



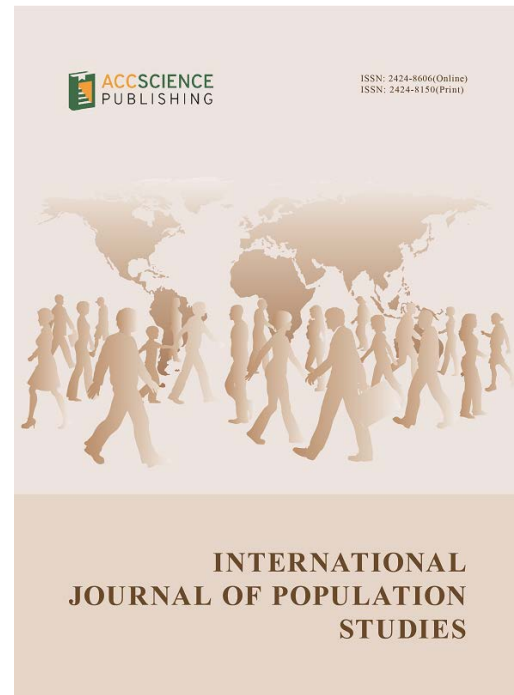
# **INTERNATIONAL JOURNAL OF POPULATION STUDIES**

# International Journal of Population Studies

Print ISSN: 2424-8150

Online ISSN: 2424-8606

*International Journal of Population Studies (IJPS)* is an open access, multidisciplinary journal that publishes high quality original research and timely reviews of recent advances and emerging issues in population processes; dynamics of fertility, mortality, and migration; and linkages with socioeconomic and environmental change across times, spaces, and cultures. The journal aims to provide a platform for researchers worldwide to promote and share cutting-edge knowledge and advances in different areas of population research. Article formats include editorials, research articles, review articles, letters to editors, commentaries, perspectives, reports, and book reviews that address demography and population-related issues. The journal also offers special issues arising from conferences and other meetings.



## About the Publisher

AccScience Publishing is a publishing company based in Singapore. We publish a range of high-quality, open-access, peer-reviewed journals and books from a broad spectrum of disciplines.

### Contact Us

Managing Editor  
ijps.office@accscience.sg

AccScience Publishing  
9 Raffles Place, Republic Plaza 1 #06-00 Singapore 048619.

Volume 11 • Issue 6 • November 2025  
ISSN 2424-8150 (print) ISSN 2424-8606 (online)

# INTERNATIONAL JOURNAL OF POPULATION STUDIES

**Editor-in-Chief**

**Danan Gu**

*United Nations, New York, United States*



Access Science Without Barriers

**Full issue copyright © 2025 AccScience Publishing**

All rights reserved. Without permission in writing from the publisher, this full issue publication in its entirety may not be reproduced or transmitted for commercial purposes in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system. Permissions may be sought from [ijps.office@accscience.sg](mailto:ijps.office@accscience.sg).

**Article copyright © Respective Author(s)**

See articles for copyright year. All articles in this full issue publication are open-access. There are no restrictions in the distribution and reproduction of individual articles, provided the original work is properly cited. However, permission to reuse copyrighted materials of an article for commercial purposes is applicable if the article is licensed under Creative Commons Attribution-NonCommercial License. Check the specific license before reusing.

***International Journal of Population Studies***

ISSN: 2424-8150 (print)

ISSN: 2424-8606 (online)

**Editorial and Production Credits**

Publisher: AccScience Publishing

Managing Editor: Alicia Tian

Production Editor: Sharmila Velapasamy

Article Layout and Typeset: Sinjore Technologies (India)

Cover Design: ProPub (China)

For all advertising queries, contact

[ijps.office@accscience.sg](mailto:ijps.office@accscience.sg).

**Supplementary file**

Supplementary files of articles can be obtained at

<https://accscience.com/journal/IJPS/11/6>.



**Disclaimer**

AccScience Publishing is not liable to the statements, perspectives, and opinions contained in the publications. The appearance of advertisements in the journal shall not be construed as a warranty, endorsement, or approval of the products or services advertised and/or the safety thereof. AccScience Publishing disclaims responsibility for any injury to persons or property resulting from any ideas or products referred to in the publications or advertisements. AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

# International Journal of Population Studies

## Editorial Board

### **Editor-in-Chief**

**Danan Gu**

Population Division, Department of Economic and Social Affairs, United Nations, New York, United States

### **Deputy Editor**

**Qiushi Feng**, *Singapore*

### **Associate Editor**

**Hans-Peter Blossfeld**, *Germany*

### **Section Editors**

**Huda Alkitkat**, *Egypt*

**Xue Bai**, *China*

**Federico Benassi**, *Italy*

**Tianji Cai**, *Macau*

**Huashuai Chen**, *China*

**Zhixin Feng**, *China*

**Goran Miladinov**, *Macedonia*

**Lorretta Ntoimo**, *Nigeria*

**Sangram Kishor Patel**, *India*

**Amany Refaat**, *Egypt*

**Gabriele Rui**, *Italy*

**Kun Wang**, *USA*

**Fang Yang**, *China*

### **Editorial Board Members\***

**Rosa María Aisa Rived**, *Spain*

**Luciana Correia Alves**, *Brazil*

**Elena Ambrosetti**, *Italy*

**Pau Baizan**, *Spain*

**Marija Bogataj**, *Slovenia*

**Gabriel Mendes Borges**, *Brazil*

**Cassandra D. Chaney**, *USA*

**Wei Chen**, *China*

**Zhenxiang Chen**, *Canada*

**Kailash Chandra Das**, *India*

**Gustavo De Santis**, *Italy*

**Dusan Drbohlav**, *Czech Republic*

**Sonja Drobnič**, *Germany*

**Matthew E. Dupre**, *USA*

**Viviana Egidi**, *Italy*

**Ann Evans**, *Australia*

**Fabiane Ribeiro Ferreira**, *Brazil*

**Mirjam Fischer**, *Germany*

**Angel M. Foster**, *Canada*

**Yuanyuan Fu**, *China*

**Elizabeth Fussell**, *USA*

**Víctor Manuel García-Guerrero**, *Mexico*

**Vasilis Gavalas**, *Greece*

**Cecilia Gayet**, *Mexico*

**Ashley Larsen Gibby**, *USA*

**Cristina Giudici**, *Italy*

**Raphael Mendonça Guimarães**, *Brazil*

**Monica Das Gupta**, *USA*

**Masa Higo**, *Japan*

**Quanbao Jiang**, *China*

**Aramide Kazeem**, *USA*

**Caroline Krafft**, *USA*

**David P. Lindstrom**, *USA*

**Daniel Lois**, *Germany*

**Rikiya Matsukura**, *Japan*

**Komanduri S. Murty**, *USA*

**Rangasamy Nagarajan**, *India*

**Livia Olah**, *Sweden*

**José Antonio Ortega**, *Spain*

**John Lekan Oyefara**, *Nigeria*

**Neir Antunes Paes**, *Brazil*

**Yaolin Pei**, *USA*

**Gina Potarca**, *Switzerland*

**Chiara Daniela Pronzato**, *Italy*

**Luule Sakkeus**, *Estonia*

**Prayas Sharma**, *India*

**Max O. Stephenson**, *USA*

**David A. Swanson**, *USA*

**Ivett Szalma**, *Hungary*

**Md. Ismail Tareque**, *Bangladesh*

**David B. Ugal**, *Nigeria*

**Eunice Danitza Vargas Valle**, *Mexico*

**Patrizio Vanella**, *Germany*

**Ning Wang**, *China*

**Senhu Wang**, *Singapore*

**Philippe Wanner**, *Switzerland*

**Tom Wilson**, *Australia*

**Hongwei Xu**, *USA*

**Na Yin**, *USA*

**Haiyan Zhu**, *USA*

\*Editorial Board Members as of November 12, 2025

## CONTENTS

1	<b>Educational facilitators and key barriers for Rohingya children with disabilities in refugee camps</b> <i>Mohammed Mamun Rashid, Md. Sofuggzaman, Paramjit Singh Jamir Singh</i>	PERSPECTIVE ARTICLE
15	<b>Navigating the complexities of migration data management: Challenges and opportunities</b> <i>Abduvaliev Mubinzhon</i>	PERSPECTIVE ARTICLE
31	<b>Dynamic gender differences in reporting work limitations: Comparative evidence from the United States and Europe</b> <i>Na Yin, Danan Gu</i>	RESEARCH ARTICLE
50	<b>Migration to non-metropolitan communities: Community-based perspectives on immigrant settlement and multicultural diversity in a small city in Canada</b> <i>Ryan Thyra Lok, Zhixi Cecilia Zhuang</i>	RESEARCH ARTICLE
67	<b>The paradox of urban decline in India</b> <i>Nawaj Sarif, Archana K. Roy</i>	RESEARCH ARTICLE
81	<b>Social exclusions of a Burmese refugee woman's migration journey in the United States</b> <i>Jue Wang, Lan Kolano</i>	RESEARCH ARTICLE
92	<b>HopeScape: Redesigning public spaces for women and girls in South African cities</b> <i>Kiara Rampaul, Hangwelani Hope Magidimisha-Chipingu</i>	RESEARCH ARTICLE
116	<b>Internal migration in Indonesia: Remapping trajectories</b> <i>Agus Joko Pitoyo, Sukamdi Sukamdi, Muhammad Arif Fahrudin Alfana, Nanang Widaryoko</i>	RESEARCH ARTICLE
130	<b>Refugee integration through social support: A clustering approach in host countries</b> <i>Valeriia Shcherbak, Svitlana Tereshchenko, Tetiana Kostyshyna, Viktoriia Riashchenko, Valentyna Yatsenko</i>	RESEARCH ARTICLE
144	<b>A quantitative analysis framework for reducing urban poverty among the B40 group in Malaysia: A case study in People's Housing Project in Kerinchi, Kuala Lumpur</b> <i>Nik Norliati Fitri Md Nor, Nur Amani Amalina Basri, Azimah Abdul Rahman, Siti Masayu Rosliah Abdul Rashid</i>	REPORT

## PERSPECTIVE ARTICLE

Educational facilitators and key barriers for  
Rohingya children with disabilities in refugee  
campsMohammed Mamun Rashid<sup>1</sup>, Md. Sofuggzaman<sup>2</sup>, and Paramjit Singh  
Jamir Singh<sup>3\*</sup><sup>1</sup>Department of Media Studies and Journalism, Adjunct Faculty, School of Social Sciences, University of Liberal Arts Bangladesh, Dhaka, Bangladesh<sup>2</sup>Unit of Disability Inclusion, CARE Bangladesh, Dhaka, Bangladesh<sup>3</sup>Social Work Section, School of Social Sciences, Universiti Sains Malaysia, George Town, Penang, Malaysia

## Abstract

The persecution of the Rohingya population – Myanmar’s Muslim minority – has emerged as a grave injustice in the context of the global refugee crisis. In 2017, over 773,000 Rohingya, including approximately 400,000 children, fled to the Cox’s Bazar district of Bangladesh. This paper examines the facilitators and key barriers to the education of refugee children with disabilities and the major areas of intervention that stakeholders undertake to enhance their educational access. Ten Rohingya camps were selected for the study, which included four focus group discussions with 10 parents and 10 teachers, and a survey of 100 children with disabilities using a printed questionnaire. A non-probability purposive sampling technique was employed. The findings reveal that donor-driven support, policy prioritization for children with disabilities, trained teachers, and the presence of joyful learning centers operated by implementing non-governmental organizations serve as major educational facilitators. Conversely, the study identifies significant barriers such as inadequate facilities such as ramps and toilets, a lack of assistive devices, limited access to sports and recreation, underdeveloped referral pathways, insufficient home-based learning opportunities, and a scarcity of special education materials. Finally, the article offers a set of recommendations and highlights key stakeholders to ensure the right to education for these marginalized children.

**Keywords:** Children with disabilities; Donors; Education; Non-governmental organizations; Stakeholders; Well-being

## 1. Introduction

Disability is an integral part of the human experience. The United Nations Convention on the Rights of Persons with Disabilities, adopted on December 13, 2006, defines disability as “Persons with disabilities include those who have long-term physical, mental, intellectual, or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others” (UN, 2006). According to the World Health Organization (WHO, 2022), approximately

**\*Corresponding author:**  
Dr. Paramjit Singh Jamir Singh  
(paramjit@usm.my)

**Citation:** Rashid, M.M.,  
Sofuggzaman, M. & Singh, P.S.J.  
(2025). Educational facilitators and  
key barriers for Rohingya children  
with disabilities in refugee camps.  
*International Journal of Population  
Studies*. 11(6): 1-14.  
<https://doi.org/10.36922/ijps.8097>

**Received:** December 20, 2024

**1st revised:** April 22, 2025

**2nd revised:** May 11, 2025

**3rd revised:** May 13, 2025

**Accepted:** May 14, 2025

**Published online:** June 26, 2025

**Copyright:** © 2025 Author(s).  
This is an Open-Access article  
distributed under the terms of the  
Creative Commons Attribution  
License, permitting distribution,  
and reproduction in any medium,  
provided the original work is  
properly cited.

**Publisher’s Note:** AccScience  
Publishing remains neutral with  
regard to jurisdictional claims in  
published maps and institutional  
affiliations.

1.3 billion people – about 16% of the global population – experience significant disabilities. These include substantial impairments in physical, cognitive, or sensory functions that considerably limit individuals' ability to participate in daily activities and societal life. Despite some progress, WHO emphasizes that the world remains far from fully realizing the rights of many persons with disabilities.

The United Nations Children's Fund (UNICEF, 2021) reports that nearly 240 million children worldwide live with various forms of disability. Many of these children face severe exclusion and deprivation in their daily environments. Children experiencing multiple disabilities are particularly disadvantaged. For example, a child with both physical and intellectual impairments is more vulnerable to exclusion from education, employment, and social participation. Those from impoverished socioeconomic backgrounds are especially neglected and deprived of their rights (UNICEF, 2021, pp. 10 – 15).

Beresford *et al.* (2010) provide evidence that positive developmental activities for children and youth with disabilities have numerous beneficial impacts on their lives. Similarly, Araújo *et al.* (2016) highlight that a range of supports – including economic, health care, caregiving, physiotherapy, psychosocial, educational, recreational, social, and professional services – can significantly improve their quality of life.

Globally, people suffer from various exogenous and endogenous challenges, among which forced displacement is a critical concern. The United Nations High Commissioner for Refugees (UNHCR, 2023) reports that over 100 million people have been forcibly displaced due to persecution, conflict, and human rights violations, marking the highest level of displacement ever recorded. Crea *et al.* (2022) note that many children in refugee camps face significant obstacles in accessing education, with children with disabilities being particularly vulnerable in exercising their educational rights. Ficarra (2017) further criticizes the lack of research on educational issues specifically affecting refugee children.

The Rohingya people have long experienced systemic deprivation and persecution in Myanmar. In August 2017, more than 773,000 Rohingya – including around 400,000 children – fled to Bangladesh, settling in the Cox's Bazar district, which has become the fastest and largest refugee influx in recent history. According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA, 2022), the Rohingya are considered the most persecuted Muslim minority in the world. Shohel (2022) notes that international humanitarian agencies are actively working in partnership with non-governmental

organizations (NGOs) to provide education for Rohingya refugee children in Bangladesh. However, they face several challenges, including limited space in overcrowded camps for building learning facilities, long distances between shelters and learning centers (LCs), lack of parental or caregiver awareness, high dropout rates among adolescent girls due to cultural taboos and early marriage, domestic responsibilities, child labor, a shortage of qualified Myanmar language teachers (especially female teachers), a lack of certification for learners, and the psychological trauma experienced by children.

Despite these efforts, the educational needs of children with disabilities in Rohingya camps remain methodologically underexplored. The primary aim of this study is to examine the primary facilitators and barriers to education for children with disabilities living in Rohingya refugee camps. Based on identified successes and existing gaps, the study also proposes a set of recommendations for key stakeholders to enhance educational support for these marginalized children.

## 1.1. Education in Rohingya camps

The Education Sector (2023) in Cox's Bazar reported that a total of 330,024 learners (169,561 boys and 160,463 girls), aged between 3 and 24 years, are continuing their studies through 6,018 learning facilities in the refugee camps. Three types of donor-supported learning facilities are available: 3,470 LCs, 2,348 community-based learning facilities, and 200 cross-sectoral shared learning facilities. A total of 5,221 Burmese teachers (3,547 males and 1,674 females) and 3,378 host community teachers (866 males and 2,512 females) are involved in delivering education. Notably, UNICEF and UNHCR operate 2,600 and 500 LCs, respectively. A total of 31 implementing partners are engaged in providing education for Rohingya children. Figure 1 shows the grade-wise distribution of the 330,024 learners. In addition, Figure 2 illustrates that 2,779 learners with disabilities (1,599 boys and 1,180 girls) are continuing their studies in the Rohingya camps.

## 1.2. Theoretical and operational frameworks

Luhmann and Rasch (2002) argue that inclusion is inseparably intertwined with the functional differentiations within society. Inclusive education, in all its forms, stems from a rights-based philosophy (Subotić & Anđić, 2014). Mortier *et al.* (2010) emphasize that empowering communities and implementing practical, context-sensitive strategies are key to ensuring the inclusion of children with disabilities in educational settings. It is important to note that this study specifically focuses on including children with disabilities in education.

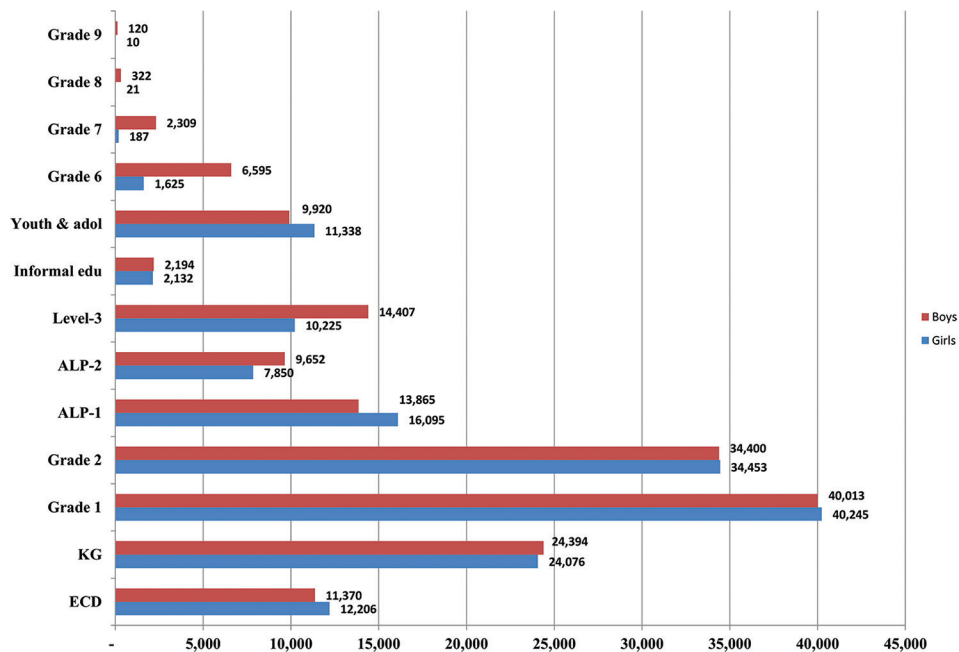


Figure 1. Grade-wise distribution of learners in Rohingya camps

Abbreviations: Adol: Adolescents; ALP: Accelerated learning package; ECD: Early childhood development; Edu: Education; KG: Kindergarten.

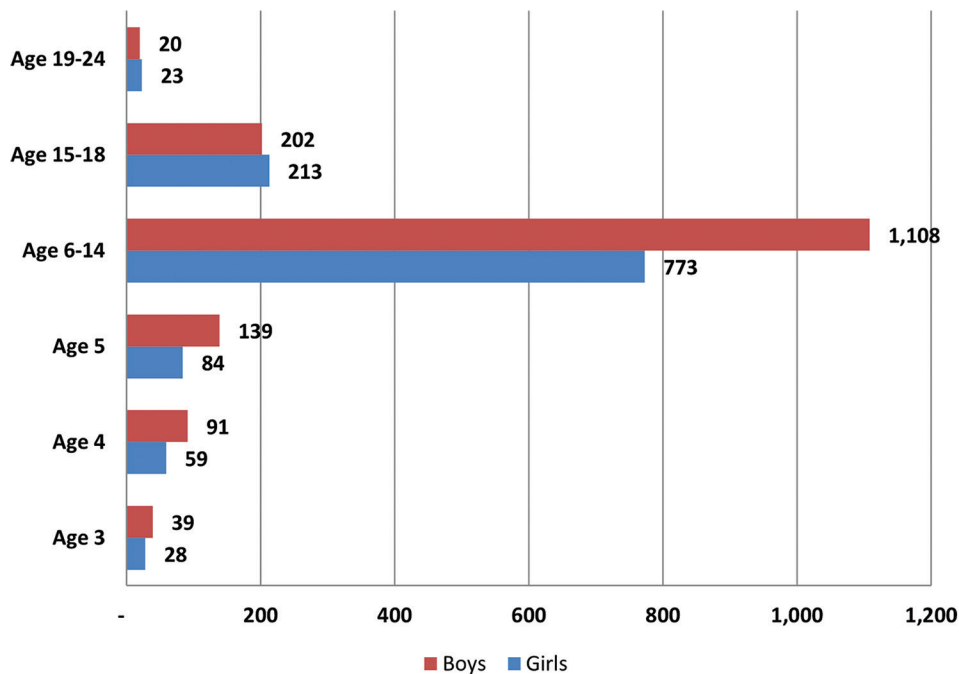


Figure 2. Age-wise distribution of children with disabilities

In the Rohingya refugee context in Bangladesh, Shohel *et al.* (2023) observe that access to education for Rohingya children is gradually improving. Despite the challenging living conditions in the camps, the Rohingya community is eager to make the most of the available opportunities.

However, the current learning facilities and opportunities must be significantly scaled up to fully realize the right to education for these children. Children with disabilities are especially vulnerable and require focused support and attention. Innovative strategies – such as e-learning

opportunities, specialized educational materials, and skilled personnel – are necessary to meet their needs. Yates *et al.* (2019) further highlight that foreign aid and local ownership are equally important in advancing the education of children with disabilities.

This study adopts three theoretical lenses – social systems theory, foreign aid theory, and community development theory – to construct its conceptual foundation and develop an operational framework for examining facilitators and barriers to education for children with disabilities in the Rohingya camps. Rapp and Corral-Granados (2024) noted that education for children with disabilities is often framed through normative concepts such as “justice” and “democracy.” However, operationalizing these ideals in real-world contexts is challenging due to the subjective interpretations that vary across time and place. For instance, educational systems often apply context-specific inclusion and exclusion criteria. Nevertheless, the current study seeks to move beyond these contextual limitations and examine the education of children with disabilities through a normative, rights-based lens.

Social systems theory, developed by Luhmann in 1995, views society as a network of interactions among various actors and institutions, structured through shared cultural norms. It explains the relational dynamics between individuals, groups, sub-groups, and institutions. In this context, the Rohingya are victims of targeted violence and live as stateless refugees, forming a unique societal subsystem within refugee camps.

In terms of foreign aid, Wamboye *et al.* (2013) found that it promotes a safer environment for refugees, supporting essential areas such as nutrition, health, and education. Similarly, Burde *et al.* (2017) emphasize the value of foreign assistance in education during emergencies and post-emergency recovery, helping to safeguard children’s emotional and behavioral well-being. Pankaj (2005) outlines two competing perspectives in foreign aid theory: (i) pro-aid, which views aid as a catalyst for peace and prosperity between developed and developing nations, and (ii) anti-aid, which critiques aid as a form of neo-imperialism that perpetuates inequality. In the context of the Rohingya crisis, foreign aid has played a crucial role in meeting basic needs such as food and shelter. However, as the Rohingya population has remained in camps since 2017, there is now an urgent need for foreign agencies to prioritize strategies for their safe and sustainable repatriation to Myanmar.

Community development is a process of socioeconomic improvement that empowers individuals and groups to collaborate in enhancing their living standards and expanding their opportunities (Weil *et al.*, 2005). Pandey

(1981) describes community development theory as participative, distributive, and focused on human development. Lane (1995) further emphasizes the pivotal role of participation in development theory, whereas Hall & Midgley (1986) highlight that community participation is informed by social work, development theory, radical community action, and Western ideologies. The decision to employ social systems theory, foreign aid theory, and community development theory was driven by their relevance in explaining and linking the structural, financial, and participatory factors influencing the education of children with disabilities in Rohingya camps.

Figures 3 and 4 present the theoretical and operational frameworks of this study.

### 1.3. Research questions

This paper aims to examine the major facilitators and barriers to education for children with disabilities living in Rohingya camps and to provide actionable recommendations. We address two key research questions:

- (i) What are the major facilitators and barriers to education for children with disabilities?
- (ii) What are the key areas of intervention for relevant stakeholders to enhance educational opportunities for children with disabilities?

## 2. Data and method

The study design serves as a comprehensive framework or step-by-step process for achieving the research objectives. It outlines the study instruments, sample population, sampling procedures, data collection methods, analysis techniques, and the ethical considerations addressed. This study employs both qualitative and quantitative descriptive approaches.

**Table 1. Focus group discussion participants: Parents of children with disabilities**

Participant	Sex	Age	Education	Relationship	Living place
1	Female	27	Illiterate	Mother	Camp 7
2	Female	36	Grade 5	Mother	Camp 7
3	Female	30	Illiterate	Mother	Camp 7
4	Female	38	Illiterate	Mother	Camp 7
5	Female	32	Grade 3	Mother	Camp 7
6	Male	30	Grade 4	Father	Camp 12
7	Male	36	Illiterate	Father	Camp 12
8	Male	35	Illiterate	Father	Camp 12
9	Male	52	Grade 4	Father	Camp 12
10	Male	31	Grade 8	Father	Camp 12

Source: Fieldwork, April – May 2023.

