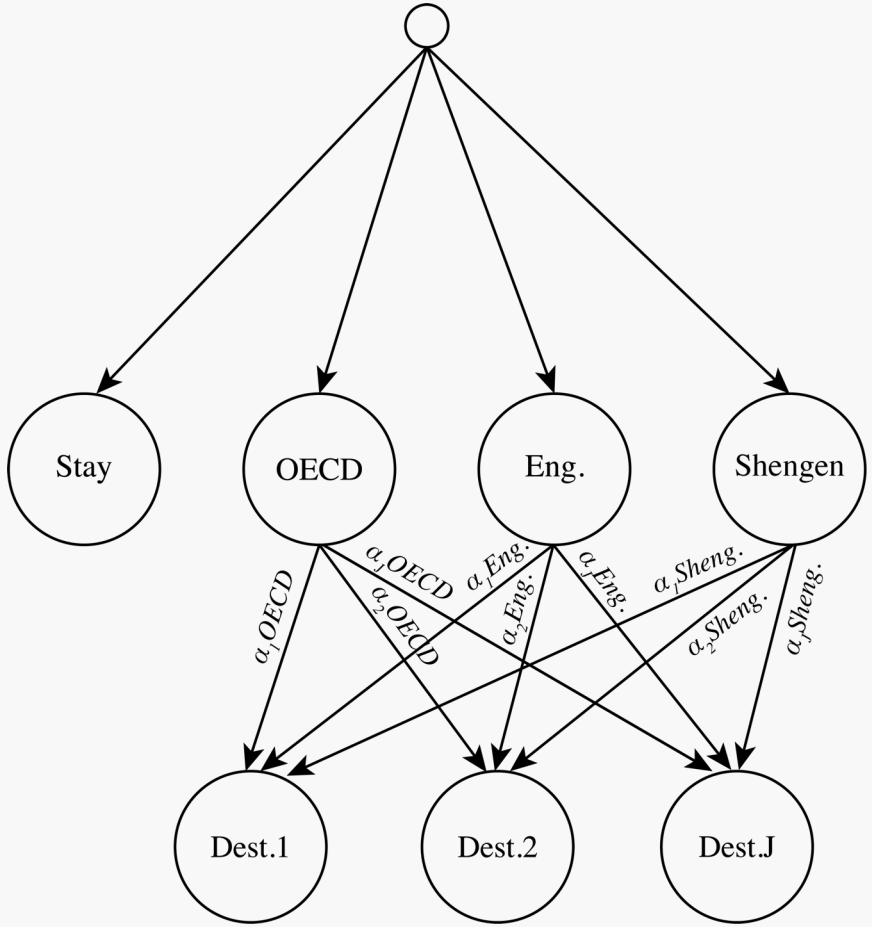
Index name	Perception	Experience
Law and Order Index	Feeling to safe walking alone	Stolen money or property
Food and Shelter Index	-	Money for Food or Shelter
Community Basics Index	Satisfaction with education or healthcare	-
National Institutions Index	Confidence for judicial system	-

- Migrant Integration Policy Index (MIPEX) Score:
  - External, A 100-point index for the fullness of immigrant integration policies.
- Night-Time Light Data:
  - External, Global index, time series data, allowing flexible creation of variables such as not only urbanization degree but also intrastate disparities of that

Model Structure

- MNL, NL, CNL model
  + Latent Class Model
    for capture heterogeneity

$$V_{jn} = \begin{cases} D'_n\beta & \text{if } j = 0,\ n = \text{stayer} \\ Z'_{jn}\gamma & \text{if } j = 1, \ldots, J,\ n = \text{mover} \end{cases}$$



Estimation Result Summary

ASC and nested parameters in Afghanistan sample

	MNL	NL	CNL
ASC_OECD	1.61*** (0.073)	1.33*** (0.107)	2.17*** (0.0849)
ASC_Shengen	-1.24*** (0.0715)	-1.05*** (0.0782)	-0.617*** (0.0649)
ASC_EnglishSpeaking	-0.859*** (0.0593)	-0.742*** (0.0602)	-0.903*** (0.0884)
μ		1.21** (0.0714)	
$\mu_{English}$			1(bound) (0.0449)
μ_{OECD}			1.41*** (0.0489)
$\mu_{Schengen}$			15.5*** (3.27)
Sample size	9274	9274	9274
Final log likelihood	-14738.75	-14732.56	-14549.43

ASC and nested parameters in Pakistan sample

	MNL	NL	CNL
ASC_OECD	-1.06*** (0.0708)	-0.214*** (0.0861)	-0.76*** (0.11)
ASC_Shengen	-2.19*** (0.179)	-0.417*** (0.176)	-1.14*** (0.197)
ASC_EnglishSpeaking	-0.515*** (0.0657)	-0.0888*** (0.04)	-0.161 (0.11)
μ		5.16*** (2.11)	
$\mu_{English}$			1.21*** (0.0741)
μ_{OECD}			1.22*** (0.0778)
$\mu_{Schengen}$			3.61*** (1.11)
Sample size	11159	11159	11159
Final log likelihood	-6790.797	-6768.888	-6779.781