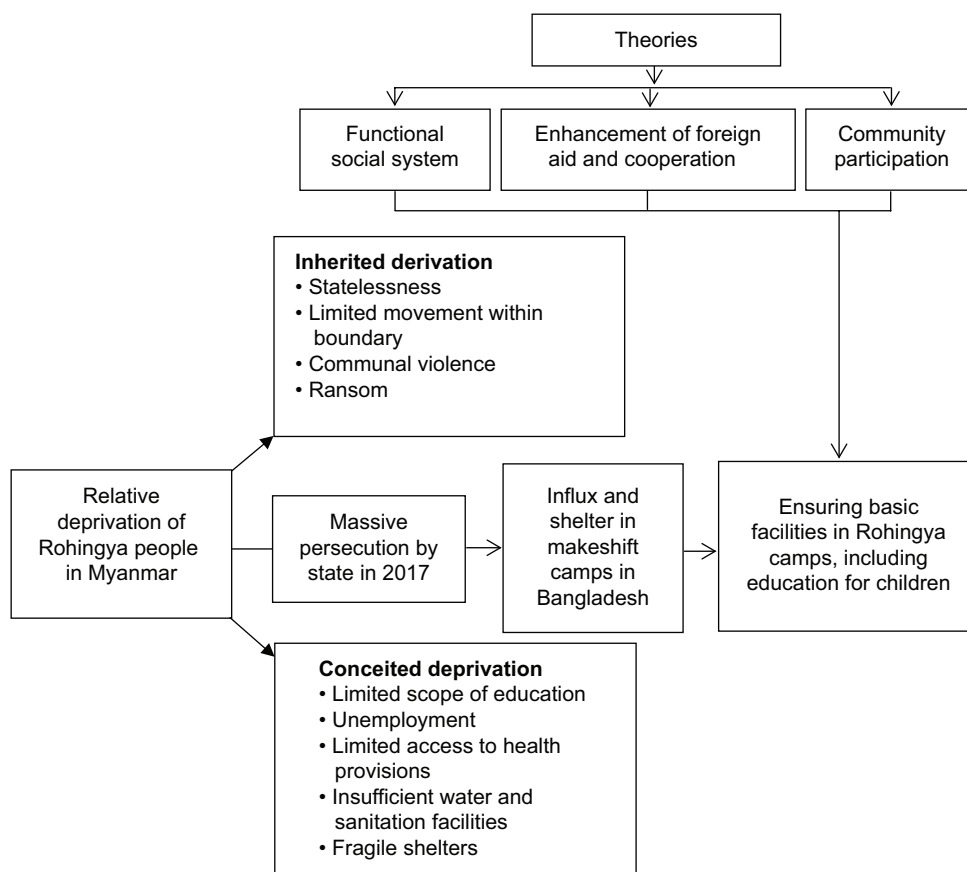


Figure 3. Theoretical framework

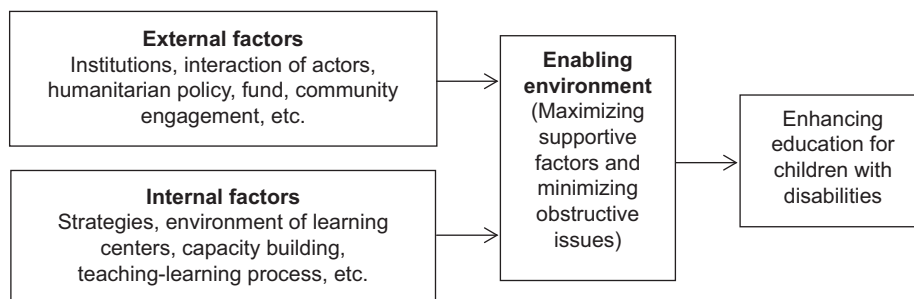


Figure 4. Operational framework

### 2.1. Sample

This study utilized focus group discussions (FGDs) and a survey involving children with disabilities. A total of 120 participants took part, including 100 children. The research was conducted in 10 Rohingya camps: Camps 2W, 4, 7, 11, 12, 14, 24, 25, 26, and 27. A total of 20 participants – including teachers from the Rohingya camps and host communities, as well as parents of children with disabilities – participated in separate FGD sessions. The list of FGD participants is presented in Tables 1 and 2. From a total of 3,470 LCs, 80 were selected using a non-probability purposive sampling

technique, specifically focusing on centers where children with disabilities are enrolled. A total of 100 children with disabilities (53 boys and 47 girls) were the primary respondents in the survey.

### 2.2. Instruments

Van and Angehrn (2017), Ali *et al.* (2020), Rashid *et al.* (2020), and Azman *et al.* (2021) suggest that 5 – 10 participants are standard for an FGD, with smaller groups often being more informative. Following this scholarly recommendation, we selected five participants for each 1-h FGD session. Two sets of FGD protocols – one for

**Table 2. Focus group discussion participants: Teachers of learning centers**

Participant	Sex	Age	Education	Marital status	Occupation	Living place
11	Male	23	Grade 12	Unmarried	Burmese teacher	Camp 12
12	Male	24	Grade 10	Married	Burmese teacher	Camp 12
13	Male	34	Grade 12	Married	Burmese teacher	Camp 12
14	Male	46	HSC	Married	Host community teacher	Ukhiya
15	Male	30	BSc	Married	Burmese teacher	Camp 12
16	Female	21	HSC	Unmarried	Host community teacher	Ukhiya
17	Female	24	BA	Married	Host community teacher	Ukhiya
18	Female	43	HSC	Married	Host community teacher	Ukhiya
19	Female	21	Grade 8	Married	Burmese teacher	Camp 2W
20	Female	23	Grade 8	Married	Burmese teacher	Camp 2W

Source: Fieldwork, April to May 2023.

Abbreviations: BA: Bachelor of Arts; BSc: Bachelor of Science; HSC: Higher secondary certificate.

parents and one for teachers – were prepared in English and conducted in the Rohingya dialect by the author. Social workers assisted with translation from the Rohingya dialect to Bengali. Due to religious practices and social taboos, male and female parents participated in separate FGDs (held in Camp 7 and Camp 12, respectively). Female participants expressed greater comfort with this arrangement.

Two FGDs with teachers were held in Camps 2W and 12. Each session was moderated to capture the lived and subjective experiences of the participants. The discussion took place among the participants themselves, with the facilitator only posing questions to guide the conversation. A tape recorder was used during the FGDs with both Rohingya and host community teachers. However, in consideration of privacy and based on participant consent, note-taking was used instead of audio recording during FGDs with parents.

A survey was also conducted to interview children with disabilities, adhering to the guidelines of the *Module on Child Functioning: Manual for Interviewers* (Washington Group on Disability Statistics, 2018) to minimize functional difficulties. Surveys were conducted in the children’s native language with the help of translators and took place within the respective LCs. Each child answered 15 closed-ended questions about educational facilities and barriers, with each interview lasting approximately 20 min. Only the interviewer, a female, and a male social worker were present during the sessions. The social workers facilitated seating arrangements, translated the Rohingya dialect, obtained caregiver consent, and ensured the children returned safely to their families. They also collected LC-specific data such as the availability of a first aid box, menstrual hygiene products, and referral pathways.

A phenomenological and exploratory approach was adopted for the FGDs with parents and teachers of children with disabilities. Moustakas (1994), Oke *et al.* (2022), Ali *et al.* (2022), and Oke *et al.* (2023) describe phenomenology as a method for exploring and describing the meaning of individuals’ lived experiences of a shared phenomenon. All participants had a similar experience with a particular issue – in this case, the education of children with disabilities – sharing their emotions, perceptions, preferences, interpretations, and goals. Ricci *et al.* (2019), Islam *et al.* (2019), Singh *et al.* (2023), and Oke *et al.* (2024) emphasize that incorporating respondent surveys within qualitative methods strengthens participant perspectives by enhancing adequacy and comprehensiveness. Well-constructed questionnaire items in the survey also help to ensure the content validity of the qualitative approach.

### 2.3. Procedures

This study conducted a survey from April to June 2023 in LCs, where children with disabilities were the main respondents. The questionnaire comprised 26 items, covering aspects such as the respondent’s name, sex, age, level of education, type, and pattern of disability, distance between the LC and their home, and the availability of ramps, pathways, gender-segregated toilets, sanitary pads, water and hygiene materials, a first aid box, sufficient lighting, seating arrangements, appropriate learning materials, the use of an Individualized Education Plan (IEP), referral systems, transportation facilities, assistants for easier access, assistive devices, a joyful learning environment, peer support, participation in life skills and personal hygiene sessions, sports and recreational facilities (both within and outside the LC), and the attitudes of teachers and community members toward them.

Notably, 15 items were asked directly to each child, focusing on aspects such as joyfulness, home-based education, peer support, outdoor sports, and bullying experiences. The interviewer tailored the questions to suit the children's level of understanding. For example, pictures, body language, signs, and facial expressions were used to ensure better comprehension, particularly for children with intellectual disabilities. The remaining 11 items – such as a first aid box, accessible pathways, and referral systems – were verified by two social workers through physical inspection of the LCs. The involvement of social workers was instrumental in ensuring accurate data collection, reducing the authors' workload, and saving time.

## 2.4. Analytical strategies

The Statistical Package for the Social Sciences and ATLAS.ti (Windows 8 version) were used to analyze the survey and FGD data, respectively. These software tools facilitated comparative analysis, such as examining the number of pathways in LCs between 2017 (the year of the Rohingya refugee influx) and the study period. They also supported the generation of approximate codes. The coding process enabled the interpretation of text categories and the identification of emerging themes. Furthermore, relevant verbatim quotes were used in this study to establish a strong connection between specific codes and interview data. Using exact quotes helped bridge the gap between the reader and the participants. In addition, a consistent labeling system was applied to the survey data to identify themes aligned with the research questions.

## 2.5. Reliability and validity

Regarding the reliability and validity of qualitative methods, Cypress (2017) emphasizes the importance of confirming these factors during the inquiry process rather than through post-evaluation. The approach must be process-centric. We followed a step-by-step procedure for conducting FGDs. For instance, we established inclusion criteria such as voluntary participation, a minimum of 1 year's teaching experience in an LC or working with children with disabilities, being a parent of a child with disabilities, a minimum age of 18, and experience living in Rohingya camps. We also ensured a manageable number of participants, gender-segregated seating for parents, open-ended questions to elicit honest responses, effective time management, culturally appropriate facilitation, and audio recording of the conversations.

We conducted a pilot study with six respondents to test the children's survey. The respondents agreed with the items on the questionnaire and proposed the addition of three more questions. This feedback provided evidence that the construction of the questionnaire was systematic

and reliable. Validity refers to how accurately a method measures the aspects it is intended to measure. In some cases, the survey respondents' answers were cross-checked with documents from the LC.

## 2.6. Research ethics

We ensured that ethical considerations were upheld throughout the entire process, from fieldwork to the publication of the paper. Respondents were clearly informed that the data would be used solely for academic research purposes and that the confidentiality of all data and participant comments would be maintained. Leading and sensitive questions were avoided, and we ensured the use of language that respected dignity, privacy, anonymity, and equality and was age-appropriate. This paper includes significant findings and references from relevant literature.

## 3. Results

### 3.1. Profile of participants

A total of 20 participants attended four separate FGDs. The profiles of the FGD participants are provided in Tables 1 and 2. Out of the 100 selected children with disabilities, 53 are boys and 47 are girls. The majority (59%) of learners are from Grades 1 and 2. The age range of 73% of the learners is between 8 and 12 years; 6% are below 8 years, and 21% are above 12 years. Among the children, 31% of the children have intellectual disabilities, 16% have speech disabilities, 14% have physical disabilities, 10% have hearing disabilities, 8% have visual disabilities, and the remaining 21% have multiple disabilities (i.e., physical and intellectual) or other types of disabilities.

Based on the data analysis of benefits, barriers, and strategies, the following section highlights the main themes, including donor policy, the LC environment, teachers' knowledge and attitudes, learning materials and approaches, harassment, and other factors.

### 3.2. Policy of humanitarian agencies

The Cox's Bazar education sector and donor agencies prioritize the education of children with disabilities. They seek technical support from Handicap International – Humanity and Inclusion for the identification of children with disabilities, module development, and capacity building for teachers and personnel of implementing partners. Donor organizations set targeted figures for implementing partners to prioritize the admission of children with disabilities in LCs. FGD participant 15 shared his perspective: "Some parents are not interested in sending children with disabilities to LCs. However, we motivate them through home visits and personal rapport

building. We try our best to bring them to nearby LCs. Our supervisors assist dedicatedly during the survey of new learners, discussions with parents of children with disabilities, and prioritize their admission. Our funding agency has a directive to prioritize children with disabilities during new enrollment in LCs.” We found that this is one of the key facilitators in ensuring the provisions and rights of children to access education are upheld. FGD participants #3 and #8 added: “World Food Program ensures a fresh food corner for children with disabilities. Each child with disabilities receives extra food valued at United States Dollars 2.50.”

### 3.3. LC

We observed that each LC is decorated with low-cost materials, including drawings of animals, flowers, birds, trees, Burmese and English letters, numbers, words, messages, songs, the Myanmar anthem, days of the week, months of the year on art paper, charts, flipcharts, hand-made crafts, posters related to personal hygiene, and sketches by children, among others. LCs in the Rohingya camps are located in the hilly areas of Cox’s Bazar. In general, the size of one large LC with an extended room is 48.77 m<sup>2</sup> (length: 7.62 m; width: 6.40 m), and the height is 3.66 m. LCs are made of bamboo, have brick floors, and are roofed with tarpaulin. All surveyed LCs have fire extinguishers, a first aid box, jars of drinking water, handwashing devices, menstrual pads, a complaint box, a festoon displaying six core principles on Protection from Sexual Exploitation and Abuse, and learning materials. The Education Sector in Cox’s Bazar has set a standard capacity of 40 learners per shift. However, this study shows that one shift accommodates an average of 49.27 learners, resulting in overcrowded classrooms.

In 2017, there were no pathways in the Rohingya camps except in two registered camps. Gradually, the site management constructed pathways and this work is ongoing. It was found that 15 LCs (18.75%) still have no pathway for easy access. Unfortunately, ramps are not available in 76 LCs (95%). A total of 46 LCs have their own gender-segregated toilets with signs for boys and girls. Learners from 34 LCs use community toilets. Regrettably, only two LCs have disability-accessible toilets. Service mapping is available in 69 LCs (86.25%), which includes the name of the focal person, phone number, and service-providing organizations such as camp administration, gender-based violence case management, child protection case management, legal assistance, health services, food and nutrition, rehabilitation services, as well as water, sanitation, and hygiene facilities. FGD participant 20 stated: “We hang the service mapping in a visible place in our LC with all the required information. We use very

low-cost materials to prepare this map. Teachers maintain close contact with the designated focal person of respective agencies in the camp. It is beneficial for all learners, including children with disabilities.”

The referral pathway includes identifying the referral needs of children with disabilities and reaching an agreement with them and their caregivers, contacting referral service providers, using referral forms, obtaining sign-in consent forms, ensuring follow-up, and providing feedback to beneficiaries. Unfortunately, only 13 LCs have properly followed and recorded the referral pathway. It is evident that the referral system for specific services for children with disabilities is receiving less attention. FGD participant 11 expressed concern about this, saying: “The referral pathway is very helpful in referring children with disabilities to different services, such as nutrition, health, and protection when needed. One of my learners with a physical disability obtained a Service Card from the Centre for Disability in Development (CDD). The CDD provides a Service Card with a barcode and offers door-to-door rehabilitation services. I do my best to keep a record of the referral system.”

### 3.4. Knowledge and attitudes of teachers

In the Rohingya refugee context, Handicap International – Humanity and Inclusion specializes in building the capacity of teachers (i.e., Burmese teachers and host community teachers) and personnel from implementing NGOs regarding disability inclusion in the education system. Partner NGOs organize training sessions, during which Handicap International – Humanity and Inclusion provides technical guidance. It was found that 156 teachers (85 males and 71 females) from 80 selected LCs have received training on inclusive education, accounting for 97.50% of the total. Their knowledge and attitudes have improved over time. In this regard, FGD participant 13 commented: “Training on inclusive education (mostly focused on education for children with disabilities) changed our mindset. I have received this training twice. I did not have knowledge about the education of children with disabilities. Now I believe that there is no difference between children with disabilities and children without disabilities. I am more aware of their rights. I visit the homes of my students if they are absent for four consecutive days. Through home visits, I can find out the reason for their absence and motivate both the student and their parents to send the student to the LC.”

Life skills and personal hygiene sessions are conducted for all learners twice a week. FGD participant 17 mentioned: “We discuss topics such as the growing body, balanced diet, self-awareness, the dangers of smoking, kindness, and love,

coping with emotions, creative thinking, respect for others, caring for the environment, natural hazards, hygiene-oriented skills (such as cutting fingernails, using a sanitary latrine, how to brush teeth, washing hands, cleanliness), menstruation management, water-borne diseases, and more. It is helpful for all learners, including children with disabilities.”

### **3.5. Home-based learning, teaching materials, and individualized plan**

According to the study’s findings, the minimum distance between an LC and a learner’s family home is 4 m, and the maximum distance is 200 m. For the majority of learners (65%), the distance falls between 20 and 100 m. Donor agencies highly prioritize accommodating children with disabilities near LCs, but in some cases, this is not feasible due to the limited number of learning facilities compared to the number of learners. FGD participant 1 mentioned: “My son cannot attend the LC regularly due to a lack of support and illness. I am busy with household tasks and do not have knowledge about academic learning activities. I expect home-based learning for my child. It will be helpful for other children with disabilities in my community who are unable to come to the LCs.” FGD participants 4 and 6 echoed this statement. According to them, “We were deprived in Myanmar and did not understand the value of education. Gradually, we are realizing its importance through messages from NGO workers, discussion meetings, awareness sessions, dialogue in women-friendly spaces, and public announcements in camps. Some parents still do not send their children with disabilities to the LCs due to a lack of awareness, security concerns, and shame. Girls with disabilities are particularly underprivileged in this regard. Home-based learning is very important for these neglected children.”

Our findings reveal that only a few teachers (18.75%) use accessible education materials or no-cost and low-cost education materials in LCs for children with disabilities. These materials are mainly made from local resources like water bottles, wood, bamboo, cloth, biscuit cartons, mud, and colored paper. Unfortunately, no educational materials (e.g., braille, sign language tools, color contrast books) are available for children with severe visual, hearing, or speech disabilities. FGD participant 12 said: “We were far behind in education and understanding the rights of children with disabilities. Now our mindset has changed positively after training, review, and follow-up. We use common learning materials for all. Now it is the right time to develop appropriate educational materials for children with disabilities and increase our technical capacity.”

An IEP is a useful tool for setting learning and process objectives, particularly for children with disabilities.

However, only 11 LCs have teachers who follow an IEP. FGD participant 14 stated, “The IEP was an important part of our training, and we learned how to prepare and use it. Unfortunately, we do not follow the IEP due to time constraints.”

### **3.6. Sports, recreation, and assistive devices**

A total of 96% of respondents reported that they can easily participate in indoor games (e.g., ball passing, hear and fly, swing hands with ball, toys, and puzzles), rhymes, drama, role play, and singing with their classmates in the LC. It was found during fieldwork that the community is not fully aware of the participation of children with disabilities in sports and recreational activities. The majority believed that children with disabilities are not spontaneous, feel shy, and are incapable of participating easily with children without disabilities. A total of 71% of respondents reported that they do not have sufficient space for sports and recreational activities in the camps, except in the LCs. Only a few (17%) respondents confirmed that they can play together with children without disabilities outdoors. FGD participant 7 stated: “My son participated in outdoor sports with children without disabilities. The CDD arranged a small-scale football tournament. They provided wheelchairs, balls, and other instruments. Such initiatives are very important in establishing confidence, trust, emotional expression, and overcoming disability barriers in the camps.”

The study’s findings confirmed that transportation facilities are not available for children with disabilities. A total of 58% of children with disabilities reported that their parents, caregivers, Burmese teachers, and female education assistants help them regularly to travel to and from the LC. The majority of respondents (81%) also reported that their classmates support them in their learning and ensure their safety. Teachers encourage all learners to help each other in attending the LC, participating in classroom activities, and engaging in extracurricular events such as reciting poems, singing, drawing pictures, acting, and sports. Children with disabilities are confident in their peer support and empowered to assist children without disabilities. To some extent, classmates help them get to the LC and return to their families. A total of 23% of respondents confirmed that they receive various assistive devices (e.g., wheelchairs, special chairs, crutches, sticks, hearing aids, spectacles, prosthetics, and orthotics). FGD participants 2 and 9 stated: “Assistive devices are very important for our children. We are refugees and do not have the money to buy them. Therefore, development agencies should provide the required assistive devices for all persons with disabilities.” FGD participant 15 provided an update about the provision of assistive devices. According to him:

“We have recently completed a rehab assessment in Camp 12 with the technical assistance of Handicap International – Humanity and Inclusion and CDD. As far as I know, such assessments are ongoing in other camps. Hopefully, learners will get the required assistive devices.”

### 3.7. Attitude of caregivers and harassment

This study found that the attitudes of parents/caregivers were initially negative towards children with disabilities. These children were perceived as underperforming compared to children without disabilities and as slow learners. However, these attitudes have improved to some extent. FGD participant 5 revealed: “Once we believed these children were not fit for education. They had no bright future and were a burden on the family. Now we are positive due to receiving proper information and counseling.” In this connection, FGD participant 18 added: “Changing attitudes in a positive manner is a time-consuming process. It cannot be done overnight. We arrange monthly parent’ meetings, community-led awareness sessions, information dissemination about the care and rights of children with disabilities through EdTech (e.g., audio episodes), and frequent home visits. We should work more to improve the attitudes of parents/caregivers toward children with disabilities.”

A total of 92% of surveyed respondents reported being victims of bullying and harassment. In the majority of cases, family members, neighbors, relatives, and particularly community members were involved. This hindered their personal well-being, especially their concentration on education. FGD participant 16 expressed concerns about bullying and harassment. According to her, “Eve-teasing, bullying, harassment, and violence – especially toward girls and females – are common in the host community. Some people are involved in bullying and harassment of persons with disabilities. It is more severe in the Rohingya camps. There is no alternative to mass awareness about the demerits of bullying and harassment. Therefore, community engagement and mobilization interventions must be increased to reduce such harmful practices.”

## 4. Discussion

Policy direction is one of the key facilitators for the education of children with disabilities. Malak *et al.* (2013) identified that policy guidelines related to inclusive education in Bangladesh tended to be low-leverage tools. They did not necessarily lead to changes in practice. In contrast, the present study found that the policy priorities and operational approaches of donor agencies have been especially helpful in the enrollment of children with disabilities in difficult settings. Humanitarian agencies have

been meeting essential needs since 2017, and assistance is still ongoing. From this perspective, the operationalization of foreign aid and cooperation theory appears to be more effective in ensuring that children with disabilities obtain their right to education.

Drame & Kamphoff (2014) demonstrated that accessible toilets and ramps in schools increased the interest of children with physical disabilities in attending school regularly in Senegal. This study found that 95% of selected LCs do not have ramps, and out of 80 LCs, only two have disability-accessible toilets. The construction of ramps and accessible toilets remains a very low priority for education actors.

Crea *et al.* (2022) emphasized that teacher capacity building and the creation of a joyful learning environment are preconditions for fulfilling the needs and rights of children with disabilities living in refugee camps in Kenya. This study found that while teachers in LCs are trained in the education of children with disabilities, further improvement is needed, especially in the use of accessible education materials, the implementation of IEPs, and sensitizing the community about the rights of children with disabilities. The IEP is not properly implemented due to inadequate follow-up with teachers. However, it remains a useful tool for setting learning and process objectives, particularly for children with disabilities, to help maximize their potential. It involves several steps, such as identifying the child’s difficulties in following the regular curriculum, assessing enrollment status, the use of assistive devices, assessing strengths and weaknesses in learning and social skills, and collaboratively setting realistic and measurable goals across affective, cognitive, and psychomotor learning domains. It also includes planning activities under each goal, outlining implementation strategies (e.g., resources, teaching techniques, adapted learning materials, timeframes, types of support, and responsible parties), monitoring and review, and summative assessment. This approach helps teachers, parents, caregivers, and other support groups ensure the learning progress of children with disabilities.

Rugoho & Shumba (2018) identified that the distribution of assistive devices by NGOs to refugee students with disabilities in Zimbabwe increased their confidence and provided easier access to LCs, as students often lack the financial means to purchase these devices. The current study revealed that the provision of assistive devices is not at a satisfactory level. It was also found that children with disabilities do not have access to transportation facilities.

Ley and Barrio (2019) noted that inclusive sports, physical activity, and recreation are beneficial for the mental well-being of children with disabilities, especially

refugees. The present study found that while children with disabilities have opportunities for indoor games and recreation in LCs, only 17% have access to inclusive sports and recreation outdoors.

This study revealed that negative attitudes among parents and caregivers toward children with disabilities still prevail, although they are gradually improving due to various interventions by NGOs. However, awareness and sensitization within the broader community remain insufficient. The essence of “social system theory” and “community development theory,” such as networking among relevant actors, institutional coherence, participation, decision-making, collective action, and empowerment, is comparatively weak in the Rohingya camps.

#### **4.1. Recommendations**

Education for children with disabilities in Rohingya refugee camps requires a multisectoral approach and interventions. The major recommendations are as follows:

##### **4.1.1. Training and capacity building**

Training and refresher courses for teachers must be conducted periodically with updated modules. Orientation and awareness sessions should be arranged for the community education support groups, parental support groups, youth volunteers, *Majhi* (headmen), religious leaders, and parents/caregivers to educate them about the rights of children with disabilities.

##### **4.1.2. Ramps and accessible toilets**

It is essential to construct ramps and accessible toilets in LCs. Donor agencies and NGOs should collaborate incessantly to ensure their availability.

##### **4.1.3. Home-based learning**

The Education Sector in Cox’s Bazar should continue to advocate with the Refugee Relief and Repatriation Commission organizations for the general approval of home-based learning for children with disabilities.

##### **4.1.4. Teaching materials**

The Education Sector in Cox’s Bazar should take immediate action to ensure the availability of specialized educational materials for children with disabilities.

##### **4.1.5. Transportation and equipment**

Donor agencies and NGOs should arrange appropriate means of transportation and equipment, where applicable. NGOs must appoint more community volunteers, similar to the “Female Education Assistant for Girls Only Session,” to support children with disabilities in traveling to and from LCs and their shelters.

#### **4.1.6. Inclusive sports and recreation**

NGOs should organize inclusive sports and recreational activities by providing the necessary instruments and materials. The “education focal point” of each camp should lead the mobilization of community members and representatives from other service-providing organizations to support inclusive sports and recreational events in outdoor spaces.

#### **4.2. Limitations of the study**

We obtained consent from the caregivers of children and FGD participants, as well as permission from camp authorities. However, approval was not sought from any educational institution. This study has some specific limitations that should be considered. The sample sizes were relatively small, and the sampling method employed was non-probability purposive sampling. Therefore, generalizing the study’s findings should be done with caution, and further replication of the study is necessary. It is important to note that this study was conducted with the assistance of translators. Although they were bilingual in both Bengali and the Rohingya dialects, future studies may benefit from engaging certified translators or collaborating with native speakers of the participants’ language. Nonetheless, we firmly believe that the results of this research will be of significant value to all stakeholders involved in promoting the well-being of children, particularly to enhancing the education of children with disabilities in refugee camps.

#### **5. Conclusion**

This study examines the contextual situation of the Rohingya refugee camps, specifically focusing on the facilitators and key barriers to education for children with disabilities. NGOs are making efforts to ensure education for Rohingya children through donor-driven support. However, children with disabilities are not receiving the special provisions outlined in the United Nations Convention on the Rights of Persons with Disabilities and the United Nations Convention on the Rights of the Child in their entirety. Although Bangladesh has not signed the 1951 Refugee Convention and its 1967 Protocol, it has ratified the aforementioned conventions, making it the responsibility of the state to fulfill the rights of all children. This study not only focuses on identifying gaps but also highlights the best practices and provides specific recommendations that require the involvement of relevant stakeholders. Finally, this study calls upon donor agencies to ensure sufficient funding and its proper utilization to enhance the education of children with disabilities, recognizing them as global citizens.

## Acknowledgments

The authors acknowledge the humanitarian agencies, NGOs, and community members who work tirelessly to promote education, especially for children with disabilities. In addition, we extend our sincere appreciation to the respondents who provided valuable information for this study.

## Funding

None.

## Conflict of interest

The authors declare no conflicts of interest.

## Author contributions

*Conceptualization:* Mohammed Mamun Rashid, Md. Sofuggzaman

*Data curation:* Md. Sofuggzaman, Mohammed Mamun Rashid

*Investigation:* Paramjit Singh Jamir Singh

*Methodology:* All authors

*Writing – original draft:* Mohammed Mamun Rashid, Md. Sofuggzaman

*Writing – review & editing:* Paramjit Singh Jamir Singh, Mohammed Mamun Rashid

## Ethics approval and consent to participate

The authors obtained permission from the camp authority. Participation in the study was voluntary, and informed consent was obtained from all respondents verbally.

## Consent for publication

Participants provided verbal consent for their data to be published in this paper.