Estimation Result in Afghanistan Sample (extracted)

Utility of staying in the domestic location

	MNL	NL	CNL
Male	0.0433 (0.0511)	0.0398 (0.0503)	0.0401 (0.0504)
Single	-0.141** (0.0584)	-0.141*** (0.0573)	-0.14** (0.0575)
Log of Income	0.0672*** (0.0183)	0.0848*** (0.0187)	0.08*** (0.0182)
Network LS	-0.533*** (0.087)	-0.48*** (0.088)	-0.5*** (0.0871)
Network MS	-0.25** (0.111)	-0.21* (0.111)	-0.203** (-1.83)
Network HS	0.0348 (0.265)	0.0898 (0.266)	0.0921 (0.265)
Under 65	0.00729*** (0.00231)	0.007*** (0.00226)	0.00715*** (0.00227)
NTL	0.0978 (0.155)	0.201 (0.157)	0.172 (0.155)
Threat Score	-0.129*** (0.0153)	-0.137*** (0.0153)	-0.136*** (0.0151)

Utility of moving to a foreign location

	MNL	NL	CNL
Log GDP at dest. LS	0.474*** (0.0257)	0.401*** (0.0294)	0.359*** (0.0285)
Log GDP at dest. MS	0.552*** (0.0403)	0.464*** (0.0411)	0.416*** (0.0408)
Log GDP at dest. HS	0.462*** (0.101)	0.387*** (0.0863)	0.335*** (0.09)
Log of diaspora LS	0.425*** (0.0147)	0.354*** (0.0239)	0.39*** (0.0148)
Log of diaspora MS	0.403*** (0.0203)	0.337*** (0.0257)	0.333*** (0.019)
Log of diaspora HS	0.406*** (0.0522)	0.338*** (0.0477)	0.339*** (0.0414)
MIPEX with LS	-0.213** (0.125)	-0.169 (0.106)	-0.0569 (0.118)
MIPEX with MS	0.798*** (0.171)	0.682*** (0.147)	0.896*** (0.163)
MIPEX with HS	1.55*** (0.449)	1.32*** (0.38)	1.56*** (0.414)

Estimation Result in Pakistan Sample (extracted)

Utility of staying in the domestic location

	MNL	NL	CNL
Male	-0.649*** (0.0775)	-0.646*** (-8.37)	-0.649*** (0.0774)
Single	-0.282*** (0.0902)	-0.269*** (0.0893)	-0.252*** (0.0902)
Log of Income	0.0111 (0.032)	0.00762 (0.0327)	0.0105 (0.0302)
Network LS	-0.779*** (0.119)	-0.742*** (0.118)	-0.77*** (0.119)
Network MS	-1.13*** (0.124)	-1.09*** (0.122)	-1.12*** (0.123)
Network HS	-0.738*** (0.227)	-0.695*** (0.224)	-0.728*** (0.227)
Under 65	0.0141*** (0.00364)	0.0141*** (0.0036)	0.0141*** (0.00363)
NTL	-0.624** (0.278)	-0.516** (0.281)	-0.61*** (0.278)
Threat Score	-0.149*** (0.0227)	-0.145*** (0.0226)	-0.148*** (0.0226)

Utility of moving to a foreign location

	MNL	NL	CNL
Log GDP at dest. LS	1.19*** (0.0269)	0.239*** (0.096)	1.12*** (0.0318)
Log GDP at dest. MS	1.32*** (0.0317)	0.264*** (0.107)	1.24*** (0.0363)
Log GDP at dest. HS	1.19*** (0.103)	0.236*** (0.0966)	1.1*** (0.101)
Log of diaspora LS	0.00848 (0.0126)	0.00104 (0.00252)	0.0091 (0.0122)
Log of diaspora MS	0.0411*** (0.0136)	0.00748** (0.00425)	0.037*** (0.0132)
Log of diaspora HS	0.0666*** (0.0257)	0.0127** (0.00741)	0.0599** (0.0244)
MIPEX with LS	-0.186** (0.148)	-0.051 (0.0338)	-0.19 (0.144)
MIPEX with MS	0.615*** (0.187)	0.11** (0.061)	0.486*** (0.186)
MIPEX with HS	0.755** (0.329)	0.137 (0.0859)	0.616** (0.313)

Conclusion

Summary of Findings

- Single and in threatening situation, individual more desire to migrate
- In Pakistan, males with a network have more migration aspiration
- Higher-skilled people prefer destinations with better integration policies for immigrant

Future works

- Revised latent class model specification
  - Possibility of heterogeneity with differences (or high homogeneity contrary to assumptions)
- Separation of perception and experience with threats