## Availability of data

Data are available from the corresponding author upon reasonable request.

## References

Ali, I., Azman, A., Singh, P.S.J., Drani, S., & Rashid, M.M. (2020). Islamic faith-based organizations and poverty reduction in Bangladesh: A social work perception. *Social Work and Society*, 18(2):1-15.

Ali, I., Shaik, R., Azman, A., Singh, P., & Bala, J.D. (2022). Impacts of climate change on coastal communities. In: Research Anthology on Environmental and Societal Impacts of Climate Change. United States: IGI Global Scientific Publishing, p.1659-1671.

Araújo, C.A.C.D., Paz-Lourido, B., & Gelabert, S.V. (2016).

Types of support to families of children with disabilities and their influence on family quality of life. *Ciencia and Saude Coletiva*, 21(10):3121-3130.

<https://doi.org/10.1590/1413-812320152110.18412016>

Azman, A., Jali, N.A., Singh, P.S.J., Abdullah, J.M., & Ibrahim, H. (2020). Family roles, challenges and needs in caring for traumatic brain injury (TBI) family members: A systematic review. *Journal of Health Research*, 34(6):495-504.

<https://doi.org/10.1108/JHR-07-2019-0138>

Azman, A., Singh, P.S.J., & Isahaque, A. (2021). Implications for social work teaching and learning in Universiti Sains Malaysia, Penang, due to the COVID-19 pandemic: A reflection. *Qualitative Social Work*, 20(1-2):553-560.

<https://doi.org/10.1177/1473325020973308>

Beresford, B., Clarke, S., Borthwick, R., Morris, M., White, K., & Bergeron, C. (2010). Improving the well-being of disabled children and young people through improving access to positive and inclusive activities. In: Centre for Excellence and Outcomes in Children and Young People's Services. London: C4EO.

Burde, D., Kapit, A., Wahl, R.L., Guven, O., & Skarpeteig, M.I. (2017). Education in emergencies: A review of theory and research. *Review of Educational Research*, 87(3):619-658.

<https://doi.org/10.3102/0034654316671594>

Crea, T.M., Klein, E.K., Okunoren, O., Jimenez, M.P., Arnold, G.S., Kirior, T., et al. (2022). Inclusive education in a refugee camp for children with disabilities: How are school setting and children's behavioral functioning related? *Conflict and Health*, 16(1):53.

<https://doi.org/10.1186/s13031-022-00486-6>

Cypress, B.S. (2017). Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of Critical Care Nursing*, 36(4):253-263.

<https://doi.org/10.1097/DCC.0000000000000253>

Drame, E., & Kamphoff, K. (2014). Perceptions of disability and access to inclusive education in West Africa: A comparative case study in Dakar, Senegal. *International Journal of Special Education*, 29(3):1-14.

Education Sector. (2023). Education Sector Overview: 30 June 2023. Cox's Bazar, Bangladesh. Available from: <https://www.humanitarianresponse.info/en/operations/bangladesh/education> [Last accessed on 2023 Sep 25].

Ficarra, J. (2017). Comparative international approaches to better understanding and supporting refugee learners. *Issues in Teacher Education*, 26(1):73-84.

Hall, A., & Midgley, J. (1986). Community Participation, Social Development and the State. England, UK: Routledge.

Islam, T., Azman, A., Singh, P., Ali, I., Akhtar, T., Rafatullah, M.,

- et al. (2019). Socio-economic vulnerability of riverbank erosion of displacees: Case study of coastal villages in Bangladesh. *Indian Journal of Ecology*, 46(1):34-38.
- Lane, J. (1995). Non-governmental organizations and participatory development: The concept in theory versus the concept in practice. In: *Power and Participatory Development: Theory and Practice*. London: Intermediate Technology Publications.
- Ley, C., & Barrio, M.R. (2019). Promoting health of refugees in and through sport and physical activity: A psychosocial, trauma-sensitive approach. In: *An Uncertain Safety: Integrative Health Care for the 21<sup>st</sup> Century Refugees*. Germany: Springer, p.301-343.
- Luhmann, N. (1995). *Social Systems*. Stanford: Stanford University Press.
- Luhmann, N., & Rasch, W. (2002). *Theories of Distinction: Redescrining the Descriptions of Modernity*. Stanford: Stanford University Press.
- Malak, M.S., Begum, H.A., Habib, M.A., Shaila, M., & Roshid, M.M. (2013). *Inclusive Education in Bangladesh: Policy and Practice*. Canberra: Australian Association for Research in Education.
- Mortier, K., Hunt, P., Leroy, M., Van De Putte, I., & Van Hove, G. (2010). Communities of practice in inclusive education. *Educational Studies*, 36(3):345-355.  
<https://doi.org/10.1080/03055690903424816>
- Moustakas, C. (1994). *Phenomenological Research Methods*. Washington DC: Sage.
- OCHA. (2022). *Global Humanitarian Overview 2022*. New York: OCHA.
- Oke, A.E., Aliu, J., Fadamiro, P., Jamir Singh, P.S., Samsurijan, M.S., & Yahaya, M. (2024). Robotics and automation for sustainable construction: Microscoping the barriers to implementation. *Smart and Sustainable Built Environment*, 13(3):625-643.  
<https://doi.org/10.1108/SASBE-12-2022-0275>
- Oke, A.E., Aliu, J., Oda, O.A., Aigbavboa, C.O., Jamir Singh, P.S., Awuzie, B.O., et al. (2023). A quantitative assessment of key drivers for environmental economic practices adoption for sustainable development. *Sustainable Development*, 31(5):3579-3594.  
<https://doi.org/10.1002/sd.2612>
- Oke, A.E., Kineber, A.F., Olanrewaju, O.I., Omole, O., Jamir Singh, P.S., Samsurijan, M.S., et al. (2022). Exploring the 4IR drivers for sustainable residential building delivery from social work residential perspective-a structural equation modelling approach. *Sustainability*, 15(1):468.  
<https://doi.org/10.3390/su15010468>
- Pandey, R. (1981). *Mainstream Traditions of Social Stratification Theory*. India: Mittal Publications.
- Pankaj, A.K. (2005). Revisiting foreign aid theories. *International Studies*, 42(2):103-121.  
<https://doi.org/10.1177/002088170404200201>
- Rapp, A.C., & Corral-Granados, A. (2024). Understanding inclusive education-a theoretical contribution from system theory and the constructionist perspective. *International Journal of Inclusive Education*, 28(4):423-439.  
<https://doi.org/10.1080/13603116.2021.1946725>
- Rashid, M.M., Azman, A., Singh, P.S.J., & Ali, M.I. (2020). Issues and problems of small-scale fishing (SSF) communities in South Asia: A comprehensive overview. *Indian Journal of Ecology*, 47(3):775-781.
- Ricci, L., Lanfranchi, J.B., Lemetayer, F., Rotonda, C., Guillemin, F., Coste, J., et al. (2019). Qualitative methods used to generate questionnaire items: A systematic review. *Qualitative Health Research*, 29(1):149-156.  
<https://doi.org/10.1177/10497323187831>
- Rugoho, T., & Shumba J. (2018). Disabled refugee students in Zimbabwe. In: *Strategies, Policies, and Directions for Refugee Education*. United Kingdom: Emerald Publishing Limited, p.117-128.
- Shohel, M.M.C. (2022). Education in emergencies: Challenges of providing education for Rohingya children living in refugee camps in Bangladesh. *Education Inquiry*, 13(1):104-126.  
<https://doi.org/10.1080/20004508.2020.1823121>
- Shohel, M.M.C., Ashrafuzzaman, M., Babu, R., Akter, T., Tasnim, N., & Bayezid, A. (2023). Access to higher education for the Rohingya refugees: Challenges, opportunities, and future directions. In: *Global Perspectives on the Difficulties and Opportunities Faced by Migrant and Refugee Students in Higher Education*. United States: IGI Global, p.103-135.
- Singh, P.S.J., Oke, A.E., Kineber, A.F., Olanrewaju, O.I., Omole, O., Samsurijan, M.S., et al. (2023). A mathematical analysis of 4IR innovation barriers in developmental social work-a structural equation modeling approach. *Mathematics*, 11(4):1003.  
<https://doi.org/10.3390/math11041003>
- Subotić, S., & Anđić, B. (2014). The decline in socialization at the transition from class to subject teaching in the inclusion. *Special Education and Rehabilitation*, 13(3):293-309.
- UN. (2006). *Convention on the Rights of Persons with Disabilities*. United States: UN.
- UNHCR. (2023). *Refugee Statistics*. Available from: <https://www.unrefugees.org/refugee-facts/statistics> [Last accessed on 2023 Sep 18].
- UNICEF. (2021). *Seen, Counted, Included- Using Data to Shed Light on the Well-being of Children with Disabilities*. United States: UNICEF.
- Van, E.P., & Angehrn, Z. (2017). *How to... Conduct a Focus*

- Group Discussion (FGD): Methodological Manual. Zurich: University of Zurich.
- Wamboye, E., Adekola, A., & Sergi, B.S. (2013). Economic growth and the role of foreign aid in selected African countries. *Development*, 56(2):155-171.  
<https://doi.org/10.1057/dev.2013.24>
- Washington Group on Disability Statistics. (2018). Module on Child Functioning: Manual for Interviewers. Washington: Washington Group on Disability Statistics.
- Weil, M., Reisch, M. S., & Ohmer, M. L. (2005). *The Handbook of Community Practice*. India: Sage Publications.
- WHO. (2022). *Global Report on Health Equity for Persons with Disabilities*. Switzerland: WHO.
- Yates, R., Carrington, S., Gillett-Swan, J., & Pillay, H. (2019). Foreign aid and inclusive education in the pacific island nation of Kiribati: A question of ownership. *International Journal of Inclusive Education*, 23(1):79-92.  
<https://doi.org/10.1080/13603116.2018.1514760>

## PERSPECTIVE ARTICLE

## Navigating the complexities of migration data management: Challenges and opportunities

Abduvaliev Mubinzhon\*

Department of Theory of Economy, Tajik State University of Commerce, Dushanbe, Tajikistan

**Abstract**

Migration is a complex global phenomenon with profound socioeconomic, political, and humanitarian implications. Effective migration data management is essential for evidence-based policymaking, efficient resource allocation, and the protection of migrant rights. However, several challenges — such as data fragmentation, privacy concerns, rapidly evolving migration patterns, technological limitations, and policy inconsistencies — hinder the comprehensive use of migration data. At the same time, emerging technologies, including artificial intelligence (AI) and big data analytics, offer transformative opportunities to enhance migration governance. Initiatives such as the Big Data for Migration Alliance (BD4M) exemplify how collaborative, data-driven approaches can improve migration management and lead to better outcomes for migrants. This paper seeks to explore both the challenges and opportunities associated with migration data management, with a particular focus on the role of innovative technologies in advancing migration research and policymaking. The analysis revealed that, with significant barriers exist, such as fragmentation, privacy concerns, dynamic patterns, technological constraints, and misaligned policies, there are also substantial opportunities for enhanced collaboration, informed policymaking, efficient resource allocation, research advancements, and increased public engagement. Furthermore, the author highlights AI and the BD4M as key components of a leading collaborative effort to leverage advanced analytics for a deeper understanding and more effective management of global migration. By analyzing diverse datasets through innovative analytical techniques, such initiatives aim to improve outcomes for migrant populations worldwide.

**Keywords:** Migration; Data; Management; Track; Network**\*Corresponding author:**Abduvaliev Mubinzhon  
(mubin104@gmail.com)

**Citation:** Mubinzhon, A. (2025). Navigating the complexities of migration data management: Challenges and opportunities. *International Journal of Population Studies*. 11(6): 15-30. <https://doi.org/10.36922/ijps.6846>

**Received:** December 2, 2024**1st revised:** January 24, 2025**2nd revised:** February 19, 2025**3rd revised:** April 21, 2025**Accepted:** April 21, 2025**Published online:** May 2, 2025

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**1. Introduction**

Over the past decade, significant changes have shaped global mobility patterns. It is estimated that there will be approximately 281 million international migrants in the world in 2020, which is approximately 3.6% of the total population. More than 117 million individuals have been displaced due to conflict, violence, and disasters, a record high in modern history. This growing scale of displacement highlights the urgent need to address displacement crises (IOM, 2024).

The term “migrant” lacks a universally accepted definition, as it encompasses a wide array of individuals who relocate from their habitual residences, whether within

national borders or across international boundaries, for a multitude of reasons that may be temporary or permanent (IOM, 2011). This broad classification includes various subcategories such as labor migrants, international students, irregular migrants who lack appropriate documentation, and circular migrants who move back and forth between locations. The complexity of defining these categories arises from the diverse motivations behind migration and the evolving nature of individual circumstances over time. Furthermore, there is ongoing discourse regarding the inclusion of descendants of migrants in this definition, raising questions about generational distinctions such as first, second, or third generation and the implications of such classifications (King, 2013). These categories are not merely descriptive but are socially constructed frameworks that necessitate careful disaggregation into essential indicators to effectively monitor and address the health and well-being of migrant populations, taking into account their varied backgrounds and intersecting socio-economic factors.

Data sets about global migration are vital to the improvement of migration theories, the reduction of uncertainty about the present state of migration globally, and the refinement of forecasts and population projections (Bijak, 2010). Throughout history, data gathering has been a crucial aspect of human knowledge acquisition. From ancient civilizations to the digital age, data has played a pivotal role in shaping our understanding of the world. As technology continues to advance, we can expect even greater advancements in data collection techniques, leading to even greater insights and advancements in the future.

Data production has become ubiquitous, and data storage has become cheap and widely available. In the past few decades, there has been a significant increase in data generation and collection, driven by technological advancements and the global expansion of digital devices. This phenomenon is often referred to as “big data”, and it has had a profound impact on various aspects of society, including business, governance, and science. Smartphones and other mobile devices have enabled the superproliferation of data, thereby providing all kinds of information about human activity. However, methods for collecting, utilizing, and selecting credible data have always been ambiguous and subject to dispute among authors (Quach *et al.*, 2022). Globally, policymakers and scholars face challenges associated with migration studies, such as the lack of credible data, measurement difficulties, and harmonization of definitions.

Managing migration data presents both significant challenges and promising opportunities. Managing

migration data presents a complex array of challenges that stem from the multifaceted nature of migration itself, as well as the various systems and methodologies employed to collect, analyze, and disseminate this information. Managing migration data involves navigating a landscape fraught with challenges related to collection methods, standardization issues, privacy concerns, technological limitations, political influences, and inter-agency coordination difficulties (Franklinos *et al.*, 2021). Addressing these challenges is essential for improving the accuracy and reliability of migration statistics, which are crucial for informed policymaking.

The objective of this study is to systematically identify and analyze the challenges of managing migration data, including fragmentation, privacy concerns, and technological barriers while exploring research opportunities to enhance understanding of migration trends. It evaluates the role of collaborative initiatives like artificial intelligence (AI) and the big data for migration alliance (BD4M) in utilizing advanced analytics to improve global migration management and inform policymaking.

The research questions focus on identifying the primary challenges researchers and policymakers face in managing migration data effectively and understanding how these challenges affect the quality of migration studies. In addition, they explore how emerging technologies can improve migration data collection, tracking, analysis, and dissemination to enhance understanding and inform better policy-making. Finally, the questions seek to uncover new research methodologies that can utilize existing migration data to provide more comprehensive insights into migration patterns and trends.

The structure of the paper is outlined as follows: following a concise introduction, Section 2 provides a review of existing literature related to the study topic. Section 3 addresses the challenges faced in managing migration data. Section 4 explores new opportunities that arise in migration data research. The concluding section summarizes the findings and offers policy implications.

## 2. Literature review

The effective management of migration data serves as a foundation for informed decision-making across various sectors involved in addressing migration issues. It enhances understanding among stakeholders while promoting transparency and accountability in how migration is handled globally. In December 2018, the first-ever intergovernmental agreement on international migration was adopted by the global compact for safe, orderly, and regular migration and the global compact for refugees. The inclusion of migration-related targets in the 2030 Agenda for sustainable development is a

clear demonstration of the growing recognition of migration as a critical component of global development. As part of the global compact for safe, orderly and regular migration, the first objective is to improve data for evidence-based policy and to promote a more informed public discussion of migration (Carlier *et al.*, 2021). A key aim of this objective is to gain an understanding of migration trends, patterns, and impacts, as well as formulate effective policies to address the challenges and opportunities associated with migration.

In response to the ongoing data revolution, the 2030 Agenda and the need to use evidence more effectively in development cooperation, international support for data and statistics has gained considerable momentum (Keijzer & Klingebiel, 2017).

Migration data are traditionally gathered from censuses, administrative records, and household surveys, collectively known as traditional data sources (Rampazzo *et al.*, 2023). There are, however, traditional migration data that are not readily available due to factors such as the slow data collection process, insufficient coverage of certain types of migration, and reporting lags. As a result of these limitations, innovative approaches are needed to capture timely and comprehensive insights into migration dynamics that complement traditional sources with emerging methods. The limitations associated with these data sources include the definition of migrants, the coverage of the entire migrant population, and the quality of the estimates (Azose & Raftery, 2019). However, as a result of restrictions on movement, limitations on access, and other logistical obstacles, global crises present unique challenges for collecting data from traditional sources.

Migration patterns and trends have been greatly impacted by the availability of new data sources. Researchers have been able to gather significantly more comprehensive and diverse data through the use of new data sources (Tjaden, 2021). The availability of these data sources has allowed researchers to analyze migration patterns and trends more accurately, understand the motivations behind migration decisions, and identify factors that influence migration. Migration studies are certain to benefit from the wealth of information as new data sources emerge, leading to a deeper understanding of this complex and dynamic phenomenon.

The use of digital trace data is increasingly recognized in the migration field as a highly effective tool for improving migration management processes such as visa applications, asylum decisions and geographic allocation of asylum seekers, facilitation of integration, and smart borders.

The data revolution was marked not only by the emergence of new data sources but also by a surge in

computational power, enabling the development of more sophisticated models to study social phenomena like migration. A key aspect of this shift has been the rise of “digital trace data” (Salganik, 2019)—ready-to-use information generated from human interactions with digital devices and platforms, which social scientists have repurposed to address research questions. This structured, large-scale data has provided researchers with novel insights and advanced analytical techniques, fundamentally transforming social science methodologies.

Observing migrants is a complex process that is difficult to measure. Fertility and mortality tend to gradually affect the dynamics of the population, which generally results in slow population changes (Fehr *et al.*, 2008). It has become increasingly evident that migration, especially international migration, is playing an increasingly important role in shaping population change, particularly in countries suffering from declining fertility rates (Bijak, 2010).

There has been significant interest in migration among researchers, policymakers, and the general public due to its complexity and multifaceted nature. One of the primary challenges in the study of migration is the availability and accessibility of reliable data (Bilsborrow, 1997; Fassmann, 2009; IOM, 2020; Ahmad Yar & Bircan, 2023), measurement problems (De Beer *et al.*, 2010; Rees *et al.*, 2000; Tjaden, 2021), harmonization of definition (Martin & Zürcher, 2008; Poulain, 2008), ethical consideration (Ciupijus, 2010; Guo, 2010; Jacobsen & Landau, 2003; Turper, 2023; Van Liempt & Bilger, 2012), cross-disciplinary integration (Bordons *et al.*, 2004), and data justice (Josipovic, 2023; Ozkul, 2023; Taylor, 2017). In addition, the topic of migration is widely acknowledged in a number of research fields, including demography (Keely, 2000). Lutz *et al.* (2019) argue that demographic studies often analyze the interactions between migration and fertility, mortality, and urbanization, shedding light on the various ways in which migration affects population compositions and trends. Researchers study the factors driving population growth, decline, and redistribution, as well as the implications of these movements on birth and death rates, age structures, and overall population size (Sherbinin *et al.*, 2007). The study of migration also explores how migration impacts social networks, community formation, and the transmission of values and norms between societies (Castles, 2002).

Inaccurate migration data undermines social and political efforts, as it impedes the ability of governments and organizations to meet the needs of diverse communities, exacerbating disparities in services and hindering social cohesion by failing to address language barriers, cultural

adaptation, and discrimination (Ratha *et al.*, 2011). Politically, flawed data can fuel anti-immigrant sentiment, encourage restrictive policies, and distort representation, making it harder to develop effective integration strategies and inclusive decision-making processes. In addition, the study of migration, from a political perspective, explores how migration affects the political landscape both in the country of origin and in the country of destination (Boswell *et al.*, 2011; Bottomley, 1992). Migration plays a significant role in shaping political identities, alliances, and conflicts, as well as political stability, democracy, and governance (Mavroudi & Nagel, 2016). In addition to studying migration policies and institutions, political scientists also study how states manage and regulate national and international migration.

It is the focus of economists to examine the economic dimensions of migration, including the effects on the labor market and income distribution (Cahuc *et al.*, 2014; Topel, 1999). Their research examines the reasons for migration, such as the search for better employment opportunities, higher wages, or improved living conditions (Berger & Blomquist, 1992; De Jong *et al.*, 2002). In addition, economists examine the effects of migration on the economies of host countries, including the potential for increased productivity and resource redistribution (Dolado *et al.*, 1994; Jaumotte *et al.*, 2016; Nathan, 2014). On the other hand, they also consider potential negative consequences, such as increased competition for scarce resources and the possibility of income inequality (Alderson & Nielsen, 2002; Lipton, 1980).

Barker & Bijak (2022) utilize contemporary models as benchmarks for their predictions. The use of these models is demonstrated through two case studies: the Syrian refugee crisis from 2015 to 2016 and the ongoing migration challenges resulting from the war and humanitarian emergency in Ukraine. They found that while it is possible to use statistical and computational methods to anticipate trends in asylum applications, significant challenges remain due to the complexity of migration drivers, data limitations, and uncertainties in geopolitical events. Similarly, the empirical study conducted by Napierala *et al.* (2022) demonstrated the effectiveness and potential of their approach in managing mixed migration flows into Europe during the period from 2010 to 2016. Their study underscored the potential of their Early Warning Models of Asylum Migration methodology as a valuable tool for enhancing the comprehension and management of intricate migration dynamics. In addition, the research highlighted the importance of advancing the integration of “big data” technologies with scenario-based analytical approaches to refine predictive capabilities further and improve decision-making processes in this domain.

Insufficient quality migration data can have significant social, economic, and political implications. It undermines efforts to address the needs of diverse communities, hampers economic planning and development, and fuels anti-immigrant sentiment (Kwilinski *et al.*, 2022). Without accurate and reliable data, decision-making processes at all levels of society are compromised, leading to ineffective policies and programs. In addition, inaccurate migration data can lead to inefficient allocation of resources, as policies and initiatives may be formulated without taking into account the specific needs of migrant populations. Countries must invest in strengthening their migration data collection systems and making every effort to ensure that migration data is collected and analyzed with the utmost care and integrity.

The phenomenon of immigration has become a data-driven practice, where the collection and use of information play a crucial role in categorizing and managing individuals, giving rise to the concept of data justice, a critical examination of the ethical and societal impacts of data in migration and asylum systems (Leslie *et al.*, 2022). Scholars highlight how data practices can reinforce inequalities and shape policies, emphasizing the need for frameworks that ensure fairness, transparency, and accountability in handling migrant data (Noori, 2022). Concerns over surveillance, privacy violations, and discriminatory algorithms underscore the urgency of protecting migrants’ rights in an era where their data is often exploited or weaponized (Metcalf & Dencik, 2019). Data justice thus serves as a vital lens to analyze the intersection of technology, governance, and human rights in modern migration. During the past two decades, European asylum systems have become increasingly digital, not just in terms of communication within organizations, but also concerning determining refugee status and assessing security risks (Micinski & Jones, 2022). The asylum application process requires an individual to establish their identity, document their experiences of violence and persecution, and provide details surrounding their flight. Recent trends in Europe, however, indicate that these objectives are increasingly being met through advanced surveillance technologies, such as smartphone data extraction (Josipovic, 2023). Asylum seekers are increasingly relying on technology to gather evidence during administrative selection processes.

Data justice is defined as an ethical framework that assesses the fairness and equity of data-related resources, processes, and structures. This concept emphasizes the importance of ensuring that data practices do not perpetuate inequalities or injustices, advocating for accountability and transparency in how data is collected,

managed, and utilized (Heeks & Renken, 2018). By establishing standards for evaluating these practices, data justice seeks to promote a more equitable distribution of benefits and burdens associated with data use.

Scholars specializing in fundamental rights have predominantly relied on the legal foundations provided by the right to respect for private life and the right to protection of personal data as essential frameworks for constraining the authority of both governmental entities and humanitarian organizations (Kuner & Marelli, 2020). This perspective emphasizes the necessity of safeguarding individual privacy and personal information against potential overreach by state mechanisms, as well as ensuring that non-governmental actors adhere to similar standards of respect for personal autonomy and data integrity.

Jasmontaite-Zaniewicz & Zomignani Barboza (2021) critically analyze the European Union's data protection framework, questioning its efficacy in safeguarding privacy rights within European asylum processes amid emerging technologies like social media screening, AI applications, and secure digital environments. They argue for a reevaluation of existing legal protections to address technological complexities, emphasizing that the European Convention on Human Rights and the European Union Charter of Fundamental Rights require proportionality in any interference with private life and data protection, ensuring restrictions are necessary, appropriate, and not excessive relative to legitimate aims. Their analysis stresses that governance measures must be justified by compelling public policy objectives that outweigh individual rights, highlighting tensions between innovation and fundamental freedoms in asylum contexts. Such justifications often arise in contexts where national security concerns or the imperative to prevent social disorder take precedence over personal liberties. Similarly, in their recent study, Bolhuis & Van Wijk (2021) conducted a comprehensive examination of the practice of smartphone data extraction across five European nations, focusing on both the existing legal frameworks governing such practices and the perceptions held by 43 practitioners actively engaged in this field. Their research highlights the complexities surrounding smartphone data extraction, particularly regarding privacy concerns and the varying interpretations of legality among different jurisdictions. By analyzing qualitative data gathered from practitioners, they provide insights into how these professionals navigate the ethical dilemmas posed by social media vetting while adhering to national laws and regulations.

### 3. Challenges in managing migration data

Managing migration data involves navigating a landscape fraught with challenges related to collection methods,

standardization issues, privacy concerns, technological limitations, political influences, and inter-agency coordination difficulties. The following is a comprehensive analysis of these challenges.

One of the primary challenges in managing migration data is the inconsistency in data collection methods across different countries and organizations. Various entities may use different definitions, classifications, and methodologies for collecting migration statistics (Ahmad Yar & Bircan, 2023). This lack of standardization can lead to discrepancies in data quality and comparability. For instance, some countries may categorize migrants based on their legal status (e.g., refugees, asylum seekers, or economic migrants), while others may focus on demographic factors such as age or gender.

The management of migration data often involves sensitive personal information about individuals. Ensuring the privacy and security of this data is paramount, especially given the potential for misuse or unauthorized access. Understanding long-term migration trends requires longitudinal studies that track individuals over time; however, maintaining contact with migrants can be difficult due to mobility patterns or changes in contact information (Ryan & D'Angelo, 2018). This complicates efforts to gather comprehensive datasets that reflect ongoing migratory processes.

Interpreting migration data accurately poses its own set of challenges due to biases that may exist within datasets or among those analyzing them (Franklinos *et al.*, 2021). Misinterpretation can lead to misguided policies that do not address the actual needs or realities faced by migrant populations.

The challenges associated with capturing comprehensive data on international migration trajectories are significant, as current datasets often fall short. To address these issues Kahanec & Zimmermann (2009) suggest that this can be achieved by adopting a longitudinal approach to monitor changes over time, ensuring comprehensive surveys that capture migrants' characteristics while balancing privacy with data utility, enhancing existing surveys with specific immigrant-focused questions, utilizing modern technologies for centralized data management, and prioritizing access to this data for research and policy development.

### 4. New opportunities in migration data research

The assessment and prediction of migration trends hold significant relevance for comprehending wider demographic shifts, formulating effective policy measures,

and distributing resources appropriately. Nonetheless, there is frequently a deficiency in the availability of data concerning migration and mobility, and the data that are accessible often do not arrive in a timely fashion. Despite the existence of such sources, the available data may not possess the necessary level of detail to analyze migration patterns effectively, or it may not be disseminated in a sufficiently prompt manner to track fluctuations in these trends (Alexander *et al.*, 2022).

Migration has emerged as a critical area of study in the contemporary global landscape, driven by various factors such as economic disparity, conflict, climate change, and globalization. The increasing complexity of migration patterns necessitates robust data collection and analysis to inform policy-making and humanitarian efforts. In this context, new opportunities in migration data research have arisen, particularly through the integration of advanced technologies such as AI and big data analytics. Furthermore, the use of other data sources, such as social media (Facebook and Twitter) and mobile phone records, represents an opportunity for migration studies to address the lack of information that impedes this field (Hughes *et al.*, 2016; Tjaden, 2021).

Historically, scholars have relied on census records, administrative data, and household surveys (Meyer *et al.*, 2015; Roos *et al.*, 2017), but these sources often lack timeliness, fail to capture entire migrant populations, and suffer from quality issues, necessitating periodic updates for effective policy-making. While traditional data has declined in prominence, advancements in computational power have spurred a data revolution, with digital traces, such as georeferenced information from Twitter (tracking migrant locations) and Facebook (revealing demographics like nationality, gender, age, and occupation), emerging as alternative sources. However, digital trace data differs fundamentally from conventional datasets, offering real-time insights despite not adhering to traditional definitions.

## 4.1. AI

In certain nations, the implementation of algorithmic decision-making in the realm of immigration and asylum processes has transitioned from theoretical discourse to practical application. Notably, Canada has adopted such methodologies to inform its immigration and asylum adjudications (CILA, 2023). Similarly, Germany has engaged in pilot projects that leverage technological advancements, employing facial recognition and dialect analysis to facilitate the determination of asylum claims. In AI, reasoning can be deductive or inductive, with inductive reasoning often driving research but sometimes yielding uncertain outcomes (Khan & Ullah, 2010).

While deductive reasoning relies on structured logic for reliability, it lacks flexibility in complex scenarios compared to inductive reasoning, which leverages data to foster innovation. However, researchers must carefully manage the uncertainties it introduces. Both approaches play crucial roles in AI development and application.

It has been found that AI algorithms can use extensive datasets, particularly big data, characterized by its high velocity and complexity, in order to identify patterns and predict future behaviors (Burrell, 2016), which can be particularly beneficial for forecasting and managing migration patterns (Nyoni, 2017; IOM, 2018).

Moreover, AI technologies present significant opportunities for state authorities to enhance their preparedness for large-scale migrations. By leveraging sophisticated algorithms, decision-makers can analyze vast datasets to predict and manage the arrival of individuals seeking refuge or relocation (Beduschi, 2021). This predictive capability allows governments to identify potential deficiencies in their reception infrastructure, thereby facilitating a more organized response.

A pioneering application of AI was developed by the Hong Kong Immigration Department in 2007 as part of the eBrain program. An array of AI technologies was utilized in this project to enhance the efficiency of administrative processes, including the processing of visa applications, travel documents, identity cards, and work permits. The implementation of AI significantly improved the quality of services offered to both residents and tourists in Hong Kong. This advancement is achieved by efficiently optimizing application processes and reducing the time required for completion (Wong & Chun, 2007). Toward the end of 2017, the United Nations introduced the United Ideas Internal Displacement Event Tagging and Extraction Clustering Tool (United Nations, 2017). The objective was to develop tools for tracking and analyzing individuals who have been displaced from their homes due to conflict or disaster. The data for democracy team emerged victorious by creating a tool that effectively monitors and analyzes data related to refugees and others who have been compelled to leave their residences.

Bircan & Korkmaz (2021) argue that the use of big data analytics and AI technology is promoted for its ability to help resolve current and emerging challenges in the social, economic, and governmental realms. Effectively leveraging big data and AI in the realm of migration governance necessitates significantly enhanced cooperation among migrants, which includes civil society and grassroots organizations that advocate for them, data scientists, migration researchers, and policymakers.

The integration of AI into migration management has sparked significant debate among scholars and experts (Derave *et al.*, 2022; Vavoula, 2021), particularly concerning the regulatory frameworks that govern its use (Kaneti, 2023; Molnar, 2019).

It is imperative that the development and implementation of technological tools, particularly AI systems, are conducted in accordance with ethical considerations that respect human rights, promote fairness, and avoid biases that may adversely affect vulnerable populations (Floridi *et al.*, 2018). However, one of the primary criticisms is that current legislative measures are often inadequate to address the complexities and ethical implications associated with AI technologies in sensitive areas such as refugee assistance. There is frequently a lack of scrutiny or assessment regarding the implications for refugees, even when new developments are integrated into existing legal instruments (Vavoula, 2021).

While AI tools have the potential to enhance efficiency and improve service delivery within refugee support frameworks, their implementation must be approached with caution (Forti, 2021). Collins (2023) critiques the prevailing narratives that often separate academic discourse from real-world applications, suggesting instead that migration knowledge is actively involved in shaping governance strategies. This intertwining of theory and practice raises significant questions about the role of academia in informing policy decisions and the potential consequences of such influence on marginalized populations. By recognizing that academic insights contribute to the operationalization of migration policies, Collins calls for a more reflective approach to how knowledge is generated and utilized within this field.

AI has the potential to enhance migration management through tasks like border control and identity verification. However, its application raises significant concerns regarding bias in data and the lack of transparency, which can adversely affect vulnerable migrant populations (Forti, 2021).

Giguashvili (2023) argues that AI can collect and analyze large datasets far faster than humans but highlights concerns over data quality, particularly regarding migrant privacy, algorithmic accountability, and fairness. To fully grasp migration dynamics, the author emphasizes integrating both quantitative and qualitative data, including academic research, enabling not only statistical insights but also a more nuanced understanding of the subject.

To summarize, the proposition that AI technology has the potential to foster innovation, decrease operational costs, and enhance the efficiency of international

migration management systems is indeed compelling (Chui *et al.*, 2018). The ethical deployment of AI in migration management should prioritize transparency, accountability, and inclusivity to safeguard against potential unintended consequences that may arise from automated decision-making processes.

## 4.2. BD4M

The rise in global migration has made effective tracking and analysis of migration data increasingly vital, and the digital revolution offers new opportunities by providing timely, extensive, and diverse digital data sources that can improve migrant population estimates, reveal migration intentions, and aid in studying integration and cultural assimilation (Rampazzo *et al.*, 2023). The BD4M initiative, led by the International Organization for Migration (IOM, 2021), seeks to advance migration research through ethical and responsible use of innovative data, fostering cross-sector collaboration among governments, international organizations, academia, and civil society to strengthen evidence-based policymaking on migration trends and human mobility.

Big data has become crucial in tackling modern challenges, with AI and advanced analytics revolutionizing data collection and processing. By leveraging these technologies, sectors like social, economic, and governmental can address current and future issues more effectively. Balancing innovation with ethical considerations, societies can enhance decision-making to benefit both individuals and communities. By addressing the large gaps in the quantity and quality of data collected by traditional methods, big data sources can assist in updating internal migration statistics (IOM, 2018; Lai *et al.*, 2019). As a means of addressing current knowledge gaps, big data, defined as large, complex data from numerous sources, is regularly proposed as a solution (Franklinos *et al.*, 2021).

Big data technologies enable the integration of migration data with economic, demographic, and geospatial datasets, providing a comprehensive understanding of migration drivers and aiding policy decisions. In addition, real-time monitoring through satellite imagery and geospatial analysis helps detect population movements, allowing swift responses to migration crises and ensuring the safety of affected communities.

## 4.3. Facebook

Facebook can identify a self-declared migrant's information, including location and Internet Service provider, by tracking their Internet protocol address when they access the platform. This data allows Facebook to personalize content, ads, and recommendations based on the user's

geography and enhance security measures like preventing unauthorized access. However, such practices must comply with data protection laws, ensuring privacy, transparency, and user consent. In addition to capturing out-migration and monthly relocations of migrants, Facebook advertising data can also be used to recruit migrant respondents worldwide on a modest budget and on time. Experts agree that Facebook advertising data provides insight into migrant integration by identifying their cultural integration (Alencar, 2018; Spencer & Charsley, 2016). Leveraging Facebook advertising data presents a viable and efficient approach for recruiting migrant respondents worldwide (Zaghenni *et al.*, 2017). By harnessing its global reach, targeted capabilities, cost-effectiveness, and real-time monitoring features, researchers can successfully engage with diverse migrant populations while adhering to ethical principles and data privacy standards.

Numerous researchers have taken advantage of the publicly available data provided by Facebook through its marketing application programming interface. Accordingly, Hughes *et al.* (2016) used self-reported information about users' hometowns and current locations to study "coordinated migration," or important patterns of migration among countries or cities. It has also been used to measure stocks of migrants (Zaghenni *et al.*, 2017) and to visualize geodemographic information (Araujo *et al.*, 2017). In a recent study, using datasets collected from Facebook users and a sample bias correction method, 119 countries were estimated to have migrants, disaggregated by age, gender, and previous country of residence (Spiratos *et al.*, 2019).

Recent research has delved into the implications of the COVID-19 pandemic on temporary populations in urban areas. Specifically, one study conducted by Brollo & Celata in 2023 utilized data from Facebook to examine how the pandemic influenced the temporary population dynamics within Rome. This analysis provided insights into how mobility patterns shifted during the health crisis, particularly in a city known for its significant tourist and transient populations.

Ting-Toomey *et al.* (2000) argue that in the case of Mexican, Anglo, and African American cultures in the United States, it is possible to investigate cultural integration through self-reported musical interest. On the other hand, we should take into account the possibility of facing challenges arising from duplicate accounts and fake profiles of migrants on Facebook, Instagram, and Twitter.

Facebook's advertising platform provides frequently updated demographic data, though its user base is not fully representative of the general population (Alexander *et al.*, 2022). Using Facebook's Ads Manager and marketing

application programming interface alongside the Python module Social Watcher, Alexander *et al.* (2022) extracted potential reach estimates to model migration trends from Mexico, India, and Germany groups with varying United States migration patterns. Their validation against 2017 American Community Survey data showed the model improved short-term trend predictions compared to alternatives. However, the bias-adjustment approach has limitations, including assumptions that systematic biases and non-sampling errors in Facebook data remain constant over time, highlighting the need for further research into these dynamics.

In a recent study, Gonzalez-Salinas *et al.* (2024) combined Facebook's digital application programming interface data with Eurostat statistics to analyze Ukrainian settlement patterns in Europe, revealing distinct geographical trends. Ukrainian-speaking Facebook users are heavily concentrated in urban areas of inner, southern, and northwestern Poland and the Czech Republic, while rural Romania hosts significant clusters. In contrast, countries like Germany, Italy, and the United Kingdom show a more dispersed distribution of Ukrainian-speaking populations across their territories.

#### 4.4. Mobile phone data

Mobile phone data has also revolutionized our ability to track regular patterns of displacement within countries (Bayir *et al.*, 2009; Cumbane & Gidófalvi, 2021; Luca, 2021), and mobile network data that has been passively collected, anonymized, or pseudonymized has been used to study migration in recent years (Bruckschen *et al.*, 2019; Salah *et al.*, 2019).

In the WorldPop project, mobile telephone data is integrated with census, survey, and other sources of data to estimate the density of populations worldwide with a spatial resolution of 100 m × 100 m cells (Tatem, 2017). Turper Alışık *et al.* (2019) analyzed mobile phone data to identify mobility patterns among Syrian refugees living in Turkey that might be associated with seasonal employment in fields like seasonal agriculture and seasonal tourism. According to the authors, labor plays an important role in determining Syrians' mobility. Chi *et al.* (2020) presented a general framework for detecting migration events. Using Twitter data from the United States and mobile phone data from Rwanda, the authors empirically validated their approach.

More recently, as part of their research, Olivieri *et al.* (2021) analyzed mobile phone data in conjunction with household survey data to determine whether Venezuelan migrants in Ecuador have an impact on the employment market. The authors concluded that regions, where

Venezuelan migrants are in larger numbers, do not experience employment or labor market impacts. The employment quality and earnings of Ecuadorian workers with low education in these regions were reduced.

It is possible to gain a good understanding of migration flows and inform policy decisions by leveraging mobile phone data. However, addressing the challenges and ethical considerations surrounding its use is crucial. By working together with telecommunication companies and other data providers, researchers and policymakers can harness the power of this valuable data source to improve our understanding of migration patterns and drive more effective policy-making.

#### 4.5. Google Trends

In addition to these methods and data sources, other methods and data sources have been used to estimate population dynamics, human mobility, and international migration over time (Connor, 2017; Wladyka, 2017). For instance, a Google Trends analysis with survey data can be used to predict migration stock and intention (study, travel, work, or business), which is a method for estimating the potential migration of a population.

An analysis conducted by Vicéns-Feliberty and Ricketts in 2016 examined Puerto Rican search queries on migration to the United States and to five states popular among Puerto Rican migrants (Vicéns-Feliberty & Ricketts, 2016). Using Google search data, they concluded that different states were popular due to a variety of reasons (job-related concerns, family considerations, and political affiliation). Later, Connor (2017) examined internet searches in Arabic for the word “Greece” within Turkey, a major migration corridor into Europe, in order to track the movements of refugees.

In a study that uses refugee camps from around the world as a case study, Mahabir *et al.* (2018) examine the relationship between news coverage (via Google news), search trends (via Google Trends), and user edit contribution patterns in OpenStreetMap, one of the most prominent crowdsourcing platforms for geospatial data. They report that digital activism bursts tend to coincide with periods of sustained buildup of public awareness deficits or surpluses, as measured by Google News and Google Trends. Moreover, the findings reinforce existing research that examines factors that motivate individuals to participate in online collaborative communities. Using Google search information, Böhme *et al.* (2020) successfully predicted bilateral migration flows by analyzing search hits that reflected migration intention. In a similar approach, Avramescu & Wisniowski (2021) used Google Trends Indexes (in English and Romanian) to construct composite

variables that captured the interest of Romanian migrants to the United Kingdom. It was found that both employment and education indices were able to match the trends in official migration statistics, demonstrating the potential of the data for further analysis. In contrast, Fantazzini *et al.* (2021) found that incorporating Google data into a larger model reduced forecasting error.

A set of push-pull indicators gathered from various data sources and Eurostat statistics on 1<sup>st</sup>-time asylum applications was used by Qi & Bircan (2023) to train three classes of gravity models that have been widely used in migration literature. They also investigated whether Google Trends inclusion could affect models’ predictions of refugees’ destinations. According to their results, Google Trends was not able to improve the performance of models that involved fixed effects or auto-regression, but only those that were relatively simple. On a more empirical level, however, Google Trends’ predictive power is sensitive to factors such as the geographic context, the search terms selected for analysis, and the characteristics and behavior of its users, among others.

An approach based on Google Trends provides a promising tool for accurately predicting migration flows in near-real time. This tool is a valuable resource for policymakers because of its ability to provide timely information, its comprehensive view of migration factors, and its utility in emergencies. Utilizing Google Trends, governments and organizations can better understand the complex dynamics of migration, enabling them to respond to emergencies in a timely and informed manner.

#### 4.6. Emails (Yahoo)

Data from electronic mail may enhance existing migration data, resolve inconsistencies resulting from varying definitions of migration, and provide new and rich information on the mobility patterns and social networks of migrants.

The locations of users who repeatedly log in to Yahoo! Services have been used to estimate trends in international flows (State *et al.*, 2013).

Zagheni *et al.* (2017) used a large sample of Yahoo-derived data to estimate migration rates based on age and gender over 2009 – 2011. In their findings, they suggest that e-mail data may complement existing migration data, resolve inconsistencies arising from different definitions of migration, and provide new and rich information about migration patterns and social networks.

One of the most significant migrations in Yahoo’s history was the move to the Microsoft cloud in 2016. This partnership allowed Yahoo to leverage Microsoft’s Azure

cloud platform, providing better reliability, scalability, and performance for Yahoo's services. However, Yahoo has also faced several data migration challenges, particularly in the context of user data and email migration. In 2017, Yahoo announced that it would be shutting down its email service and migrating all users to a new platform provided by Verizon (Wells, 2017). This required Yahoo to transfer millions of users' email data, contacts, and settings to the new platform without losing any crucial information.

## 4.7. Language learning

An important aspect of integration and professionalization in a foreign country is learning the language, and the phone is a tool that migrants also use for this purpose. Duolingo, a popular language-learning platform, and natural language processing (NLP) technology have been leveraged to contribute to migration tracking efforts in various ways (Kukulka-Hulme, 2019; Rampazzo *et al.*, 2023). Due to its accessibility via mobile devices, Duolingo is particularly valuable for migrants who may have limited access to traditional educational resources. The platform's gamified approach to language learning also makes the process engaging and enjoyable, which can be especially beneficial for individuals facing challenging circumstances during migration. Furthermore, NLP technologies can aid in sentiment analysis, which helps gauge public attitudes towards migration in different regions. The integration of Duolingo and NLP presents an innovative approach to migration tracking. Understanding these sentiments is essential for policymakers and humanitarian organizations to address potential social tensions and promote inclusive integration strategies for migrants.

By analyzing the language learning patterns of users in specific geographical areas, organizations can gain insights into potential migration flows or settlement patterns. Increased demand for learning a particular language in a specific region may indicate an influx of migrants from areas where that language is spoken. For instance, annually, the United Nations High Commissioner for Refugees collects information on refugees and asylum seekers from various sources, including interviews and surveys conducted in different languages. This information is then used to track migration patterns, identify trends, and design appropriate interventions.

## 5. Policy recommendations

Migration data management is a multifaceted issue that encompasses various challenges and opportunities for research and policy formulation. As migration patterns evolve due to factors such as globalization, climate change, and socio-political dynamics, effective data management becomes crucial for informed decision-making. To improve

migration data management, standardized protocols must be established globally, ensuring consistent metrics, terminologies, and methodologies. Governments should invest in modern technologies like big data analytics, AI, and cloud computing for real-time data processing. A robust information technology infrastructure is also needed to integrate data from diverse sources, including government agencies, non-governmental organizations, and international organizations.

Given the sensitivity of migration data, strong legal frameworks are essential to protect privacy while enabling necessary data sharing. Policies should comply with international human rights standards, with clear guidelines on data collection, storage, and usage, as well as penalties for misuse. Public engagement and awareness campaigns can foster transparency and trust in migration policies.

International cooperation is crucial, as migration is a global issue requiring shared best practices through bilateral or regional partnerships. Funding research initiatives will help analyze migration patterns, with academic institutions collaborating with governments to provide evidence-based insights. Open-data platforms can further enhance transparency by making anonymized statistics accessible to researchers and policymakers.

By adopting these measures, including standardized data collection, technological advancements, legal safeguards, public engagement, international collaboration, and research funding, governments can ensure more accurate, secure, and actionable migration data. This will support informed policymaking and better address the challenges of global migration.

## 6. Conclusion

To develop data-driven policies and programs, researchers and practitioners require timely migration data. Access to accurate, up-to-date information is crucial to addressing the multifaceted challenges and opportunities presented by migration, from scientists seeking to understand migration dynamics to policymakers developing evidence-based policies to practitioners implementing targeted programs.

The exploration of migration data management reveals a complex landscape characterized by both significant challenges and promising opportunities. The fragmentation of data sources, coupled with privacy concerns, presents formidable obstacles that hinder effective analysis and understanding of migration patterns. In addition, the dynamic nature of migration flows necessitates adaptive technological solutions and coherent policy frameworks to ensure that responses are timely and relevant. However, these challenges also catalyze collaboration among

stakeholders, fostering an environment where informed policymaking can thrive.

The potential for enhanced collaboration is particularly noteworthy, as it allows for the pooling of resources and expertise across various sectors. This collaborative spirit is essential for addressing the multifaceted nature of migration issues, which often transcend national borders and require coordinated efforts. Informed policymaking emerges as a critical outcome of improved data management practices; policymakers equipped with comprehensive insights can make decisions that better reflect the realities faced by migrants.

Moreover, efficient resource allocation becomes feasible when data-driven approaches are employed, ensuring that assistance reaches those who need it most. The advancement of research in this field is equally significant; innovative analytical techniques can unveil trends and correlations previously obscured by inadequate data handling practices. This not only enriches academic discourse but also empowers practitioners on the ground to implement evidence-based interventions.

Public engagement is another vital aspect highlighted in the findings. By demystifying migration data and making it accessible to a broader audience, stakeholders can foster greater understanding and empathy toward migrants' experiences. This engagement is crucial in combating misinformation and building supportive communities.

At the heart of these developments is the pivotal role played by AI and initiatives such as the BD4M. These efforts leverage sophisticated analytics to enhance comprehension of global migration trends and improve conditions for migrants. AI technologies are revolutionizing the management of international migration by fostering collaboration among stakeholders through insights derived from data, streamlining administrative tasks like visa processing, and identifying irregular migration pathways using machine learning techniques. Nevertheless, this dependency on technology introduces ethical issues related to surveillance and privacy, necessitating a careful equilibrium between operational effectiveness and the safeguarding of human rights.

In summary, while managing migration data poses significant challenges related to fragmentation, privacy concerns, dynamic patterns, technological barriers, and policy alignment issues, it simultaneously opens avenues for enhanced collaboration, informed policymaking, efficient resource allocation, research advancements, and increased public engagement. The integration of AI into this framework signifies a transformative step towards more effective management of global migration issues.

## Acknowledgments

None.

## Funding

None.

## Conflict of interest

The author declares no conflicts of interest.

## Author contributions

This is a single-authored article.

## Ethics approval and consent to participate

Not applicable.

## Consent for publication

Not applicable.

## Availability of data

Not applicable.

## References

- Ahmad Yar, A.W., & Bircan, T. (2023). Challenges with international migration data: An analysis of the experience of national statistical institutions. *International Migration Review*, 01979183231205564.  
<https://doi.org/10.1177/01979183231205564>
- Alderson, A.S., & Nielsen, F. (2002). Globalization and the great U-turn: Income inequality trends in 16 OECD countries. *American Journal of Sociology*, 107(5):1244-1299.  
<https://doi.org/10.1086/341329>
- Alencar, A. (2018). Refugee integration and social media: A local and experiential perspective. *Information, Communication and Society*, 21(11):1588-1603.  
<https://doi.org/10.1080/1369118X.2017.1340500>
- Alexander, J.S., Murr, M.L., & Eddy-Miller, C.A. (2022). Testing the potential of streamflow data to predict spring migration of an ungulate herds. *PLoS One*, 17(1):e0262078.  
<https://doi.org/10.1371/journal.pone.0262078>
- Araujo, M., Mejova, Y., Weber, I., & Benevenuto, F. (2017). Using Facebook ads audiences for Global Lifestyle Disease Surveillance: Promises and Limitations. In: Proceedings of the 2017 ACM on Web Science Conference, p.253-257.
- Avramescu, A., & Wiśniowski, A. (2021). Now-casting Romanian migration into the United Kingdom by using Google Search engine data. *Demographic Research*, 45:1219-1254.  
<https://doi.org/10.4054/demres.2021.45.40>
- Azose, J.J., & Raftery, A.E. (2019). Estimation of emigration, return

- migration, and transit migration between all pairs of countries. *Proceedings of the National Academy of Sciences*, 116(1):116-122.  
<https://doi.org/10.1073/pnas.1722334116>
- Barker, E., & Bijak, J. (2023). Could we have seen it Coming? Towards an Early Warning System for Asylum Applications in the EU. Southampton: University of Southampton.
- Bayir, M.A., Demirbas, M., & Eagle, N. (2009). Discovering Spatiotemporal Mobility Profiles of Cellphone Users. In: IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks and Workshops. IEEE, p.1-9.
- Beduschi, A. (2021). International migration management in the age of artificial intelligence. *Migration Studies*, 9(3):576-596.  
<https://doi.org/10.1093/migration/mnaa003>
- Berger, M.C., & Blomquist, G.C. (1992). Mobility and destination in migration decisions: The roles of earnings, quality of life, and housing prices. *Journal of Housing Economics*, 2(1):37-59.  
[https://doi.org/10.1016/1051-1377\(92\)90018-1](https://doi.org/10.1016/1051-1377(92)90018-1)
- Bijak, J. (2010). Forecasting International Migration in Europe: A Bayesian View. Vol. 24. Germany: Springer Science and Business Media.
- Bilsborrow, R.E. (1997). International Migration Statistics: Guidelines for Improving Data Collection Systems. Switzerland: International Labour Organization.
- Bircan, T., & Korkmaz, E.E. (2021). Big data for whose sake? Governing migration through artificial intelligence. *Humanities and Social Sciences Communications*, 8(1):1-5.  
<https://doi.org/10.1057/s41599-021-00910-x>
- Böhme, M.H., Gröger, A., & Stöhr, T. (2020). Searching for a better life: Predicting international migration with online search keywords. *Journal of Development Economics*, 142:102347.  
<https://doi.org/10.1016/j.jdeveco.2019.04.002>
- Bolhuis, M.P., & Van Wijk, J. (2021). Seeking asylum in the digital era: Social-media and mobile-device vetting in asylum procedures in five European countries. *Journal of Refugee Studies*, 34(2):1595-1617.  
<https://doi.org/10.1093/jrs/feaa029>
- Bordons, M., Morillo, F., & Gómez, I. (2004). Analysis of cross-disciplinary research through bibliometric tools. In: Handbook of Quantitative Science and Technology Research: The Use of Publication and Patent Statistics in Studies of S and T Systems. Dordrecht: Springer Netherlands, p.437-456.
- Boswell, C., Geddes, A., & Scholten, P. (2011). The role of narratives in migration policy-making: A research framework. *The British Journal of Politics and International Relations*, 13(1):1-11.  
<https://doi.org/10.1111/j.1467-856X.2010.00435.x>
- Bottomley, G. (1992). From Another Place: Migration and the Politics of Culture. Cambridge: Cambridge University Press.
- Brollo, B., & Celata, F. (2023). Temporary populations and sociospatial polarisation in the short-term city. *Urban Studies*, 60(10):1815-1832.
- Bruckschen, F., Koebe, T., Ludolph, M., Marino, M.F., & Schmid, T. (2019). Refugees in undeclared employment—a case study in Turkey. Guide to Mobile Data Analytics in Refugee Scenarios: The Data for Refugees Challenge Study. Germany: Springer Nature, p.329-346.
- Burrell, J. (2016). How the machine ‘thinks’: Understanding opacity in machine learning algorithms. *Big Data and Society*, 3(1):1-12.  
<https://doi.org/10.1177/2053951715622512>
- Cahuc, P., Carcillo, S., & Zylberberg, A. (2014). Labor Economics. United States: MIT Press.
- Canada Immigration Lowey Association (CILA). (2023). AI Facial Recognition Technology in the Canadian Immigration System. Available from: <https://cila.co/ai-facial-recognition-technology-in-the-canadian-immigration-system> [Last accessed on 2024 Dec 02].
- Carlier, J.Y., Crépeau, F., & Purkey, A. (2020). From the 2015 European “Migration Crisis” to the 2018 Global Compact for Migration. *McGill Journal of Sustainable Development Law/Revue de Droit du Développement Durable de McGill*, 16(1):37-81.
- Castles, S. (2002). Migration and community formation under conditions of globalization. *International Migration Review*, 36(4):1143-1168.  
<https://doi.org/10.1111/j.1747-7379.2002.tb00121.x>
- Chi, G., Lin, F., Chi, G., & Blumenstock, J. (2020). A general approach to detecting migration events in digital trace data. *PLoS One*, 15(10):e0239408.  
<https://doi.org/10.1371/journal.pone.0239408>
- Chui, M., Harryson, M., Valley, S., Manyika, J., & Roberts, R. (2018). Notes from the AI Frontier Applying AI for Social Good. New York: McKinsey Global Institute.
- Ciupijus, Z. (2010). Ethical pitfalls of temporary labour migration: A critical review of issues. *Journal of Business Ethics*, 97:9-18.  
<https://doi.org/10.1007/s10551-011-1075-7>
- Collins, F.L. (2023). Geographies of migration III: The digital migrant. *Progress in Human Geography*, 47(5):738-749.  
<https://doi.org/10.1177/03091325231157709>
- Connor, P. (2017). Can Google Trends Forecast Forced Migration flows? Perhaps, but Under certain conditions. In: Population Association of America Meeting. Vol. 202017. Chicago, Illinois. Available from: <https://paa.confex.com/paa/2017/mediafile/extendedabstract/paper9477/paa%20> [Last accessed on 2025 Feb 03].
- Cumbane, S.P., & Gidófalvi, G. (2021). Spatial distribution of displaced population estimated using mobile phone data