Appendix

The Interaction with Threat Score and Education Level

Afghanistan Respondents

Threat Score	Education Level: LS	MS	HS	Total
0	173 (1.78%)	129 (3.50%)	26 (4.16%)	328 (2.34%)
1	650 (6.69%)	376 (10.19%)	66 (10.56%)	1092 (7.79%)
2	1177 (12.12%)	594 (16.10%)	118 (18.88%)	1889 (13.47%)
3	1905 (19.62%)	777 (21.06%)	139 (22.24%)	2821 (20.12%)
4	2213 (22.79%)	771 (20.90%)	133 (21.28%)	3117 (22.23%)
5	1953 (20.12%)	614 (16.64%)	84 (13.44%)	2651 (18.90%)
6	1260 (12.98%)	326 (8.84%)	51 (8.16%)	1637 (11.67%)
7	378 (3.89%)	102 (2.77%)	8 (1.28%)	488 (3.48%)
r=-0.13, Thread Score mean = 3.73				

Pakistan Respondents

Threat Score	Education Level: LS	MS	HS	Total
0	877 (8.99%)	575 (13.36%)	134 (13.84%)	1586 (10.55%)
1	1750 (17.93%)	949 (22.05%)	239 (24.69%)	2938 (19.55%)
2	2292 (23.48%)	1035 (24.05%)	230 (23.76%)	3557 (23.66%)
3	2190 (22.44%)	879 (20.43%)	207 (21.38%)	3276 (21.79%)
4	1610 (16.5%)	557 (12.94%)	112 (11.57%)	2279 (15.16%)
5	730 (7.48%)	225 (5.23%)	35 (3.62%)	990 (6.59%)
6	282 (2.89%)	73 (1.7%)	10 (1.03%)	365 (2.43%)
7	29 (0.3%)	10 (0.23%)	1 (0.1%)	40 (0.27%)
r=-0.11, Thread Score mean = 2.42				

Specification of the utility of staying choice

Variable	Description or question	Gallup question code	Baseline Model	Proposal Model	Class 1	Class 2
Age	Age of the respondent	WP1220	*	*	*	*
Single	Marital status. If married and have a domestic partner, dummy = 0.	WP1223	*	*	*	*
Gender	Gender of the respondent	WP1219	*	*	*	*
Children	Number of children under 15 years of age living in the household	WP1230		*	*	*
Education level	Education level of the respondent	WP3117	*	*	*	*
Income	Household income.	INCOME4	*	*	*	*
Network	Network of the respondent	WP3333	*	*	*	*
Threat Score	Total negative responses to the following questions	WP113, WP117, WP40, WP43, WP93, WP97, WP138		*	*	
Night-Time Light	NPP-VIIRS-like nighttime light data	REGION_AFG REGION_PAK		*	*	*

Specification of the utility of moving choice

Variable	Description	Source	Baseline Model	Proposal Model	Class 1	Class 2
GDP pc	GDP per capita at destination	World Bank	*	*	interact Threat Score	interact Skill Level
Diaspora	Total stock of each country-born	United Nations - International 5-year Migrant Stock in 2020	*	*	*	*
Population	Total population at destination		*	*	*	*
Distance	Distance between each reagion and destination		*	*	*	*
MIPEX	Migrant Integration Policy Index Overall Score with/out health	Policy Indicators Scores (2007-2019) – core set of indicators		*	*	*

https://tristan2025.org/

The 12th Triennial Symposium on Transportation Analysis Conference (TRISTAN XII)

June 22 (Mon.) – June 27 (Fri.) of 2025

TRISTAN XII
OKINAWA JAPAN 22 – 27 June 2025

Keynote Speakers

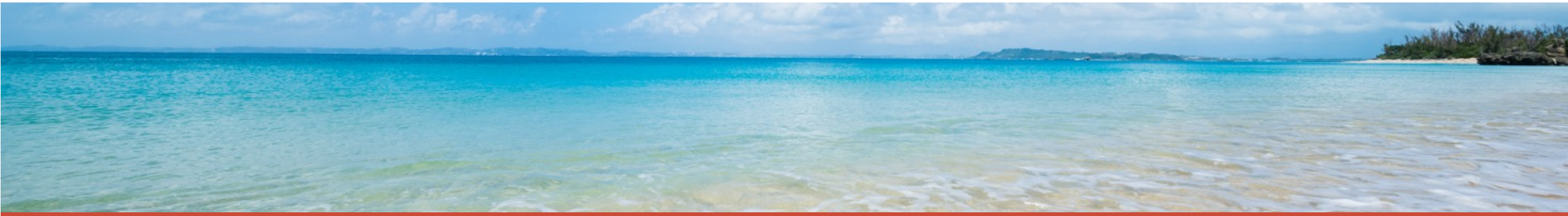
Yafeng Yin
University of Michigan

Karen Smilowitz
Northwestern University

And more to come!

Important Dates

- August 1, 2024
  Submission site open
- **Until October 15, 2024**
  Extended abstract submission
- January 15, 2025
  Notification of acceptance
- Until April 20, 2025
  Early-bird registration
- **June 22-27, 2025**
  Meet in Okinawa!



➔ Submission site will open on August 1st 2024.