- to support disaster response activities. *ISPRS International Journal of Geo-Information*, 10(6):421.  
<https://doi.org/10.3390/ijgi10060421>
- De Beer, J., Raymer, J., Van der Erf, R., & Van Wissen, L. (2010). Overcoming the problems of inconsistent international migration data: A new method applied to flows in Europe. *European Journal of Population/Revue Europeenne de Demographie*, 26(4):459.
- De Jong, G.F., Chamrathirong, A., & Tran, Q.G. (2002). For better, for worse: Life satisfaction consequences of migration 1. *International Migration Review*, 36(3):838-863.  
<https://doi.org/10.1111/j.1747-7379.2002.tb00106.x>
- Derave, C., Genicot, N., & Hetmanska, N. (2022). The risks of trustworthy artificial intelligence: The case of the European travel information and authorisation system. *European Journal of Risk Regulation*, 13(3):389-420.  
<https://doi.org/10.1017/err.2022.5>
- Dolado, J., Goria, A., & Ichino, A. (1994). Immigration, human capital and growth in the host country: Evidence from pooled country Data. *Journal of Population Economics*, 7(2):193-215.  
<https://doi.org/10.1007/bf00173619>
- Fantazzini, D., Pushchelenko, J., Mironenkov, A., & Kurbatskii, A. (2021). Forecasting internal migration in Russia using Google Trends: Evidence from Moscow and Saint Petersburg. *Forecasting*, 3(4):774-803.  
<https://doi.org/10.3390/forecast3040048>
- Fassmann, H. (2009). European migration: Historical overview and statistical problems. Statistics and reality. Concepts and measurements of migration in Europe. Amsterdam: Amsterdam University Press, p.21-44.
- Fehr, H., Jokisch, S., & Kotlikoff, L.J. (2008). Fertility, mortality and the developed world's demographic transition. *Journal of Policy Modeling*, 30(3):455-473.  
<https://doi.org/10.1016/j.jpolmod.2008.01.002>
- Floridi, L., Cows, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., et al. (2018). AI4People-an ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. *Minds and Machines*, 28:689-707.  
<https://doi.org/10.1007/s11023-018-9482-5>
- Forti, M. (2021). AI-driven migration management procedures: Fundamental rights issues and regulatory answers. *BioLaw Journal*, 2:433-451.
- Franklinos, L.H., Parrish, R., Burns, R., Cafilisch, A., Mallick, B., Rahman, T., et al. (2021). Key opportunities and challenges for the use of big data in migration research and policy. *UCL Open Environment*, 3:e027.  
<https://doi.org/10.14324/111.444/ucloe.000027>
- Giguashvili, G. (2023). Possibilities of using Artificial Intelligence in the process of international migration management. *Innovative Economics and Management*, 10(3):58-66.  
<https://doi.org/10.46361/2449-2604.10.3.2023.58-66>
- Gonzalez-Salinas, A.I., Andrade, E.L., Abroms, L.C., Gomez, K., Favetto, C., & Collins, K.K. (2024). Latino parents' reactions to and engagement with a facebook group-based COVID-19 vaccine promotion intervention: Mixed methods pilot study. *JMIR Formative Research*, 8(1):e51331.  
<https://doi.org/10.2196/51331>
- Guo, S. (2010). Toward recognitive justice: Emerging trends and challenges in transnational migration and lifelong learning. *International Journal of Lifelong Education*, 29(2), 149-167.  
<https://doi.org/10.1080/02601371003616533>
- Heeks, R., & Renken, J. (2018). Data justice for development: What would it mean? *Information Development*, 34(1):90-102.  
<https://doi.org/10.1177/0266666916678282>
- Hughes, C., Zagheni, E., Abel, G.J., Sorichetta, A., Wiśniewski, A., Weber, I., et al. (2016). Inferring migrations: Traditional methods and new approaches based on mobile phone, social media, and other big data: Feasibility study on inferring (labour) mobility and migration in the European Union from big data and social media data.
- IOM. (2018). Big Data and Migration. Geneva: IOM.
- IOM. (2011). Glossary on Migration. N25. Available from: [https://publications.iom.int/system/files/pdf/iml25\\_1.pdf](https://publications.iom.int/system/files/pdf/iml25_1.pdf) [Last accessed on 2024 Dec 12].
- IOM. (2018). Data Bulletin-Big Data and Migration. ISpra: International Organization for Migration. Available from: [https://publications.iom.int/system/files/pdf/issue\\_5\\_big\\_data\\_and\\_migration.pdf](https://publications.iom.int/system/files/pdf/issue_5_big_data_and_migration.pdf) [Last accessed on 2024 Jan 20].
- IOM. (2020). Regional Data Overview: Migration Data in Europe. Available from: <https://migrationsdataportal.org/regional-data-overview/europe>
- IOM. (2021). Big Data for Migration Alliance Launches Call to Harness Responsible Data Innovation for Better Migration Governance. Available from: <https://gmdac.iom.int/news/big-data-migration-alliance-launches-call-harness-responsible-data-innovation-better-migration-governance> [Last accessed on 2024 Oct 22].
- IOM. (2024). World Migration Report 2024. Available from: <https://worldmigrationreport.iom.int/msite/wmr-2024-interactive> [Last accessed on 2024 Oct 21].
- Jacobsen, K., & Landau, L.B. (2003). The dual imperative in refugee research: Some methodological and ethical considerations in social science research on forced migration. *Disasters*, 27(3):185-206.  
<https://doi.org/10.1111/1467-7717.00228>

- Jasmontaite-Zaniewicz, L., & Zomignani Barboza, J. (2021). Disproportionate surveillance: Technology-assisted and automated decisions in asylum applications in the EU? *International Journal of Refugee Law*, 33(1):89-110.  
<https://doi.org/10.1093/ijrl/eeab031>
- Jaumotte, M.F., Koloskova, K., & Saxena, M.S.C. (2016). Impact of Migration on Income Levels in Advanced Economies. United States: International Monetary Fund.
- Josipovic, I. (2023). What can data justice mean for asylum governance? The case of smartphone data extraction in Germany. *Journal of Refugee Studies*, 36(3):534-551.  
<https://doi.org/10.1093/jrs/fead049>
- Kahanec, M., & Zimmermann, K.F. (2008). Migration and Globalization: Challenges and Perspectives for the Research Infrastructure. Germany: IZA - Institute of Labor Economics.
- Kaneti, M. (2023). What can AI see? The image of the 'migrant' in the era of AI post- visualization. *Journal of Global Ethics*, 19(3):307-322.  
<https://doi.org/10.1080/17449626.2023.2279229>
- Keely, C.B. (2000). Demography and international migration. In: *Migration Theory: Talking Across Disciplines*. New York: Routledge, p.43-60.
- Keijzer, N., & Klingebiel, S. (2017). Realising the Data Revolution for Sustainable Development: Towards Capacity Development 4.0. In: *Partnership in Statistics for Development in the 21<sup>st</sup> Century Discussion Paper No. 9*.
- Khan, W., & Ullah, H. (2010). Scientific reasoning: A solution to the problem of induction. *International Journal of Basic and Applied Sciences*, 10(3):58-62.
- King, R. (2013). *Theories and Typologies of Migration: An Overview and a Primer*. Sweden: Malmö Institute for Studies of Migration.
- Kukulka-Hulme, A. (2019). Mobile language learning innovation inspired by migrants. *Journal of Learning for Development*, 6(2):116-129.  
<https://doi.org/10.56059/jl4d.v6i2.349>
- Kuner, C., & Marelli, M. (2020). *Handbook on Data Protection in Humanitarian Action*. 2<sup>nd</sup> ed. Geneva and Brussels: Brussels Privacy Hub, Vrije Universiteit Brussel, the Data Protection Office of the International Committee of the Red Cross (ICRC).
- Kwilinski, A., Lyulyov, O., Pimonenko, T., Dzwigol, H., Abazov, R., & Pudryk, D. (2022). International migration drivers: Economic, environmental, social, and political effects. *Sustainability*, 14(11):6413.  
<https://doi.org/10.3390/su14116413>
- Lai, S., Erbach-Schoenberg, E.Z., Pezzulo, C., Ruktanonchai, N.W., Sorichetta, A., Steele, J., *et al.* (2019). Exploring the use of mobile phone data for national migration statistics. *Palgrave Communications*, 5(1):1-10.  
<https://doi.org/10.1057/s41599-019-0242-9>
- Leslie, D., Katell, M., Aitken, M., Singh, J., Briggs, M., Powell, R., *et al.* (2022). Advancing Data Justice Research and Practice: An Integrated Literature Review. [arXiv Preprint].
- Lipton, M. (1980). Migration from rural areas of poor countries: the impact on rural productivity and income distribution. *World Development*, 8(1):1-24.  
[https://doi.org/10.1016/0305-750x\(80\)90047-9](https://doi.org/10.1016/0305-750x(80)90047-9)
- Luca, M., Barlacchi, G., Oliver, N., & Lepri, B. (2021). Leveraging Mobile Phone Data for Migration Flows. [arXiv Preprint].
- Lutz, W., Amran, G., Bélanger, A., Conte, A., Gailey, N., Ghio, D., *et al.* (2019). *Demographic Scenarios for the EU: Migration, Population and Education*. Luxembourg: Publications Office of the European Union.
- Mahabir, R., Croitoru, A., Crooks, A., Agouris, P., & Stefanidis, A. (2018). News coverage, digital activism, and geographical saliency: A case study of refugee camps and volunteered geographical information. *PLoS One*, 13(11):e0206825.  
<https://doi.org/10.1371/journal.pone.0206825>
- Martin, P.L., & Zürcher, G. (2008). *Managing Migration: The Global Challenge*. Vol. 63. Washington, DC: Population Reference Bureau.
- Mavroudi, E., & Nagel, C. (2016). *Global Migration: Patterns, Processes, and Politics*. England, UK: Routledge.
- Metcalfe, P., & Dencik, L. (2019). The politics of big borders: Data (in) Justice and the governance of refugees. *First Monday*, 24(4).  
<https://doi.org/10.5210/fm.v24i4.9934>
- Meyer, B.D., Mok, W.K., & Sullivan, J.X. (2015). Household surveys in crisis. *Journal of Economic Perspectives*, 29(4):199-226.  
<https://doi.org/10.1257/jep.29.4.199>
- Micinski, N.R., & Jones, W. (2022). Digitization without digital evidence: Technology and Sweden's asylum system. *Journal of Refugee Studies*, 35(2):1011-1029.  
<https://doi.org/10.1093/jrs/feab041>
- Molnar, P. (2019). Technology on the margins: AI and global migration management from a human rights perspective. *Cambridge International Law Journal*, 8(2):305-330.  
<https://doi.org/10.4337/cilj.2019.02.07>
- Napierala, J., Hilton, J., Forster, J.J., Carammia, M., & Bijak, J. (2022). Toward an early warning system for monitoring asylum-related migration flows in Europe. *International Migration Review*, 56(1):33-62.  
<https://doi.org/10.1177/01979183211035736>
- Nathan, M. (2014). The wider economic impacts of high-skilled migrants: A survey of the literature for receiving countries.

- IZA Journal of Migration*, 3(1):1-20.  
<https://doi.org/10.1186/2193-9039-3-4>
- Noori, S. (2024). Navigating the Aegean Sea: Smartphones, transnational activism and viapolitical in (ter) ventions in contested maritime borderzones. In: *The Digital Empowerment-Control Nexus*. England, UK: Routledge, p.36-52.
- Nyoni, B. (2017). How Artificial Intelligence can be Used to Predict Africa's Next Migration Crisis. Geneva: UNHCR Innovation Service.
- Olivieri, S., Ortega, F., Rivadeneira, A., & Carranza, E. (2021). Shoring up economic refugees: Venezuelan migrants in the Ecuadoran labor market. *Migration Studies*, 9(4):1590-1625.  
<https://doi.org/10.1093/migration/mnab037>
- Ozkul, D. (2023). Automating Immigration and Asylum: The Uses of New Technologies in Migration and Asylum Governance in Europe. Available from: <https://www.rsc.ox.ac.uk/publications/automating-immigration-and-asylum-the-uses-of-new-technologies-in-migration-and-asylum-governance-in-europe> [Last accessed on 2023 Jan 18].
- Poulain, M. (2008). European migration statistics: Definitions, data and challenges. *Mapping Linguistic Diversity in Multicultural Contexts*, 94:43-68.  
<https://doi.org/10.1515/9783110207347.1.43>
- Qi, H., & Bircan, T. (2023). Can google trends predict asylum-seekers' destination choices? *EPJ Data Science*, 12(1):41.  
<https://doi.org/10.1140/epjds/s13688-023-00419-0>
- Quach, S., Thaichon, P., Martin, K.D., Weaven, S., & Palmatier, R.W. (2022). Digital technologies: Tensions in privacy and data. *Journal of the Academy of Marketing Science*, 50(6):1299-1323.  
<https://doi.org/10.1007/s11747-022-00845-y>
- Rampazzo, F., Rango, M., & Weber, I. (2023). New migration data: Challenges and opportunities. In: *Handbook of Computational Social Science for Policy*. Germany: Springer Nature, p.345.
- Ratha, D., Mohapatra, S., & Scheja, E. (2011). Impact of Migration on Economic and social Development: A Review of Evidence and Emerging Issues. World Bank Policy Research Working Paper, no 5558.
- Rees, P., Bell, M., Duke-Williams, O., & Blake, M. (2000). Problems and solutions in the measurement of migration intensities: Australia and Britain compared. *Population Studies*, 54(2):207-222.  
<https://doi.org/10.1080/713779082>
- Roos, L., Walld, R., Burchill, C., Nickel, N., & Roos, N.P. (2017). Linkable administrative files: Family information and existing data. *Longitudinal and Life Course Studies*, 8(3):264-280.  
<https://doi.org/10.14301/llcs.v8i3.406>
- Ryan, L., & D'Angelo, A. (2018). Changing times: Migrants' social network analysis and the challenges of longitudinal research. *Social Networks*, 53:148-158.  
<https://doi.org/10.1016/j.socnet.2017.03.003>
- Salah, A.A., Pentland, A., Lepri, B., Letouzé, E., De Montjoye, Y.A., Dong, X., et al. (2019). Guide to Mobile Data Analytics in Refugee Scenarios. The Data for Refugees Challenge Study. Cham: Springer.  
[https://doi.org/10.1007/978-3-030-12554-7\\_1](https://doi.org/10.1007/978-3-030-12554-7_1)
- Salganik, M.J. (2019). Bit by Bit: Social Research in the Digital Age. United States: Princeton University Press.
- Sherbinin, A.D., Carr, D., Cassels, S., & Jiang, L. (2007). Population and environment. *Annual Review of Environment and Resources*, 32:345-373.  
<https://doi.org/10.1146/annurev.energy.32.041306.100243>
- Spencer, S., & Charsley, K. (2016). Conceptualising integration: A framework for empirical research, taking marriage migration as a case study. *Comparative Migration Studies*, 4(1):1-19.  
<https://doi.org/10.1186/s40878-016-0035-x>
- Spyratos, S., Vespe, M., Natale, F., Weber, I., Zagheni, E., & Rango, M. (2019). Quantifying international human mobility patterns using Facebook Network data. *PLoS One*, 14(10):e0224134.  
<https://doi.org/10.1371/journal.pone.0224134>
- State, B., Zagheni, E., Garimella, V.R.K., & Weber, I. (2014). Inferring International and Internal Migration Patterns from Twitter Data. In: *Proceedings of the 23<sup>rd</sup> International Conference on World Wide Web*, p.439-444.  
<https://doi.org/10.1145/2567948.2576930>
- Tatem, A.J. (2017). WorldPop, open data for spatial demography. *Scientific Data*, 4(1):1-4.  
<https://doi.org/10.1038/sdata.2017.4>
- Taylor, L. (2017). What is data justice? The case for connecting digital rights and freedoms globally. *Big Data and Society*, 4(2):2053951717736335.  
<https://doi.org/10.1177/2053951717736335>
- Ting-Toomey, S., Yee-Jung, K.K., Shapiro, R.B., Garcia, W., Wright, T.J., & Oetzel, J.G. (2000). Ethnic/cultural identity salience and conflict styles in four US ethnic groups. *International Journal of Intercultural Relations*, 24(1):47-81.  
[https://doi.org/10.1016/s0147-1767\(99\)00023-1](https://doi.org/10.1016/s0147-1767(99)00023-1)
- Tjaden, J. (2021). Measuring migration 2.0: A review of digital data sources. *Comparative Migration Studies*, 9(1):59.  
<https://doi.org/10.1186/s40878-021-00273-x>
- Topel, R. (1999). Labor markets and economic growth. In:

- Handbook of Labor Economics. Vol. 3. Netherlands: Elsevier, p.2943-2984.  
[https://doi.org/10.1016/s1573-4463\(99\)30035-3](https://doi.org/10.1016/s1573-4463(99)30035-3)
- Turper Alışık, S., Bayraktar Aksel, D., Yantaç, A.E., Kayı, İ., Salman, S., İçduygu, A., *et al.* (2019). Seasonal labor migration among Syrian refugees and urban deep map for integration in Turkey. In: Guide to Mobile Data Analytics in Refugee Scenarios: The Data for Refugees Challenge Study. Germany: Springer, p.305-328.  
[https://doi.org/10.1007/978-3-030-12554-7\\_16](https://doi.org/10.1007/978-3-030-12554-7_16)
- Turper, S. (2023). Big data in migration research: The ethical considerations. *Reflektif Sosyal Bilimler Dergisi*, 4(3): 795-807.  
<https://doi.org/10.47613/reflektif.2023.139>
- United Nations. (2017). Data for Democracy Wins Unite Ideas #IDETECT Data Challenge to Monitor Worldwide Patterns of Internal Displacement. In: Meetings Coverage and Press Releases PI/2207. Available from: <https://press.un.org/en/2017/pi2207.doc.htm> [Last accessed on 2024 Sep 22].
- Van Liempt, I., & Bilger, V. (2012). 21 Ethical challenges in research with vulnerable migrants. In: Handbook of Research Methods in Migration. United Kingdom: Edward Elgar Publishing, 451.
- Vavoula, N. (2021). Artificial intelligence (AI) at schengen borders: automated processing, algorithmic profiling and facial recognition in the era of techno-solutionism. *European Journal of Migration and Law*, 23(4):457-484.  
<https://doi.org/10.1163/15718166-12340114>
- Vicéns-Feliberty, M.A., & Ricketts, C.F. (2016). An analysis of Puerto Rican interest in migrating to the united states using google trends. *The Journal of Developing Areas*, 50:411-430.  
<https://doi.org/10.1353/jda.2016.0090>
- Wells, N. (2017). Consumer News and Business Channel (CNBC). How the Yahoo Hack Stacks up to Previous Data Breaches. Available from: <https://www.cnn.com/2017/10/04/how-the-yahoo-hack-stacks-up-to-previous-data-breaches.html> [Last accessed on 2024 Sep 21].
- Wladyka, D.K. (2017). Queries to google search as predictors of migration flows from latin America to Spain. *Journal of Population and Social Studies*, 25(4):312-327.  
<https://doi.org/10.25133/jpssv25n4.002>
- Wong, R.W.M., & Chun, A.H.W. (2007). eBrain-Using AI for Automatic Assessment at the Hong Kong Immigration Department. Available from: [https://www.cs.cityu.edu.hk/~hwchun/research/PDF/eBrain\\_IAAI.pdf](https://www.cs.cityu.edu.hk/~hwchun/research/PDF/eBrain_IAAI.pdf)
- Zagheni, E., Weber, I., & Gummadi, K. (2017). Leveraging Facebook's advertising platform to monitor stocks of migrants. *Population and Development Review*, 43(4):721-734.  
<https://doi.org/10.1111/padr.12102>

## RESEARCH ARTICLE

## Dynamic gender differences in reporting work limitations: Comparative evidence from the United States and Europe

Na Yin<sup>1,2,3\*</sup> and Danan Gu<sup>4</sup><sup>1</sup>Department of Public Affairs, Marxe School of Public and International Affairs, Baruch College, City University of New York, New York, New York, United States of America<sup>2</sup>CUNY Institute for Demographic Research, New York, United States of America<sup>3</sup>New York Retirement and Disability Research Center, New York, United States of America<sup>4</sup>Population Division, Department of Economic and Social Affairs, United Nations, Two United Nations Plaza, New York, United States of America

## Abstract

The gender gap in self-reported work limitations among individuals aged 50 – 70 has persisted over time and across countries. We investigate whether this gap reflects actual differences in work limitations or variations in reporting styles between genders. Using the anchoring vignettes approach and leveraging vignette survey data from the United States and Europe, we examine how men and women assess the severity of identical work limitations related to pain, cardiovascular health, and depression. Our findings show that men tend to classify identical work limitations as more severe than women. This gender difference in reporting styles is consistent across both the U.S. and Europe and throughout the time periods studied. Once we account for these reporting differences, the gender gap in self-reported work limitations narrows or diminishes. These results have broad implications for research on self-reported work disability and highlight the need for caution when using self-reported measures to assess disability patterns and trends.

**Keywords:** Gender difference; Work limitation; Self-reports; Anchoring vignettes; Health Retirement Study; Survey of Health, Ageing and Retirement in Europe

**\*Corresponding author:**Na Yin  
(na.yin@baruch.cuny.edu)

**Citation:** Yin, N. & Gu, D. (2025). Dynamic gender differences in reporting work limitations: Comparative evidence from the United States and Europe. *International Journal of Population Studies*. 11(6): 31-49.  
<https://doi.org/10.36922/ijps.1969>

**Received:** October 5, 2023**Revised:** April 3, 2025**Accepted:** May 19, 2025**Published online:** July 14, 2025

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

## 1. Introduction

The “gender health paradox” suggests that, despite their longer life expectancy, women often report poorer health than men (e.g., Case & Paxson, 2005; Crimmins *et al.*, 2011; Kaleta *et al.*, 2008; Verbrugge, 1989). This paradox has long captured the attention of health researchers and policymakers, as it raises critical questions about the interplay between gender and health across various life domains, including work. Recent studies have shed light on the specific challenges women face in the workplace, such as greater barriers to accessing accommodations compared to men (Jetha *et al.*, 2020), and less pronounced health-related benefits of work participation (Hosseinpoor *et al.*, 2012). These disparities highlight the importance of examining how health issues impact men and women differently in the workplace and developing targeted strategies to address these inequities. Such efforts are crucial for creating inclusive and supportive work

environments that promote sustainable development (United Nations, 2015).

Work limitations, defined as restrictions in performing job tasks due to health problems (Martin, 2024), have far-reaching implications for individuals and economies. Women, due to their distinct health profiles and caregiving responsibilities, may face more frequent and severe work limitations than men (World Economic Forum, 2023). However, the measurement of work limitations is complicated by the reliance on self-reported data, which are prone to reporting heterogeneity – differences in how individuals perceive and assess their limitations. Factors such as cultural norms, socioeconomic status, and personal experiences are likely to influence these self-assessments (Kapteyn *et al.*, 2009; Heiland & Yin, 2015), making it challenging to determine the true extent of gender disparities in work limitations. For example, although which gender is in disadvantage based on self-reported work limitations is inconclusive, significant gender differences have been observed among older adults in both the U.S. and some European countries (Crimmins *et al.*, 2011; Kapteyn *et al.*, 2009; Yin & Heiland, 2017; Yin & Heiland, 2022).

To address these challenges, researchers have increasingly turned to vignette-based methodologies, which adjust for reporting heterogeneity by standardizing assessments (Angelini *et al.*, 2011; Dowd & Todd, 2011; Heiland & Yin, 2015; King *et al.*, 2004). This approach involves presenting respondents with hypothetical scenarios describing health or work limitations and asking them to rate the severity of these limitations on a pre-defined scale. By anchoring responses to consistent frameworks, vignette methods mitigate individual differences in interpretation (Angelini *et al.*, 2011; Kapteyn *et al.*, 2009; King *et al.*, 2004; Yin & Heiland, 2017). For example, vignette studies have revealed systematic gender-based differences in assessing identical health conditions, such as chronic pain, cardiovascular issues, and depression, with women often assigning higher severity ratings than men (Heiland & Yin, 2015; Yin & Heiland, 2022). These findings suggest that reporting heterogeneity may exaggerate perceived gender disparities in work limitations, highlighting the need to account for such differences when evaluating gender-based inequalities in work limitations.

Despite these insights, only a limited number of studies have explored gender differences in reporting work limitations (e.g., Angelini *et al.*, 2011; Kapteyn *et al.*, 2009; King *et al.*, 2004, 2017; Yin & Heiland, 2022). Among them, none have specifically examined whether men and women perceive and report their work limitations differently and how gender-related reporting heterogeneity affects

observed disparities. Understanding and addressing these differences is essential for accurately assessing gender disparities in work limitations and for shaping effective policy interventions. Without such adjustments, observed disparities might reflect not only actual health inequalities but also differences in how limitations are perceived and reported. Insights from vignette-based studies have actionable implications, particularly for designing workplace policies that are sensitive to women's unique health challenges and ensuring equitable access to support and accommodations. Furthermore, integrating vignette methods into large-scale surveys could enhance the accuracy of labor force statistics, offering a more reliable basis for policy decisions.

At the same time, gaps remain in understanding how gender intersects with other factors, such as age, socioeconomic status, and cultural context, to shape experiences of work limitations. For instance, while older women are more likely to report limitations due to health problems, their experiences may differ significantly based on their occupational histories and access to resources such as healthcare and social support (Vanajan *et al.*, 2020). Similarly, cultural norms and gender roles may influence how men and women perceive and report their work capacities. Cross-national studies have revealed variations in reporting behaviors that align with broader societal attitudes toward gender and health (Mansyur *et al.*, 2009). These findings highlight the need for further research to capture the complexity of gendered experiences of work limitations.

In this study, we build on the existing literature by leveraging vignette survey data from the U.S. and Europe to examine gender differences in reported work limitations. Specifically, we aim to analyze how men and women assess identical scenarios involving health problems such as pain, cardiovascular issues, and depression. Pain and depression are particularly relevant, as they disproportionately affect women and are leading causes of work-related disability worldwide (GBD 2019 Diseases and Injuries Collaborators, 2020; WHO, 2011). Similarly, cardiovascular health, traditionally viewed as a predominantly male concern, has gained attention as a critical issue for women. Emerging research highlights that women often present with atypical symptoms of cardiovascular disease, leading to delays in diagnosis and treatment and poorer long-term outcomes (Vogel *et al.*, 2021). By applying the anchoring vignette approach, we aim to distinguish between actual health effects and reporting biases in disability assessments, refining existing methods in disability research, and contributing to a more nuanced understanding of gendered health disparities. Ultimately, our study seeks to

inform gender-sensitive workplace policies that promote equity and well-being in the labor market, especially as global demographic and economic shifts make these issues increasingly urgent.

Below, we briefly introduce the principles of the vignette approach, followed by descriptions of data sources and methods, results, discussion, and conclusions.

**1.1. Conceptual foundation of the vignette method**

The vignette method, introduced by King *et al.* (2004), is a robust methodological innovation designed to address the persistent challenge of scaling or anchoring effects in self-reported measures. These scaling effects arise when respondents, influenced by varying demographic, cultural, or psychological characteristics, interpret and categorize the same underlying health limitations differently. Such heterogeneity in interpretation introduces non-random errors into self-reported data, biasing conclusions and obscuring true patterns in health outcomes (Kapteyn *et al.*, 2009; Yin & Heiland, 2022).

To illustrate this issue, consider how respondents may differ in the thresholds – or “cut-points” – they use to rate severity on a standardized scale. Figure 1 demonstrates this phenomenon with two respondent groups, distinguished by gender, assessing the same objective level of work limitation (50%). In the top panel, respondents from “gender group 1” classify the limitation as “moderate,” whereas those in the bottom panel (“gender group 2”) categorize it as “severe.” These discrepancies underscore the need for methodological adjustments to ensure comparability and validity in self-reported measures across diverse populations. Some researchers (e.g., Heiland

& Yin, 2015) have used similar visual models to explain reporting heterogeneity in other settings.

Vignettes offer a compelling solution to these challenges by adjusting for reporting heterogeneity and enhancing the reliability of subjective assessments. In disability and health research, vignette surveys typically present respondents with standardized descriptions of hypothetical individuals experiencing varying levels of impairment (Heiland & Yin, 2015; Yin & Heiland, 2017). Respondents then assess the severity of these scenarios on a pre-defined scale. Since the vignettes are identical, differences in respondents’ assessments reflect their individual reporting styles rather than actual differences in health states. This calibration enables researchers to correct for reporting biases, yielding more accurate and comparable measures across demographic groups and cultural contexts (Kapteyn *et al.*, 2009; Yin & Heiland, 2022).

The decision to use item-based or vignette-based survey methodologies depends on the research goals and context. Item-based questions, which are straightforward and efficient, are well-suited for large-scale data collection and quantitative analyses. However, they may lack sensitivity to contextual variations or nuanced interpretations (Baguley *et al.*, 2022). By contrast, vignette-based methods are particularly effective for studying complex, context-dependent phenomena. By allowing researchers to manipulate specific elements of hypothetical scenarios, vignettes provide deeper insights into how respondents’ perceptions and decisions are shaped by cultural norms, socioeconomic conditions, or specific policy environments (Steiner & Atzmüller, 2017).

Vignettes are also highly effective for addressing sensitive or potentially stigmatizing research topics. By

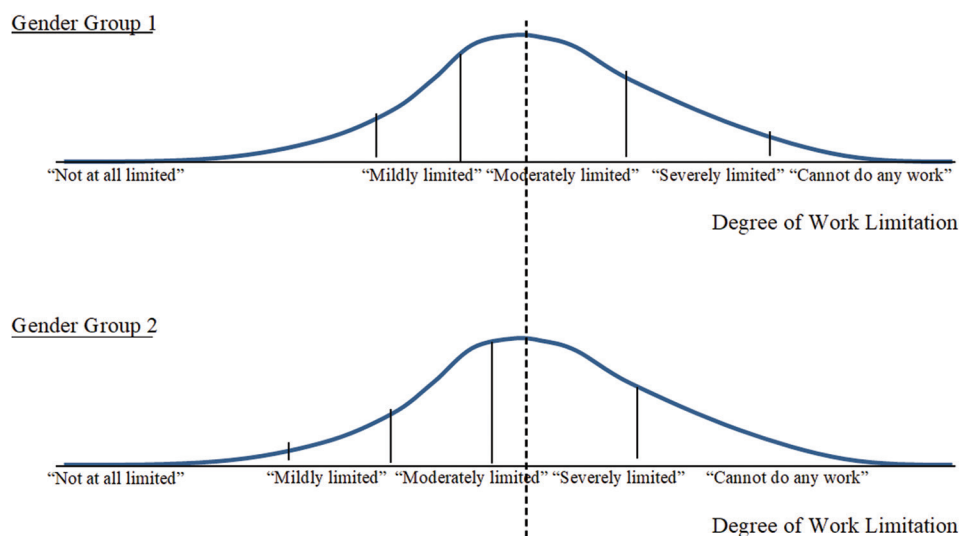


Figure 1. Reporting of work limitations between genders in case of scale heterogeneity

focusing on hypothetical situations rather than personal experiences, they reduce social desirability bias and encourage more candid responses. For example, vignettes can help mitigate justification bias, where respondents exaggerate their health limitations to rationalize being out of the labor force. This application has been particularly useful in labor economics and health research, where accurate self-reports are critical for informed policymaking (Yin & Heiland, 2022).

Beyond reducing bias, the vignette approach provides a unique lens for exploring psychological and contextual factors that shape attitudes and behaviors. It enables researchers to capture the interplay between individual characteristics and external influences, offering a more nuanced understanding of subjective assessments. Recent studies employing vignettes have revealed how cultural background, education, and socioeconomic status influence self-reported health and well-being, providing critical insights into reporting heterogeneity across populations (Baguley *et al.*, 2022; Kapteyn *et al.*, 2009; Xu & Xie, 2016).

By improving the validity and comparability of subjective measures, the vignette approach has become an invaluable tool in survey-based research. Its applications extend beyond health to fields such as education, political science, and consumer behavior, demonstrating its versatility and theoretical relevance in addressing the limitations of self-reported data.

## 2. Data and methods

### 2.1. Data sources

Our analyses used data from the Health and Retirement Study (HRS) and the Survey of Health, Ageing and Retirement in Europe (SHARE). HRS is an ongoing nationally representative biennial panel study of the U.S. population over the age of 50. It is sponsored by the National Institute on Aging and the Social Security Administration and has been conducted by the University of Michigan since 1992 (<http://hrsonline.isr.umich.edu/>). The information collected includes health, socioeconomic status, and social program participation. Although the HRS is a panel dataset, the vignette questions included in the 2004 and 2007 waves that this study relied on were administered as separate and independent experiments. To account for the fact that only a subset of respondents participated in these vignette studies, we used the sampling weights provided by HRS for each wave in all our analyses. In 2004, the vignettes were included in a leave-behind questionnaire completed by a subsample of respondents following their core interview; this questionnaire featured a series of work disability vignettes. The 2007 wave

consisted of an off-year mail survey, which included a brief set of questions about respondents' personal health and disability status, along with a series of anchoring vignettes (Baguley, *et al.*, 2022; Yin & Heiland, 2022).

SHARE is a large-scale cross-national panel study of individuals from multiple European countries aged 50 or older (Börsch-Supan & Jürges, 2005; Servais, 2010). It is sponsored by the European Commission, the U.S. National Institute on Aging, and the German Federal Ministry of Education and Research (<http://www.share-project.org/>). SHARE was intentionally modeled after the U.S. HRS and follows a harmonized structure across participating countries to facilitate cross-national research. A unique feature of the SHARE data is that the self-reported work disability question, along with a series of vignettes, was administered to the same respondents twice – first in 2004 and again in 2006 – making it panel in nature. Eight SHARE countries (Belgium, France, Germany, Greece, Italy, the Netherlands, Spain, and Sweden) agreed to include both the self-assessment and vignette questions on work limitations in each of these two waves. The SHARE vignettes are a subset of the HRS vignettes. The names of the vignette characters are changed to common names in the country where the survey was conducted. The translation procedures and translation assessments are provided by Harkness (2005).

### 2.2. Measurements

#### 2.2.1. Vignette questions

The work disability vignettes in both HRS and SHARE describe hypothetical work limitations in three domains: Pain, cardiovascular health, and depression. In each domain, several distinct vignettes are used to describe the conditions of a hypothetical person. An example of a vignette is the following: *Lori has had heart problems in the past and she has been told to watch her cholesterol level. Sometimes, if she feels stressed at work, she feels pain in her chest and occasionally in her arms.* Following each vignette description, the respondent is asked: "How much is s/he limited in the kind or amount of work s/he could do?" The answer follows a five-point scale: (1) None; (2) Mild; (3) Moderate; (4) Severe; and (5) Extreme/Cannot do any work. The last response category is "Cannot do any work" in the HRS 2004 wave, a bit different from the HRS 2007 wave and the SHARE, where the last response category is "Extreme." Preceding the vignette questions, respondents are asked about their own work limitations: "Do you have any impairment or health problem that limits the kind or amount of work you can do?" with the same answer categories. The list of vignettes is provided in the Appendix. In addition, two tables are included: Table A1 summarizes

the frequencies of vignette reporting, whereas Table A2 presents the Pearson correlation coefficients among all the vignettes, showing low dependency among most of them.

### 2.2.2. Covariates

To ensure robust results, we controlled for several key factors in our analyses, in line with common practice in the literature, that have been shown to play a confounding role in self-reported work disability (Kapteyn *et al.*, 2009; Yin & Heiland, 2022). These factors include sociodemographic characteristics, health conditions, and employment status. Sociodemographic variables include gender (women vs. men), age (50 – 55, 56 – 60, 61 – 65, and 66 – 70 in years), race (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic others, Hispanic), educational attainment (less than high school, high school, some college such as junior college or college without degree, and college or above, with high school as the reference group in estimation), and present employment status (whether currently working for pay). We further controlled for 7 dichotomous health conditions: High blood pressure (or hypertension), diabetes (or high blood sugar), cancer (cancer or a malignant tumor or any kind except skin cancer), lung problem (chronic lung disease such as chronic bronchitis or emphysema except asthma), heart problem (heart attack, coronary heart disease, angina, congestive heart failure, or other heart diseases), arthritis (arthritis or rheumatism), and obesity. In addition, depression symptoms, measured using the Center for Epidemiological Studies Depression (CESD) Scale, and disability, as indicated by the number of limitations in activities of daily living, were also controlled for in the statistical modeling. Unless otherwise stated, the first category of non-dichotomous variables serves as the reference group in the analysis.

### 2.3. Analytical strategies

Our analysis is based on the hierarchical ordered probit (HOPIT) model that is commonly used in vignette studies (Kapteyn *et al.*, 2009; King *et al.*, 2004), which uses vignette data to model the cut-points as functions of respondent characteristics. These cut-points are then applied to the model for self-reported work limitations, allowing us to distinguish between actual health effects and reporting effects.

The HOPIT model has two components: The vignette component, which captures reporting behavior by modeling cut-points as functions of respondents' characteristics (accounting for reporting heterogeneity), and the health component, which represents the relationship between the respondent's own work limitations and covariates, with the cut-points determined by the vignette component.

For the vignette component analysis, we used a set of vignettes from the survey data. All respondents perceive each particular vignette  $j$  to be consistent with a latent level of work limitation,  $h_{ij}^{v*}$ , which is independent of the respondent's characteristics. This follows the assumption of *vignette equivalence*, which requires that all individuals perceive the vignette as corresponding to a health level on the same scale. If this assumption does not hold, then one could not attribute variation in the rating of a given vignette to reporting heterogeneity. There has been little formal testing of this assumption (Murray *et al.*, 2003). Consequently, the latent work limitation of each vignette  $j$  as perceived by respondent  $i$  can be specified as an intercept plus random measurement error:

$$h_{ij}^{v*} = \alpha_j + \varepsilon_{ij}^v, \varepsilon_{ij}^v \sim N(0,1) \quad (I)$$

We normalize  $\alpha_1$  to be zero, and  $\varepsilon_{ij}^v$  independent of each other and of the covariates  $x_i$ . The respective observed categorical rating  $h_{ij}^v$  is related to  $h_{ij}^{v*}$  through the following mechanism:

$$h_{ij}^v = k \text{ if } \mu_i^{k-1} \leq h_{ij}^{v*} < \mu_i^k, k = 1, \dots, 5 \quad (II)$$

with  $\mu_i^1 < \mu_i^2 < \dots < \mu_i^5$ , and  $\mu_i^0 = -\infty$  and  $\mu_i^5 = +\infty$ . The exclusion restriction in Equation I allows us to identify the cut-points as functions of the respondents' characteristics:

$$\mu_i^k = \gamma_0^k + x_i \gamma^k + g_i \delta^k, k = 1, \dots, 4 \quad (III)$$

where  $x_i$  is a vector of a respondent's characteristics (except gender);  $g_i$  is a gender dummy with women being one. The effect  $\delta^k$  reflects the gender differentials in response scales. A positive estimate of  $\delta^k$  suggests that women respondents tend to have a higher threshold than men in assessing a vignette character's disability. That is, women are stricter and likely rate a given disability vignette as less severe than men. Conversely, a negative estimate of  $\delta^k$  would suggest more inclusive criteria by women in rating the work limitation vignettes compared to men.

As in a standard ordered probit model, the second component of the HOPIT defines the latent level of the respondent's own work limitation and the process that links this latent variable to the observed categorical variable. The difference is that the cut-points are no longer constant but can vary across respondents and are determined by the vignette component of the model.

Specifically, the second component of the HOPIT defines the latent level of individual own work limitation,  $h_i^{s*}$ , as:

$$h_i^{s*} = \beta_0 + x_i\beta + \varepsilon_i^s, \varepsilon_i^s \sim N(0, \sigma^2) \quad (IV)$$

We assume that  $\varepsilon_i^s$  is independent of  $x_i$  and  $\varepsilon_{ij}^v$ ; and this latent variable is linked to the observed work limitation severity categories as follows:

$$h_i^s = k \text{ if } \mu_i^{k-1} \leq h_i^{s*} < \mu_i^k, k = 1, \dots, 5 \quad (V)$$

where  $\mu_i^1 < \mu_i^2 \dots < \mu_i^5$ , and  $\mu_i^0 = -\infty$  and  $\mu_i^5 = +\infty$ . We assume that respondents use same response scales to classify the vignettes and their own work limitation, so  $\mu_i^k$  here are the same as the cut-points in Equation III of the vignette component. All analyses included the set of covariates abovementioned and were performed with the Stata package.

### 3. Results

#### 3.1. Rating of vignettes' work limitations in the U.S. and Europe

Table 1 presents some differences between the U.S. HRS and European SHARE samples. HRS respondents were slightly older and reported more health issues, daily activity limitations, and depressive symptoms, while SHARE respondents appeared generally healthier. In 2004, more SHARE participants had less than a high school education, but by 2006, higher education levels had increased. Employment rose modestly in the HRS but more sharply in SHARE, likely due to a younger sample. Race data, available only in HRS, showed a predominantly non-Hispanic White population. Overall, the HRS sample was

**Table 1. Sample distribution of study variables, HRS 2004 and 2007, SHARE 2004 and 2006**

Demographics	2004 HRS		2007 HRS		2004 SHARE		2006 SHARE	
	Mean or %		Mean or %		Mean or %		Mean or %	
% Women	58.4		60.4		55.5		56.2	
Mean age	63.71	(9.41)	64.63	(10.60)	63.45	(9.95)	57.88	(5.68)
Education								
% Less than high school	20.4		16.3		35.0		18.1	
% High School	35.6		34.5		18.7		19.2	
% Some college	21.4		23.7		27.7		37.3	
% College+	22.5		25.3		18.6		25.3	
Race								
% Non-Hispanic White	75.9		77.9					
% Non-Hispanic Black	14.3		11.2					
% Non-Hispanic other	2.3		2.4					
% Hispanic	7.5		8.4					
Health								
% High blood pressure	49.9		49.8		29.3		28.7	
% Diabetes	17.1		16.3		9.0		7.9	
% Cancer	11.8		12.6		5.5		3.4	
% Lung problems	7.9		7.1%		5.0		3.4	
% Heart conditions	19.1		19.5%		11.9		7.2	
% Arthritis	51.9		51.5%		20.7		16.9	
Mean CESD score	1.35	(1.95)	1.35	(1.90)	1.98	(2.32)	1.44	(2.00)
% Obesity	30.1		30.0		16.6		20.9	
Mean number of ADL limitations	0.22	(0.71)	0.19	(0.62)	0.13	(0.53)	0.08	(0.40)
Employment								
% Currently employed	45.9		49.9		33.4		53.6	
No. observations	3.059		4.530		4.378		4.552	

Note: Numbers in the parentheses are standard deviations.

Abbreviations: SHARE: Survey of Health, Ageing and Retirement in Europe; HRS: Health and Retirement Study.

slightly older and less healthy, while the SHARE sample showed gains in education and employment.

Figure 2 shows the distribution of self-reported work limitations, categorized as none, mild, moderate, severe, and extreme, by gender across four survey waves, namely, US 2004, US 2007, Europe 2004, and Europe 2006. In all groups, the largest share of respondents report no work limitations, with proportions ranging from approximately 50% to 57%. Men generally report fewer limitations than women, while women are more likely to report mild or moderate limitations.

Over time, reporting patterns shift modestly. Among European men, reports of severe work limitations increase between 2004 and 2006, while responses among European women remain relatively stable. In the U.S., men report a slight rise in mild limitations from 2004 to 2007. Among U.S. women, there is an increase in moderate limitations, accompanied by a decline in both the proportion reporting no limitations and those reporting extreme limitations. Overall, the figure underscores persistent gender differences in self-reported work limitations, with some variation over time and across regions.

Tables 2 and 3 display the estimated coefficients for the cut-points respondents used to rate the work limitations of the vignette characters, based on the threshold Equation III. The left side of each cut-point equation represents the position of the cut-point on the severity spectrum, while the right side includes various factors that may shift the position of the cut-point, either lower or higher. The four cut-point equations are estimated jointly, as they collectively determine an individual's response scale.

Horizontally, the results are presented by cut-point on the severity scale, ranging from “Mildly limited vs. Not at all limited” ( $\mu_1$ ) to “Cannot do any work vs. Severely limited” ( $\mu_4$ ). A negative (or positive) coefficient suggests that respondents from the corresponding group apply a lower (or higher) cut-point when determining the severity level of the work limitation, indicating a more lenient (or stricter) reporting style. The results are consistent with systematic reporting heterogeneity, as some covariates are found to predict the location of the cut-points. For example, a positive coefficient associated with being a woman implies a shift upward (right) in the cut-point, suggesting that, on average, women characterize the work limitations presented in the vignette as less severe. In all estimations, vignette sampling weights are applied. In the analysis, we used standard errors clustered at the individual level, allowing for potential correlation in an individual's vignette responses.

Looking at the results in the left panel of Table 2, we found statistically significant positive coefficients for all cut-points for women. At any severity level, women in the U.S. in 2004 tend to characterize the vignette person's limitations as less work-limiting than men in the U.S. that year. The pattern of gender differences in cut-points used for disability reporting remains robust even after controlling for a series of potential mediating factors, such as demographics, educational attainment, health indicators, and employment status.

In addition to the gender differentials in the disability rating scale, there are some other interesting findings in the left panel of Table 2. Compared to non-Hispanic whites, all the other racial and ethnicity groups tend to

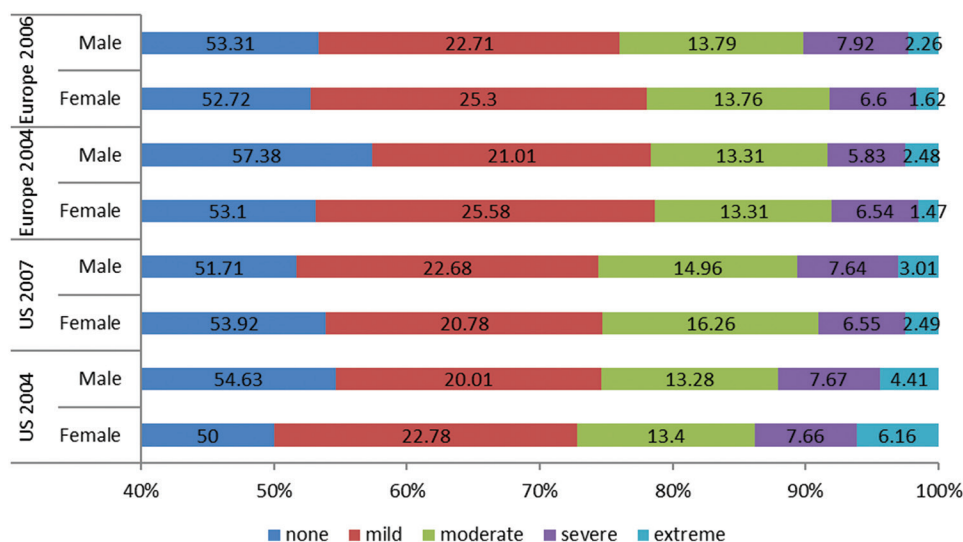


Figure 2. Self-reported work disability by gender  
Source: Health and Retirement Study and Survey of Health, Ageing, and Retirement in Europe (Weighted).

Table 2. Estimated coefficients of respondents' rating of vignettes' work limitation, Health, and Retirement Study 2004 and 2007

	2004				2007			
	mu1	mu2	mu3	mu4	mu1	mu2	mu3	mu4
	M1	M2	M3	M4	M1	M2	M3	M4
Women	0.093**	0.144**	0.160***	0.078*	0.094**	0.107***	0.130***	0.100***
Other demographics								
Ages 56–60	0.000	–0.005	–0.056	–0.105	0.020	0.065*	0.017	–0.038
Ages 61–65	–0.015	0.056	0.032	–0.011	0.053	0.030	–0.015	–0.028
Ages 66–70	0.016	0.027	–0.021	–0.034	0.057	0.054	0.052	0.002
Race								
Non-Hispanic Black	0.009	–0.207***	–0.364***	–0.651***	0.144**	–0.041	–0.248***	–0.427***
Non-Hispanic other	–0.033	–0.141	–0.146*	–0.415***	0.080	–0.096	–0.170***	–0.305***
Hispanic	–0.046	–0.130**	–0.299***	–0.540***	0.263***	–0.031	–0.126***	–0.286***
Education								
Less than high school	0.134**	0.080**	0.067*	–0.081	0.195***	0.170***	0.115***	0.000
Some college	–0.023	0.029	0.079**	0.154***	0.087*	0.074**	0.022	0.035
College+	–0.081*	0.054	0.174***	0.314***	–0.037	0.097***	0.084***	0.127***
Health								
High blood pressure	–0.030	–0.035	–0.039	–0.019	–0.060	–0.028	–0.018	0.032
Diabetes	–0.057	–0.039	–0.013	–0.042	–0.027	–0.001	0.048	0.109**
Cancer	0.040	0.039	0.073*	0.173***	0.120*	0.035	–0.003	0.068
Lung problems	0.067	–0.006	0.029	0.049	–0.071	–0.047	0.039	0.058
Heart problems	–0.077	–0.050	–0.033	0.023	0.096*	0.074**	0.061**	0.046
Arthritis	–0.028	–0.003	0.013	0.081*	–0.112***	–0.054**	–0.003	0.013
CESD score	–0.018*	–0.015**	–0.026***	–0.042***	0.015	0.006	–0.002	0.001
Obesity	–0.005	–0.011	–0.006	–0.016	–0.031	0.001	–0.029	–0.084**
Number of ADL limitations	–0.055**	–0.022	–0.050**	–0.119***	–0.084**	–0.036	–0.016	–0.076***
Employment								
Currently employed	0.040	0.074**	0.076***	0.183***	0.008	0.040	0.066***	0.024
Constant	–2.136	–1.164	–0.136	1.278	–2.614	–1.613	–0.402	1.002

Notes: The coefficients were obtained from a generalized ordinal regression model implemented within a hierarchical ordered probit procedure. The reference age group is ages 50 – 55. The reference for racial group is non-Hispanic white. The reference education attainment category is high school. Depression scale: M1. Not at all limited≥Mildly limited; M2. Mildly limited≥Moderately limited; M3. Moderately limited≥Severely limited; M4. Severely limited≥Cannot do any work. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . Abbreviations: ADL: Activity of daily living; CESD: Center for epidemiological studies depression scale.

apply lower thresholds in rating disability. The effects are more pronounced at the right side (the more severe end) of the disability severity distribution. That is, other racial and ethnicity groups, compared to non-Hispanic whites, are more likely to classify a given vignette character as more severely work limited. Respondents with less than a high school education, compared to high school graduates, are stricter in classifying mild or moderate work disability, while respondents with at least some college education are also stricter but in classifying severe or extreme work limitations. Some health indicators also show predictive power for the location of the cut-points. For example,

cancer predicts higher thresholds in classifying the most severe work limitations. Higher CESD scores, indicating more depressive symptoms according to the CESD scale, are linked to lower thresholds when rating all disability severities. More ADL limitations predict lower mu1, mu3, and mu4. Respondents who are currently employed are less likely to rate a given vignette character as moderately, severely, or extremely work limited.

The right panel of Table 2 shows that in 2007, women in the U.S. consistently apply higher thresholds than men in classifying all the disability severities. While comparing the U.S. women's 2007 thresholds to their 2004 thresholds,

Table 3. Estimated coefficients of respondents' rating of vignettes' work limitation, SHARE 2004 and 2006

	2004				2006			
	mu1	mu2	mu3	mu4	mu1	mu2	mu3	mu4
	M1	M2	M3	M4	M1	M2	M3	M4
Women	-0.006	0.042	0.02	0.029	0.146***	0.145***	0.123***	0.094
Other demographics								
Ages 56 – 60	0.016	0.022	0.006	-0.030	0.055	0.005	-0.026	0.113
Ages 61 – 65	0.041	0.027	0.015	0.051	-0.055	0.021	-0.018	0.155
Ages 66 – 70	0.053	0.088	0.122	0.236***	-0.225	0.126	0.294	0.318
Education								
Less than high school	-0.057*	-0.292***	-0.223***	-0.230***	0.178*	-0.112*	-0.283***	-0.294
Some college	-0.111	-0.14***	0.000	-0.073	0.105	-0.055	-0.211***	-0.203
College+	-0.104	-0.119***	-0.034	-0.060	0.206**	-0.03	-0.260***	-0.099
Health								
High blood pressure	-0.036	-0.026	0.033	0.050	-0.042	-0.065	-0.04	0.134
Diabetes	0.038	-0.009	-0.045	-0.065	0.095	0.090	0.019	-0.201
Cancer	-0.023	-0.02	-0.039	0.016	0.048	-0.110	0.059	-0.022
Lung problems	-0.017	0.058	0.100	0.047	-0.105	-0.054	0.025	1.147**
Heart problems	-0.077	-0.044	-0.064	0.046	-0.07	0.025	0.044	0.212
Arthritis	0.015	0.078**	0.168***	0.218***	-0.05	-0.124**	-0.042	0.235
CESD score	-0.004	-0.013*	0.005	0.012	0.016	0.002	-0.003	-0.03
Obesity	0.080	-0.048	-0.094**	-0.142**	0.022	0.059	0.104*	0.134
Number of ADL limitations	0.040	0.027	0.011	-0.036	0.026	0.083**	0.031	0.068
Employment								
Currently employed	0.058	0.064	-0.074	-0.102	0.188	0.120	0.207*	0.011
Constant	-1.598	-0.202	0.820	2.048	-1.757	-0.231	1.164	2.632

Notes: The coefficients were obtained from a generalized ordinal regression model implemented within a hierarchical ordered probit procedure. The reference age group is ages 50 – 55. The reference racial group is non-Hispanic white. The reference education attainment category is high school. Depression scale: M1. Not at all limited ≥Mildly limited; M2. Mildly limited ≥Moderately limited; M3. Moderately limited ≥Severely limited; M4. Severely limited ≥Cannot do any work. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Abbreviations: ADL: Activity of daily living; CESD: Center for epidemiological studies depression scale; SHARE: Survey of Health, Ageing and Retirement in Europe.

we found that they have slightly lowered their standards in rating moderate or severe work limitations but raised their standards in classifying extreme work limitations.

In Table 3, quite different gender patterns were found in the eight European countries. For example, men and women in 2004 the eight European countries did not have any statistically significant differences in their reporting scales for work limitations. Interestingly, European respondents with lower education levels (less than high school) and higher education levels (at least some college) tend to apply lower thresholds when classifying certain disability severities. In contrast, American respondents with similar educational attainment use higher thresholds. This pattern aligns with previous findings comparing pain reporting between the Dutch and Americans.

However, the right panel of Table 3 shows a dramatic change from 2004 to 2006 among the European respondents: Women have raised their thresholds and applied stricter standards than men across almost the whole disability distribution, particularly when they rate mild, moderate, and severe disabilities. This might be related to the series of initiatives to accommodate disabilities in Europe during the period, but if it is the case, it is puzzling why women react and change their disability standards more dramatically compared to men. Dutch disability reform in 2006 made the system stricter in a sense, which might also modify people's view of what constitutes disabilities (Yin and Heiland [2017] for a discussion of how policy shapes people's perception of work disabilities).

### 3.2. Self-reported work limitations in the U.S. and Europe accounting for reporting heterogeneity

Tables 4 and 5 present estimation results for the model of severity of one's own work disability with and without adjustment for reporting scale heterogeneity. The model explains the self-reported work disability on a five-point scale. The model "without adjustment" is a HOPIT model that does not allow the cut-points to vary with respondents' characteristics. It is similar to a standard ordered probit model. The model "with adjustment" is a HOPIT model allowing for reporting scale variation. The former model is rejected by the data, as is evident from a comparison of the log pseudo-likelihoods at the bottom of each table.

In the left panel of Table 4, comparing the estimates from the models with and without scaling adjustment based on the HRS 2004 data, one of the most salient changes is the coefficient for women. Before adjusting for reporting heterogeneity, women seem to be significantly less likely to have (self-reported) work disability than men, everything else being equal. The gender differential in (self-reported) work disability loses its statistical significance and becomes much smaller in magnitude when scaling heterogeneity is accounted for. It suggests that the observed lower likelihood for women to have (self-reported) work disability is mainly due to the fact that women apply a stricter criterion in reporting disability severity than men. That is, for a potentially identical work limitation, women would likely report it as less serious than men would. After accounting for the reporting style difference between genders, the gender difference in disability diminishes. Another noticeable change after the scaling adjustment is that non-Hispanic blacks do not seem to have significantly more (self-reported) work disability than non-Hispanic whites. The disappearing racial difference in work disability is primarily attributable to the lower threshold used by non-Hispanic blacks in rating disability.

The right panel of Table 4 shows the estimation results for respondents' own work limitations based on the HRS 2007 data. We found that the reporting heterogeneity explains only part of the residual gender gap in work disability. Before adjusting for the reporting heterogeneity, after controlling for a large array of demographic, socioeconomic, and health variables, women appear less disabled than men. The gender differential in work disability has become smaller once we adjusted for the reporting heterogeneity and accounted for the fact that women apply tougher standards and are less likely to report work disability than men. However, different than in 2004, the gender difference in reported work disability is not fully explained in 2007 by reporting heterogeneity and the factors accounted for in the model. More factors in

2007 that are not captured in the present model are likely at play in explaining the gender differences in reported work disability.

In the left panel of Table 5, the estimation results based on the SHARE 2004 data show that the coefficient for women has changed little in response to adjusting for the reporting heterogeneity. This is not surprising given the fact that men and women in Europe during that year did not apply different reporting styles for work disability, as shown in the left panel of Table 3. Thus, reporting styles did not explain the observed gender gap in self-reported work disability among Europeans in 2004. However, in 2006, things were different: The observed gender differential in work disability has diminished after we corrected for the reporting heterogeneity (right panel of Table 5). It means that the observed lower probability of having (self-reported) work disability among European women compared to men in 2006 is mostly due to the fact that women during that year apply much higher thresholds in classifying and reporting disability.

Angelini *et al.* (2011), also using the 2004 and 2006 waves of the SHARE data and anchoring vignette approach, documented that surprisingly large fraction of individuals changed their self-reported work disability status within 2 years, and found that these dynamics can be largely explained by the fact that respondents changed the way that they assessed the severity of work disability problems over time. This evidence clearly supports our claim that individual response scales might vary over time, with median thresholds shifting to the right. This finding implies that, given the same health status, one person might rate herself as work-disabled in 1 year but not in the next.

## 4. Discussion

In this study, we analyzed a set of disability vignettes related to pain, cardiovascular health, and depression from longitudinal survey data in the U.S. and eight European countries over two waves (2004 and 2006/2007). Our findings show distinct gender differences in classification across nearly the entire work disability severity spectrum. Men tend to rate identical work limitations as more severe than women do. This gender differential in disability reporting styles exists in both the U.S. and Europe and is consistent across both waves. The differential remains robust after controlling for various factors such as demographics, socioeconomic status, health, and employment status. Moreover, we observed that reporting styles change over time. However, once we accounted for this reporting heterogeneity, the gender gap in self-reported work limitations often diminishes or disappears. This suggests that the lower rate of self-reported work

**Table 4. Estimated coefficients for work limitation, with and without adjustments for reporting heterogeneity, the Health and Retirement Study 2004 and 2007**

	Without reporting adjustments		With reporting adjustments	
	2004	2007	2004	2007
Women	-0.183***	-0.317***	-0.065	-0.219***
Other demographics				
Ages 56 – 60	0.125	0.025	0.087	0.040
Ages 61 – 65	-0.063	-0.062	-0.051	-0.039
Ages 66 – 70	-0.255***	-0.178***	-0.250***	-0.138*
Race				
Non-Hispanic Black	0.336***	0.005	0.129	-0.005
Non-Hispanic other	0.245	0.220	0.122	0.182
Hispanic	0.082	0.104	-0.071	0.182*
Education				
Less than high school	0.204**	0.056	0.268***	0.210***
Some college	0.002	-0.001	0.020	0.069
College+	-0.199***	-0.232***	-0.201**	-0.223***
Health				
High blood pressure	0.106*	0.191***	0.077	0.151***
Diabetes	0.301***	0.233***	0.252***	0.242***
Cancer	0.109	0.160**	0.172*	0.224***
Lung problems	0.583***	0.745***	0.632***	0.753***
Heart conditions	0.648***	0.38***	0.599***	0.464***
Arthritis	0.495***	0.678***	0.485***	0.611***
CESD score	0.191***	0.171***	0.168***	0.178***
Obesity	0.28***	0.283***	0.264***	0.261***
Number of ADL limitations	0.613***	0.496***	0.533***	0.447***
Employment				
Currently employed	-1.004***	-0.733***	-0.931***	-0.711***
Constant	-2.43	-2.829	-2.464	-2.955
Vignette equation				
vignette 2	-1.601***	-1.472***	-1.65***	-1.499***
vignette 3	0.493***	-0.078***	0.522***	-0.08***
vignette 4	-1.196***	-0.892***	-1.222***	-0.904***
vignette 5	-1.155***	-0.831***	-1.188***	-0.844***
vignette 6	-1.805***	-1.607***	-1.853***	-1.635***
vignette 7	-0.829***	-0.627***	-0.867***	-0.637***
vignette 8	-0.529***	-0.594***	-0.556***	-0.605***
vignette 9	0.209***	0.242***	0.219***	0.249***
sigma	1.302***	1.327***	1.288***	1.339***
mu1	-2.108***	-2.483***	(See Table 2 for mu1-mu4)	
mu2	-1.076***	-1.455***		
mu3	-0.074***	-0.283***		
mu4	1.193***	1.028***		
Log pseudo-likelihood	-38691	-56400	-37978	-55919

Notes: The coefficients were obtained using a hierarchical ordered probit model. The reference age group is ages 50 – 55. The reference for racial group is non-Hispanic white. The reference education attainment category is high school. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .  
Abbreviations: AL: Activity of daily living; CESD: Center for epidemiological studies depression scale.

**Table 5. Estimated coefficients for work limitation, with and without adjustments for reporting heterogeneity, SHARE 2004 and 2006**

	Without reporting adjustments		With reporting adjustments	
	2004	2006	2004	2006
Women	-0.157***	-0.160**	-0.149**	-0.021
other demographics				
Ages 56–60	-0.220***	0.128	-0.206***	0.163
Ages 61–65	-0.155**	0.167*	-0.114	0.137
Ages 66–70	0.042	-0.009	0.129	-0.065
Education				
Less than high school	0.003	-0.261**	-0.150*	-0.254*
Some college	-0.099	-0.179*	-0.205**	-0.176
College+	-0.291***	-0.461***	-0.400***	-0.392***
Health				
High blood pressure	0.171***	0.168**	0.154**	0.137
Diabetes	0.255***	0.618***	0.257***	0.699***
Cancer	0.773***	0.503***	0.762***	0.505**
Lung problems	0.517***	0.699***	0.552***	0.810***
Heart conditions	0.771***	0.932***	0.728***	0.985***
Arthritis	0.790***	0.934***	0.874***	0.900***
CESD score	0.187***	0.256***	0.186***	0.263***
Obesity	0.249***	0.204**	0.255***	0.262**
Number of ADL limitations	0.752***	0.962***	0.765***	1.037***
Employment				
Currently employed	-0.327*	-0.087	-0.296	0.083
Constant	-2.380	-2.397	-2.325	-2.555
Vignette equation				
vignette 2	-0.320***	-0.444***	-0.324***	-0.449***
vignette 3	0.635***	0.531***	0.641***	0.538***
sigma	1.533***	1.637***	1.549***	1.664***
mu1	-1.651***	-1.511***	(See Table 3 for mu1–mu4)	
mu2	-0.345***	-0.199***		
mu3	0.793***	1.034***		
mu4	2.024***	2.655***		
Log pseudo-likelihood	-21243	-11310	-21117	-11229

Notes: The coefficients were obtained using a hierarchical ordered probit model. The reference age group is ages 50 – 55. The reference education attainment category is high school. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Abbreviations: ADL: Activity of daily living; CESD: Center for epidemiological studies depression scale; SHARE: Survey of Health, Ageing and Retirement in Europe.

limitations among women may be partly due to the higher thresholds women use to classify health problems as work-limiting.

Several factors can help justify these findings. One possible explanation lies in gender differences in pain perception and reporting, which have been well-documented in medical and psychological research. Studies

have shown that men are more vulnerable than women to musculoskeletal disorders and symptoms in terms of back pain, neck-shoulder pains under equal exposure to work-related physical environment, such as twisting, awkward postures, and vibration (Hooftman *et al.*, 2004; Hooftman *et al.*, 2009), which are key contributors to work disability (Failla *et al.*, 2024; Keogh *et al.*, 2024).

Another potential reason is that women may be more accustomed to managing multiple roles that involve both paid and unpaid labor, leading them to develop a higher threshold for considering a health condition as work-limiting. Research has suggested that women are more likely than men to work through illness or adapt their work routines to accommodate health issues, whereas men may be more prone to withdrawing from work-related tasks when faced with similar conditions (Rice *et al.*, 2011; Sarrasanti *et al.*, 2020). This difference in adaptation strategies could contribute to the observed reporting heterogeneity.

A third factor relates to psychological and cognitive biases in self-assessment of health and disability. Women tend to provide more nuanced and detailed health assessments, while men are more likely to use more extreme categories in self-reported measures (Benyamini *et al.*, 2000; Phillips *et al.*, 2023). This pattern suggests that women may have a more gradual classification of disability severity, whereas men may be more inclined to assign higher severity ratings to work limitations when they do acknowledge them. This aligns with previous findings that women often underreport severe health issues, particularly in occupational settings where resilience and perseverance are culturally reinforced among female workers (Campos-Serna *et al.*, 2013).

Furthermore, cross-national variations in disability reporting may be influenced by institutional and policy differences that shape gendered experiences of work and health. Countries with stronger social safety nets and more comprehensive workplace accommodations may provide environments in which men and women report disabilities differently. Women in these contexts may feel less pressure to define health conditions as work-limiting, while men in systems with more rigid employment structures may be more likely to report disabilities that justify their withdrawal from work (Biswas *et al.*, 2022).

Finally, the robustness of the findings across two waves of data suggests that reporting heterogeneity is not a static phenomenon but instead changes over time. This is in line with previous longitudinal studies that show that self-perceptions of disability are influenced by changing labor market conditions, health trajectories, and shifting societal attitudes toward gender roles in work and family life (Babik & Gardner, 2021; Hiebert *et al.*, 2024). The fact that accounting for these reporting differences largely diminishes the gender gap in self-reported work limitations underscores the importance of using methods that adjust for reporting heterogeneity to obtain more accurate assessments of gender disparities in disability and employment.

We further explored reporting heterogeneity in work disability assessments across demographic groups in the U.S. and Europe, leveraging vignette-based approaches and the HOPIT model. We found that in addition to gender, racial/ethnic background, education, and employment status significantly influence reporting thresholds, leading to variability in self-reported disability rates. In the U.S., women applied stricter thresholds for assessing work limitations compared to men, whereas in Europe, women demonstrated similar behavior, particularly for milder and moderate limitations. Differences in reporting by race and ethnicity in the U.S. reveal that Non-Hispanic Black respondents applied lower thresholds, reflecting the broader implications of systemic inequities. In addition, respondents with lower educational attainment showed contrasting patterns depending on the severity of limitations, underscoring the interaction between social and cognitive factors in shaping reporting behaviors.

The gender differences in reporting thresholds observed in both regions may be explained by variations in health perception and cultural expectations. Women often perceive and express health-related issues differently due to societal norms and caregiving roles, leading to stricter thresholds when assessing health limitations (Macintyre *et al.*, 1999; Oksuzyan *et al.*, 2014). In the European context, the gender gap's emergence between 2004 and 2006 may reflect the influence of policy reforms that reshaped societal attitudes toward disability and workability (Yin *et al.*, 2022). These findings reinforce earlier studies highlighting the complex interactions between policy environments and self-reported health data (Angelini *et al.*, 2011; Jürges, 2007).

The racial and ethnic disparities in reporting thresholds observed in the U.S. align with existing literature on the impact of structural inequities. Non-Hispanic Black respondents' lower thresholds for classifying severe limitations may reflect cumulative exposure to chronic stress and inequitable healthcare access (Gee & Ford, 2011; Sternthal *et al.*, 2011). These findings are consistent with theories suggesting that chronic exposure to adversity can lead marginalized individuals to normalize or underreport health limitations as an adaptive coping response (Williams & Mohammed, 2013).

Educational attainment emerged as a crucial factor influencing reporting behaviors. Respondents with lower education levels exhibited stricter thresholds for mild limitations but more permissive thresholds for severe limitations. This could stem from differences in health literacy, which influences the interpretation of vignettes and the articulation of health limitations (Friedman *et al.*, 2020). The more flexible reporting patterns observed

among lower-educated respondents in Europe compared to the U.S. might reflect cultural distinctions in how individuals perceive and report health limitations (Bago d'Uva *et al.*, 2008; King *et al.*, 2004).

In addition, the temporal dynamics in Europe, where reporting thresholds evolved between 2004 and 2006, highlight the dynamic variability of self-reported data. Policy changes and economic conditions likely contributed to this shift, emphasizing the role of external contexts in shaping reporting behavior (Angelini *et al.*, 2011). These findings stress the importance of accounting for response scale heterogeneity when interpreting trends in health and disability data. They also have broader implications for research relying on self-reported measures of work disability, highlighting the need for caution when using such measures to assess disability patterns and trends.

#### 4.1. Strengths and limitations

A key strength of this study lies in its use of vignettes combined with the HOPIT model, which effectively disentangles disability severity levels from reporting heterogeneity. This approach offers valuable insights into the subjective nature of self-reported work limitations and provides a nuanced understanding of how demographic factors influence health assessments. In particular, it allows us to quantify the extent to which gendered-reporting behaviors contribute to observed disparities.

Moreover, the integration of data from Europe and from the U.S. enables comparative analyses across diverse contexts, enriching the study's findings. These insights hold practical significance, especially as the global workforce continues to age. Women's higher prevalence of chronic health conditions, coupled with their tendency to under-report severity of limitations, presents considerable challenges to achieving gender equity in labor force participation – an essential goal of international sustainable development (United Nations, 2015).

By employing this innovative methodology, our study not only refines existing approaches in disability research but also underscores the broader implications of gender-specific health reporting, offering a more comprehensive foundation for evidence-based policy interventions.

However, several limitations should be noted. First, the reliance on self-reported data introduces potential biases inherent to subjective measures, even after adjusting for reporting heterogeneity. Second, cultural factors influencing health reporting behaviors were not directly measured, limiting the ability to fully explain cross-national differences. Third, while the HOPIT model adjusts for reporting biases, it relies on the assumption that vignettes are interpreted consistently across respondents, which may

not always hold true (AU & Lorgelly, 2014; Hirve *et al.*, 2013). Future research could address these limitations by integrating objective health measures and qualitative data to complement vignette-based analyses.

#### 4.2. Policy implications

The findings have significant implications for health and disability policy. First, accounting for reporting heterogeneity is essential when designing cross-national health surveys and interpreting self-reported data. Policymakers should consider these variations to prevent the misclassification of health disparities and ensure equitable resource allocation (van Soest *et al.*, 2020). Second, targeted interventions are needed to address systemic inequities in health reporting, particularly among racial/ethnic minorities and lower-educated populations in the U.S. Initiatives to improve health literacy and access to care within these groups may help mitigate biases in self-reported data (Assari *et al.*, 2020). Third, the dynamic nature of reporting thresholds over time underscores the importance of assessing how policy changes influence public perceptions of disability. Policymakers should design disability assessment frameworks that integrate both objective health outcomes and subjective reporting patterns, ensuring that policy evaluations accurately capture their intended impacts (Yin & Heiland, 2022). Strengthening collaborations between researchers and policymakers could enhance the development of inclusive health assessments that account for diverse reporting behaviors. Finally, our findings suggest that addressing gender disparities is not only a matter of fairness but also essential for maximizing workforce potential and overall well-being amid demographic and economic shifts. A more comprehensive approach to gender-sensitive health policies could foster greater economic resilience and social equity in the long run.

#### 5. Conclusion

This study examines gender differences in reporting work disability using the anchoring vignette approach. We found that women tend to report identical work limitations as less severe compared to men, with this gender gap persisting across most countries and time periods. When accounting for reporting heterogeneity, the gender gap in reporting work disability becomes smaller or statistically insignificant. These results highlight the importance of caution in interpreting gender disparities in self-reported disability measures. While differences in reporting styles between men and women partly explain these disparities, further research is needed to explore the residual gender differences and their implications for the economic well-being of older adults.

## Acknowledgments

None.

## Funding

None.

## Conflict of interest

Danan Gu is the Editor-in-Chief and Na Yin is the Editorial Board Member of this journal, but they were not in any way involved in the editorial and peer-review process conducted for this paper, directly or indirectly. They also declared that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

## Author contributions

*Conceptualization:* All authors

*Formal analysis:* Na Yin

*Investigation:* All authors

*Methodology:* Na Yin

*Writing – original draft:* Na Yin

*Writing – review & editing:* All authors

## Ethics approval and consent to participate

Not applicable.

## Consent for publication

Not applicable.

## Availability of data

The data are publicly available at <https://g2aging.org/home>.

## Further disclosure

Views expressed in the article are solely those of the authors and do not reflect those of the City University of New York and the United Nations or any other affiliations of the authors.

## References

- Angelini, V., Cavapozzi, D., & Paccagnella, O. (2011). Dynamics of reporting work disability in Europe. *Journal of the Royal Statistical Society A*, 174(3):621-38.  
<https://doi.org/10.1111/j.1467-985X.2011.00705.x>
- Au, N., & Lorgelly, P. K. (2014). Anchoring vignettes for health comparisons: An analysis of response consistency. *Quality of Life Research*, 23(6), 1721-31.  
<https://doi.org/10.1007/s11136-013-0615-2>
- Babik, I., & Gardner, E.S. (2021). Factors affecting the perception of disability: A developmental perspective. *Frontier in*

*Psychology*, 12:702166.

<https://doi.org/10.3389/fpsyg.2021.702166>

- Bago d'Uva, T., O'Donnell, O., & van Doorslaer, E. (2008). Differential health reporting by education level and its impact on the measurement of health inequalities among older Europeans. *International Journal of Epidemiology*, 37(6):1375-1383.

<https://doi.org/10.1093/ije/dyn146>

- Baguley, T., Dunham, G., & Steer, O. (2022). Statistical modelling of vignette data in psychology. *British Journal of Psychology*, 113(4):1143-1163.

<https://doi.org/10.1111/bjop.12577>

- Benyamini, Y., Leventhal, E.A., & Leventhal, H. (2000). Gender differences in processing information for making self-assessments of health. *Psychosomatic Medicine*, 62(3):354-364.

<https://doi.org/10.1097/00006842-200005000-00009>

- Biswas, A., Harbin, S., Irvin, E., Johnston, H., Begum, M., Tiong M., et al. (2022). Differences between men and women in their risk of work injury and disability: A systematic review. *American Journal of Industrial Medicine*, 65(7):576-588.

<https://doi.org/10.1002/ajim.23364>

- Börsch-Supan, A., & Jürges, H. (eds.). (2005). *The Survey of Health, Ageing and Retirement in Europe - Methodology*. Mannheim: MEA.

- Campos-Serna, J., Ronda-Pérez, E., Artazcoz, L., Moen, B.E., & Benavides, F.G. (2013). Gender inequalities in occupational health related to the unequal distribution of working and employment conditions: A systematic review. *International Journal for Equity in Health*, 12(57):57.

<https://doi.org/10.1186/1475-9276-12-57>

- Case, A., & Paxson, C. (2005). Sex differences in morbidity and mortality. *Demography*, 42:189-214.

<https://doi.org/10.1353/dem.2005.0011>

- Crimmins, E.M., Kim, J.K., & Sole-Auro, A. (2011). Gender differences in health: Results from SHARE, ELSA and HRS. *European Journal of Public Health*, 21:81-91.

<https://doi.org/10.1093/eurpub/ckq022>

- Dowd, J.B., & Todd, M. (2011). Does self-reported health bias the measurement of health inequalities in U.S. adults? Evidence using anchoring vignettes from the health and retirement study. *Journal of Gerontology: Social Sciences*, 66(4):478-489.

<https://doi.org/10.1093/geronb/gbr050>

- Failla, M.D., Beach P.A., Atalla, S., Dietrich, M.S., Brueh, S., Cowan, R.C., et al. (2024). Gender differences in pain threshold, unpleasantness, and descending pain modulatory activation across the adult life span: A cross sectional study. *The Journal of Pain*, 25(4):1059-1069.

<https://doi.org/10.1016/j.jpain.2023.10.027>

GBD 2019 Diseases and Injuries Collaborators. (2020). Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: A systematic analysis for the global burden of disease study 2019. *The Lancet*, 396(10258):1204-1222.

[https://doi.org/10.1016/S0140-6736\(20\)30925-9](https://doi.org/10.1016/S0140-6736(20)30925-9)

Gee, G. C., & Ford, C. L. (2011). Structural racism and health inequities: Old issues, new directions. *Du Bois Rev.* 8(1):115-132.

<https://doi.org/10.1017/S1742058X11000130>

Harkness, J. (2005). Share translation procedures and translation assessment. In: Börsch-Supan, A. (ed). *The Survey of Health, Aging, and Retirement in Europe - Methodology*. Mannheim: Munich Center for the Economics of Aging, p.24-27.

Heiland, F., & Yin, N. (2015). Anchoring vignettes in the Health and Retirement Study: How do medical professionals and disability recipients characterize the severity of work limitations? *PLoS One*, 10(5):e0126218.

<https://doi.org/10.1371/journal.pone.0126218>

Hiebert, J., Kahris, L., & Seefeldt, K. (2024). Making sense of health-related labor-market exits and disability: Evidence from the American voices project. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 10(5):66-83.

<https://doi.org/10.7758/RSF.2024.10.5.03>

Hirve, S., Gómez-Olivé, X., Oti, S., Debpuur, C., Juvekar, S., Tollman, S., Ng, N. (2013). Use of anchoring vignettes to evaluate health reporting behavior amongst adults aged 50 years and above in Africa and Asia – testing assumptions. *Glob Health Action*, 6(1):21064.

<https://doi.org/10.3402/gha.v6i0.21064>

Hooftman, W.E., Van der Beek, A.J., Bongers, P.M., & Van Mechelen, W. (2009). Is there a gender difference in the effect of work-related physical and psychosocial risk factors on musculoskeletal symptoms and related sickness absence? *Scandinavian Journal of Work, Environment and Health*, 35(2):85-95.

<https://doi.org/10.5271/sjweh.1316>

Hooftman, W.E., Van Poppel, M.N.M., Van der Beek, A.J., Bongers, P.M., & Van Mechelen, W. (2004). Gender differences in the relations between work-related physical and psychosocial risk factors and musculoskeletal complaints. *Scandinavian Journal of Work, Environment and Health*, 30(4):261-278.

<https://doi.org/10.5271/sjweh.794>

Hosseinpoor, A.R., Stewart Williams, J., Amin, A., Araujo de Carvalho I., Beard J., Boerma, T., et al. (2012). Social determinants of self-reported health in women and men: Understanding the role of gender in population health. *PLoS One*, 7(4):e34799.

<https://doi.org/10.1371/journal.pone.0034799>

Jetha, A., Gignac, M.A.M., Ibrahim, S., & Martin Ginis, K.A. (2020). Disability and sex/gender intersections in unmet workplace support needs: Findings from a large Canadian survey of workers. *American Journal of Industrial Medicine*, 64(2):149-161.

<https://doi.org/10.1002/ajim.23203>

Jürges, H. (2007). True health vs. response styles: Exploring cross-country differences in self-reported health. *Health Economics*, 16(2):163-78.

<https://doi.org/10.1002/hec.1134>

Kaleta, D., Makowiec-Dabrowska, T., & Jegier, A. (2008). Employment status and self-rated health. *International Journal of Occupational Medicine and Environmental Health*, 21:227-36.

<https://doi.org/10.2478/v10001-008-0023-y>

Kapteyn, A., Smith, J.P., & Van Soest, A. (2007). Vignettes and self-reported work disability in the US and the Netherlands. *American Economic Review*, 97(1):461-73.

<https://doi.org/10.1257/aer.97.1.461>

Kapteyn, A., Smith, J.P., & Van Soest, A. (2009). *Work Disability, Work, and Justification bias in Europe and the U.S.*, RAND, Labor and Population Working Paper WR-696. Available from: [https://www.rand.org/content/dam/rand/pubs/working\\_papers/2009/rand\\_wr696.pdf](https://www.rand.org/content/dam/rand/pubs/working_papers/2009/rand_wr696.pdf) [Last accessed on 2024 Aug 10].

Keogh, E., Boerner, K.E., & Nwasor, E.O. (2024). *Overview of Sex and Gender Differences in Human Pain*. IASP Global Year. Fact Sheet. Available from: [https://www.iasp-pain.org/wp-content/uploads/2024/06/gender-differences-in-pain-fact-sheet\\_r1.pdf](https://www.iasp-pain.org/wp-content/uploads/2024/06/gender-differences-in-pain-fact-sheet_r1.pdf) [Last accessed on 2025 Feb 04].

King, G., Murray, C.J.L., Salomon, J., & Tandon, A. (2004). Enhancing the validity and cross-cultural comparability of measurement in survey research. *American Political Science Review*, 98:184-191.

<https://doi.org/10.1017/S000305540400108X>

Macintyre, S., Ford, G., & Hunt, K. (1999). Do women 'over-report' morbidity? Men's and women's responses to structured prompting on a standard question on long-standing illness. *Social Science & Medicine*, 48(1):89-98.

[https://doi.org/10.1016/S0277-9536\(98\)00292-5](https://doi.org/10.1016/S0277-9536(98)00292-5)

Mansyur, C.L., Amick, B.C., Franzini, L., & Roberts, R.E. (2009). Culture and the social context of health inequalities. *International Journal of Health Services*, 39(1):85-106.

<https://doi.org/10.2190/HS.39.1.d>

Martin, C. (2024). Work limitations. In: Maggino, F. (ed.). *Encyclopedia of Quality of Life and Well-Being Research*. 2<sup>nd</sup> ed. Switzerland AG, Cham: Springer, p.7790-7791.

Murray, C.J.L., Ozaltin, E., Tandon, A., Salomon, J., Sadana, R., & Chatterji, S. (2003). Empirical evaluation of the anchoring

- vignettes approach in health surveys. In: Murray, C.J.L., & Evans, D.B. (eds). *Health Systems Performance Assessment: Debates, Methods and Empiricism*. Geneva: World Health Organization.
- Oksuzyan, A., Shkolnikova, M., Vaupel, J. W., Christensen, K., & Shkolnikov, V. M. (2014). Sex differences in health and mortality in Moscow and Denmark. *European Journal of Epidemiology*, 29(4):243-52.  
<https://doi.org/10.1007/s10654-014-9893-4>
- Phillips, S.P., O'Connor, M., & Vafaei, A. (2023). Women suffer but men die: Survey data exploring whether this self-reported health paradox is real or an artefact of gender stereotypes. *BMC Public Health*, 23(1):94.  
<https://doi.org/10.1186/s12889-023-15011-4>
- Rice, N., Robone, S., & Smith, P. C. (2011). Analysis of the validity of the vignette approach to correct for heterogeneity in reporting health system responsiveness. *European Journal of Health Economics*, 12(2):141-162.  
<https://doi.org/10.1007/s10198-010-0235-5>
- Sarrasanti, N., Donkor, F.K., Santos, C., Tsagkari, M., & Wannous, C. (2020). It's about time we care about an equitable world: Women's unpaid care work and COVID-19. *IEEE Engineering Management Review*, 48(4):37-45.  
<https://doi.org/10.1109/emr.2020.3031313>
- Servais, M. (2010). Overview of HRS Public Data Files for Cross-Sectional and Longitudinal Analysis. Ann Arbor, Michigan: Institute for Social Research, University of Michigan. Available from: <https://hrs.isr.umich.edu/publications/biblio/5835> [Last accessed on 2022 Aug 18].
- Steiner, P.M., Atzmüller, C., & Su, D. (2017). Designing valid and reliable vignette experiments for survey research: A case study on the fair gender income gap. *Journal of Methods and Measurement in the Social Sciences*, 7:52-94.  
<https://doi.org/10.2458/v7i2.20321>
- Sternthal, M. J., Slopen, N., & Williams, D. R. (2011). Racial disparities in health: How much does stress really matter? *Du Bois Rev*, 8(1):95-113.  
<https://doi.org/10.1017/S1742058X11000087>
- United Nations. (2015). Transforming our world: The 2030 Agenda for Sustainable Development. United Nations General Assembly. A/RES/70/1. Available from: <https://docs.un.org/en/a/res/70/1> [Last accessed on 2024 Dec 28].
- Vanajan, A., Bültmann, U., & Henkens, K. (2020). Health-related Work limitations among older workers-the role of flexible work arrangements and organizational climate. *The Gerontologist*, 60(3):450-459.  
<https://doi.org/10.1093/geront/gnz073>
- Verbrugge, L.M. (1989). The twain meet: Empirical explanations of sex differences in health and mortality. *Journal of Health and Social Behavior*, 30:282-304.  
<https://doi.org/10.2307/2136961>
- Vogel, B., Acevedo, M., Appelman, Y., Bairey Merz, C.N., Chieffo, A., & Figtree, G.A. (2021). The lancet women and cardiovascular disease Commission: Reducing the global burden by 2030. *The Lancet*, 397(10292):2385-2438.  
[https://doi.org/10.1016/s0140-6736\(21\)00684-x](https://doi.org/10.1016/s0140-6736(21)00684-x)
- Williams, D. R., & Mohammed, S. A. (2013). Racism and health I: Pathways and scientific evidence. *American Behavioral Scientist*, 57(8):1152-1173.  
<https://doi.org/10.1177/0002764213487340>
- World Economic Forum. (2023). Global Gender Gap Report 2023. Available from: <https://www.weforum.org/publications/global-gender-gap-report-2023/in-full/gender-gaps-in-the-workforce> [Last accessed on 2024 May 18].
- World Health Organization (WHO). (2011). *World Report on Disability*. WHO: Geneva. Available from: <https://www.who.int/teams/noncommunicable-diseases/sensory-functions-disability-and-rehabilitation/world-report-on-disability> [Last accessed 2025 Jan 09].
- Xu, H., & Xie, Y. (2016). Assessing the effectiveness of anchoring vignettes in bias reduction for socioeconomic disparities in self-rated health among Chinese adults. *Sociological Methodology*, 46(1):84-120.  
<https://doi.org/10.1177/0081175015599808>
- Yin, N., & Heiland, F. (2017). Disability policies and public views on work disability: A comparative analysis using anchoring vignette data. *International Journal of Population Studies*, 3(1):42-63.  
<https://doi.org/10.18063/ijps.2017.01.005>
- Yin, N., & Heiland, F. (2022). Do disability policies shape how people perceive work limitation? An international perspective. *Journal of Disability Policy Studies*, 33(1):35-45.  
<https://doi.org/10.1177/10442073211010135>

## Appendix

### A. Vignette questionnaires

#### A1. Pain vignettes

1. Sue occasionally feels back pain at work, but this has not happened for the past several months now. If she feels back pain, it typically lasts only for a few days.
2. Carol suffers from back pain that causes stiffness in her back, especially at work, but is relieved with low doses of medication. She does not have any pains other than this generalized discomfort.
3. Ruth has almost constant pain in her back and this sometimes prevents her from doing her work.
4. Linda has back pain that makes changes in body position while she is working very uncomfortable. She is unable to stand or sit for more than half an hour. Medicines decrease the pain a little, but it is there all the time and interferes with her ability to carry out even day-to-day tasks at work.
5. Jane has pain in her back and legs, and the pain is present almost all the time. It gets worse while she is working. Although medication helps, she feels uncomfortable when moving around, holding, and lifting things at work.

#### A2. Depression vignettes

1. Mary generally enjoys her work. She gets depressed every 3 weeks for a day or two and loses interest in what she usually enjoys, but is able to carry on with her day-to-day activities on the job.
2. Ann enjoys work very much. She feels that she is doing a very good job and is optimistic about the future.
3. Nancy has mood swings on the job. When she gets depressed, everything she does at work is an effort for her, and she no longer enjoys her usual activities at work. These mood swings are not predictable and occur two or three times during a month.
4. Barb feels worried all the time. She gets depressed once a week at work for a couple of days in a row, thinking about what could go wrong and that her boss will disapprove of her condition. However, she is able to come out of this mood if she concentrates on something else.
5. Kathleen feels depressed most of the time. She weeps frequently at work and feels hopeless about the future. She feels that she has become a burden on her co-workers and that she would be better dead.

#### A3. Cardiovascular disease vignettes

1. Karen is very active and fit. She takes aerobic classes 3 times a week.
2. Lori has had heart problems in the past and she has been told to watch her cholesterol level. Sometimes, if she feels stressed at work, she feels pain in her chest and occasionally in her arms.
3. Beth's family has a history of heart problems. Her father died of a heart attack when Beth was still very young. The doctors have told Beth that she is at severe risk of having a serious heart attack herself and that she should avoid strenuous physical activity or stress. She sometimes feels severe pain in her chest and arms, and suffers from dizziness, fainting, sweating, nausea, or shortness of breath.
4. Diane has been diagnosed with high blood pressure. Her blood pressure goes up quickly if she feels under stress. Diane does not exercise much and is overweight. Life can sometimes be hectic for her. She does not get along with her boss very well.
5. Judy has undergone triple bypass heart surgery. She is a heavy smoker and still experiences severe chest pain sometimes.

**Table A1. Vignettes reporting frequencies**

	None/mild (%)	Moderate (%)	Severe/extreme (%)
Pain vignette 1	11.2	33.2	55.6
Pain vignette 2	75.6	20.5	3.9
Pain vignette 3	5.8	20.1	74.0
Affect vignette 1	53.2	33.1	13.7
Affect vignette 2	53.9	33.1	13.1
Affect vignette 3	78.5	17.7	3.8
CVD vignette 1	42.0	38.2	19.9
CVD vignette 2	27.3	38.9	33.8
CVD vignette 3	11.1	24.5	64.4

Abbreviation: CVD: Cardiovascular disease.

**Table A2. Vignettes correlations**

	Pain V1	Pain V2	Pain V3	Affect V1	Affect V2	Affect V3	CVD V1	CVD V2	CVD V3
Pain V1	1								
Pain V2	0.2864	1							
Pain V3	0.4723	0.1563	1						
Affect V1	0.2425	0.1951	0.2186	1					
Affect V2	0.2473	0.2157	0.2039	0.5731	1				
Affect V3	0.1549	0.3181	0.104	0.3466	0.4064	1			
CVD V1	0.2858	0.2915	0.2124	0.1801	0.2258	0.2155	1		
CVD V2	0.3451	0.2265	0.3134	0.3444	0.3635	0.2513	0.3757	1	
CVD V3	0.3688	0.1634	0.3436	0.2534	0.243	0.1429	0.3794	0.488	1

Abbreviation: CVD: Cardiovascular disease.

## RESEARCH ARTICLE

Migration to non-metropolitan communities:  
Community-based perspectives on immigrant  
settlement and multicultural diversity in a small  
city in CanadaRyan Thyra Lok<sup>1\*</sup> and Zhixi Cecilia Zhuang<sup>2</sup><sup>1</sup>School of Planning, Faculty of Environment, University of Waterloo, Waterloo, Ontario, Canada<sup>2</sup>School of Urban and Regional Planning, Faculty of Community Services, Toronto Metropolitan University, Toronto, Ontario, Canada**Abstract**

Immigrants in Canada are increasingly moving into non-metropolitan communities (smaller cities). Non-metropolitan communities are unique contexts of settlement due to a fabric of difference in the physical and social landscape in comparison to larger, multicultural cities that are renowned for immigration and diversity. Policies and immigration pathway programs in Canada are deliberate about promoting non-metropolitan communities as places for immigrant settlement due to the necessity of addressing demographic challenges, such as an aging or declining population. However, less is known about the experiences of settlement in a smaller city from the perspective of immigrants living in the community. This study explored the community-based perspectives about multicultural diversity and the reasons for migration to a non-metropolitan community in Canada. It involved interviews with immigrants from multicultural backgrounds, municipal officials, and a key informant on immigrant settlement and integration. The findings of this study indicated that economic and family-related factors were the primary reasons for migration to and settlement in a non-metropolitan community. This paper contributes to the literature on population and demographic change by emphasizing the importance of understanding place satisfaction from the perspective of diversity in the community as an approach to addressing demographic challenges in non-metropolitan communities.

**Keywords:** Migration; Immigration; Immigrants; Community; Non-metropolitan; Canada**\*Corresponding author:**Ryan Thyra Lok  
(rtlok@uwaterloo.ca)**Citation:** Lok, R.T. & Zhuang, Z.C. (2025). Migration to non-metropolitan communities: Community-based perspectives on immigrant settlement and multicultural diversity in a small city in Canada. *International Journal of Population Studies*. 11(6): 50-66. <https://doi.org/10.36922/ijps.6309>**Received:** November 20, 2024**1st revised:** November 26, 2024**2nd revised:** February 4, 2025**Accepted:** April 29, 2025**Published online:** May 15, 2025**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.**1. Introduction**

Immigration will continue to be the primary factor of population growth and demographic diversification in Canada (Government of Canada, 2023a). Between July 2022 and July 2023, Canada welcomed 468,817 immigrants and 697,701 non-permanent residents – a combined total that marks the highest number of newcomers admitted in a single year in Canadian immigration history (Government of Canada, 2023b). During this period, Canada experienced the fastest population growth rate since 1957 (the post-war baby boom) at 2.3%, largely due to immigration (Statistics Canada, 2023a). The

population of Canada is continuing to become diverse (ethnically and culturally) with immigration, as 23% of the population in Canada was born outside of the country, where 26.5% of the population identifies as part of a “visible minority” demographic according to the 2021 Census (Statistics Canada, 2022a). By 2041, it is projected that just under half (38.2 – 43.0%) of the population in Canada will identify as a “visible minority” person compared to just over a quarter (26.5%) of the population in 2021 (Statistics Canada, 2022b). The term “visible minority” is used in the Canadian policy context to refer to populations who are “persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in color” (Statistics Canada, 2015).

The increasing ethnic and cultural diversity in Canada’s population is not surprising given that Canada has historically been a nation of immigrants that is renowned for its multicultural diversity. In this paper, we refer to “immigrants” as people who were born outside of Canada. Immigrant settlement patterns in Canada indicate that immigrants and “visible minority” populations are less likely to live or prefer to live in rural areas (Finlay & Haan, 2024). Although immigrants are still less likely to prefer to live in smaller cities and rural areas, settlement patterns indicate that immigrants are increasingly settling outside of Canada’s three largest cities – Toronto, Montreal, and Vancouver. Immigrant settlement patterns in Canada are still predominant in larger cities. However, there are shifting patterns that signify that immigrants in Canada are also (re)settling into smaller cities and/or regions less known for multicultural diversity (Patel *et al.*, 2019; Pottie-Sherman & Graham, 2021; Ramsey *et al.*, 2016; Teixeira & Drolet, 2018; Statistics Canada, 2022c). We broadly refer to smaller cities in this paper as non-metropolitan communities. The term “non-metropolitan” that we refer to is premised on the contextual distinction of settlement locations outside of larger urban centers (metropolitan areas), which are typically characterized by histories and geographies of immigrant settlement. By operationalizing settlement outside of larger urban centers as “non-metropolitan communities,” this paper provides an operational definition of settlement locations that acknowledges the social and physical geographies of immigrant settlement in place with distinction from settlement in metropolitan areas (e.g., large cities). Our conceptualization of a non-metropolitan community will be explained in Section 1.2.

The settlement of immigrants outside of larger urban centers is both a policy priority and a migration decision at the autonomy of immigrants in search of place satisfaction. For example, immigrants in Canada may voluntarily

migrate to non-metropolitan communities due to factors such as having a lower cost of living (Kelly & Nguyen, 2023), enhanced opportunities for housing attainability (Brown, 2016; Teixeira & Drolet, 2018), life course factors and considerations including hope for a better future for family (Kelly & Nguyen, 2023; Rishworth *et al.*, 2023), and other place-based reasons such as having access to nature (Zhuang & Lok, 2023). Migration of immigrants to non-metropolitan communities in Canada can also be determined by provincially managed immigration programs (e.g., Rural and Northern Immigration Pilot Program and the Atlantic Immigration Program) (Pandey & Townsend, 2011; Pottie-Sherman & Graham, 2021). For example, the Rural and Northern Immigration Pilot Program was designed to facilitate immigrant settlement in specific municipalities (smaller cities and/or rural regions) to fulfill in-demand labor by incentivizing a pathway to permanent residency for immigrants who apply and are selected to work in those municipalities (IRCC, 2025). Those skilled-targeted immigration programs are aimed at attracting immigrants to communities (i.e., municipalities) seeking economic and demographic growth through immigration. In contrast, the implications of immigrant retention in smaller cities remain understudied (Kelly & Nguyen, 2023).

The settlement of immigrants into non-metropolitan communities is a policy priority known as regionalization. Regionalization is deemed a policy priority because municipalities and regions may face population growth issues related to either a declining or aging population. Immigrants are viewed as a demographic that would be able to revive population decline through incentives of immigration with provincially-managed immigration pathway programs, such as the Rural and Northern Immigration Pilot Program. However, despite the voluntary or incentivized settlement of immigrants to non-metropolitan communities in Canada, immigrant settlement in non-metropolitan communities is a municipal and demographic challenge, as municipalities may not necessarily have the capacity or infrastructure to support an increasing influx of population through immigration. Immigrants to Canada are more likely to have living preferences in larger cities than native-born Canadian residents (Statistics Canada, 2022c). However, as a whole, recent immigrants are increasingly settling in smaller cities compared to previous cohorts of immigrants (Statistics Canada, 2022c). In comparison, broader factors such as the rising cost of living in larger urban centers have contributed to increasing trends of migration of the general population from larger cities to smaller communities (McQuillan, 2024). Hence, smaller communities are growing, but municipalities may not necessarily be experienced with

immigration and rapid demographic change. Immigrants may have unique experiences or challenges of settlement and integration due to a fabric of difference in the social and physical landscapes of these contexts when compared to larger, multicultural urban centers (Beine & Coulombe, 2018; Chai, 2021; Garcia & Schmalzbauer, 2017; Zhuang & Lok, 2023).

There is emerging research and policy attention toward immigration to non-metropolitan communities in Canada, as immigrants are increasingly moving to these contexts. Contemporary immigration to Canada is largely associated with the migration of people from Asian, African, and South American countries, which differs from historical contexts of immigration from European countries during the 20<sup>th</sup> century (Statistics Canada, 2023c). This raises a unique challenge and opportunity regarding the intersection between immigration and population growth and the processes of demographic change through increasing ethnocultural diversity in non-metropolitan communities. The experiences of settlement from the perspective of “visible minority” immigrants in smaller communities remain an opportunity for further exploratory research. The emerging body of literature on immigrant settlement in smaller Canadian cities suggests that policy, economic, and lifestyle factors are identified for settlement in these contexts. Much of the literature focuses on immigrants as a broad population, where the literature highlights the agency of immigrants in shaping their settlement trajectories and aspirations. This paper explores the perspectives and experiences of immigration and settlement in Brooks, Alberta, as a non-metropolitan community in Canada. The objectives of this paper – and the associated research questions – are twofold. The first objective of this study was to identify the reasons for migration to a non-metropolitan community by asking the following questions: What are the reasons for immigrant settlement in a non-metropolitan community? The second objective of this study was to explore the community perspectives on immigrant settlement in a non-metropolitan community by asking: How do immigrants experience settlement in a non-metropolitan community? Interviews with immigrants, municipal officials, and a key informant of immigrant settlement and integration offered perspectives and implications of demographic change in a non-metropolitan community.

The findings of this study indicated that economic and family-related factors were the primary reasons for immigrant settlement in a non-metropolitan community. Beyond those factors, the importance of developing a sense of belonging through the presence of ethnic communities, the availability of urban amenities, and having perceivably inclusive spaces in the community contributes to

positive experiences of living in a non-metropolitan community. When addressing demographic change in non-metropolitan communities, we argue that municipal governments must recognize community demographic change with ethnic and cultural differences as experienced in the community. We hope that this effort to understand immigrant lived experiences and perspectives toward place satisfaction perceived by immigrants will contribute to a more holistic understanding of settlement experiences in smaller communities, which may, in turn, inform ways of fostering inclusive communities in non-metropolitan communities. Our findings further suggest the importance of municipal and community partnerships in working together to support demographic change in communities.

## 1.1. Population centers and demographic change, and non-metropolitan communities

### 1.1.1. Population centers as a place

Population centers are classified in quantitative metrics. In the Canadian context, Statistics Canada (2024) classifies population centers as “census metropolitan areas” and “census agglomerations,” where “population centers (urban)” are “areas with a population of at least 1,000 and a population density of 400 persons or more per square kilometer.” According to Statistics Canada (2021), a census metropolitan area has “a total population of at least 100,000, of which 50,000 or more must live in the core.” Census agglomerations “must have a core population of at least 10,000” (Statistics Canada, 2021). In addition, Statistics Canada defines “rural areas” (non-population centers) as “areas outside population centers of settlements of 1,000 or more inhabitants and a population density of fewer than 4,000 inhabitants per square kilometer.”

Although many of the definitions of localities of settlements are largely quantitative, based on population size, there is a breadth of literature that has been written about the implications of space and place in understanding settlement locations as population centers. It is beyond the scope of this paper to delve into this body of literature, though it is relevant to broadly discuss terms relating to settlement in non-metropolitan areas. Definitions such as “new immigrant destinations” (Winders, 2014), “aspiring gateways” (Pottie-Sherman & Graham, 2021), “non-gateway cities” (Kaida *et al.*, 2020), “small(er) cities” (Bonifacio & Drolet, 2017; Brown, 2017; Chai, 2021), “smaller urban and rural communities” (Carter *et al.*, 2008), or “rural areas” (Rishworth *et al.*, 2023) describe localities of settlement that are not metropolitan cities. Colloquial and classic discussions about non-metropolitan areas as places can be related to terms such as “towns,” “small

towns,” “smaller cities,” and “villages,” to the classic notions of *gemeinschaft* and *gesellschaft*, which differentiates the social relations in space as settlements become more urbanized (Tönnies, 1963).

Research is emerging on immigrant settlements outside of metropolitan areas. Specific terms such as “new immigrant destinations” (Winders, 2014) – which refer to areas without a historical pattern of immigrant settlement but are now experiencing demographic growth through immigration – or “aspiring gateways” – which describe places that actively seek to attract immigrants – highlight the different dynamics of immigration. These concepts distinguish between municipalities based on their experience with immigration and the intentionality behind using immigration as a facilitator of population and demographic change. Drolet and Teixeira (2022, p. 488) outlined four characteristics that may classify a “smaller city.” According to those authors, a smaller city consists of: (i) “a discernable downtown core,” (ii) “an authentic, locally celebrated history in a place physically separate from metropolitan centers,” (iii) “a measurable level of cultural participation, including a tradition of volunteerism, growth coalitions, and leadership,” and (iv) “a creative cultural policy that links the city’s center and heritage to its outlying areas and communities.” Although these definitions of population centers and localities of settlement acknowledge numeric metrics and, to an extent, processes of migration to a locality, a construct definition that broadly acknowledges the implications of ethnic and cultural differences as demographics in the community can be elaborated.

### **1.1.2. Demographic change through immigrant settlement in Canadian communities**

Immigrants to Canada had predominantly settled in large gateway cities such as Toronto, Vancouver, and Montreal. These cities offer greater access to ethnic networks and cultural amenities (e.g., ethnic grocery stores, restaurants, and places of worship), which serve as competitive attractions for immigrant settlement compared to smaller cities (Agrawal & Kurtz, 2019; Bauder & Sharpe, 2002; Derwing & Krahn, 2008; Hou & Bourne, 2006; Hyndman *et al.*, 2006; Zhuang, 2021). Accordingly, Canadian research on immigrant settlement has focused on gateway cities such as Toronto, Montreal, and Vancouver (Allen *et al.*, 2021; Hiebert, 2017; Rose & Preston, 2017; Zhuang & Chen, 2017) and larger cities such as Ottawa, Winnipeg, Calgary, and Edmonton (Agrawal & Kurtz, 2019; Simpson, 2017; Veronis, 2019). Other factors shaping immigrant settlement decisions include perceptions of quality of life (Derwing & Krahn, 2008) and employment opportunities (Beine & Coulombe, 2018). Immigration status may also

be associated with the settlement locations of newcomers as family-class immigrants (immigrants who are sponsored by a family member who is a Canadian citizen) tend to follow the established settlement locations of their family members (Sapeha, 2017), while the initial settlement locations of refugees tend to be federally determined (Kaida *et al.*, 2020).

Researchers have focused on the effectiveness of immigration policies of various scales in facilitating the dispersion of immigrants to less populated areas (Carter *et al.*, 2008; Okonny-Myers, 2010; Pandey & Townshend, 2011; Shannon, 2015; Zhuang, 2023). The Canadian Constitution mandates immigration under federal jurisdiction (i.e., admission and setting of immigration quotas, funding of programs and resources toward immigrant affairs), mandated through the responsibility of Immigration, Citizenship, and Citizenship Canada (IRCC). The responsibilities of immigration affairs have been delegated to lower jurisdictions such as provincial governments (i.e., the Provincial Nominee Program, which allows provinces to determine immigrant sponsorship through fulfilling labor demands). Although immigration is constitutionally a federal responsibility, local municipalities are the sites of receiving immigrants (Zhuang, 2021). Immigration programs and incentives such as the Atlantic Immigration Pilot Program and Provincial Nominee Programs play a role in attracting and retaining the settlement of immigrants to smaller cities and regions to stimulate population and economic growth. Labor-based migration also plays a role in the settlement of immigrants in smaller cities (Carter *et al.*, 2008; Pandey & Townsend, 2011; Pottie-Sherman & Graham, 2021). Walton-Roberts (2005) reinforced the importance of the local community and economic context as contributing determinants of retaining immigrants in smaller cities. Pottie-Sherman & Graham (2021) explored aspiring gateways, referring to peripheral cities, such as those in Atlantic Canada, where aspiring gateways are proactively striving to attract and retain immigrants as a means to counter demographic challenges. The uneven distribution of immigrants in Canada concentrated in larger cities further marginalizes smaller cities and regions affecting their economic prosperity and social stability, hence calling for the need for further inquiry (Brown, 2017; George *et al.*, 2017; Graham & Pottie-Sherman, 2021; Patel *et al.*, 2019; Pottie-Sherman & Graham, 2021; Teixeira & Drolet, 2018; Wagner & Growe, 2021; Zhuang, 2023; Zhuang & Lok, 2023).

### **1.1.3. Immigrants and place satisfaction**

The settlement choices and place-based preferences of immigrants are closely linked to their perceptions of place satisfaction. Place satisfaction refers to “a summary

of functional expectations and values that a place offers to an individual/community, facilitating their preferred activities and satisfying their needs” (Erfani, 2022, p. 461). The concept of place attachment is conceptually similar to “place attachment,” which refers to “a (positive) emotional bond to a specific place developed through interactions between an individual/community and the place over time” and perceptions of belonging (Erfani, 2022, p. 461). However, place satisfaction discerns the perception of the functionality of a place (broadly conceived) as satisfaction (Erfani, 2022). Immigrants have been attracted to larger cities such as Toronto, Montreal, or Vancouver, where the suburbs of those cities have been desirable and satisfactory settlement locations (Agrawal & Kurtz, 2019; Vézina & Houle, 2017; Zhuang & Chen, 2017). In larger cities, there is greater access to ethnic and cultural amenities such as ethnic retailing, places of worship, and social services (Burayidi, 2018); thus, these contexts play a role in place satisfaction. While immigrants may still prefer to settle in larger cities, there are a multitude of factors that may contribute to the *de facto* regionalization of immigrants toward smaller cities. Those factors can be economic, such as smaller cities being more conducive to housing affordability (Brown, 2017; Teixeira & Drolet, 2018), a lower cost of living (Kelly & Nguyen, 2023), and having employment opportunities (and immigration pathways) for skilled and unskilled labor (Esses & Carter, 2019). However, researchers should be mindful that those factors are relational and contextual. As an example, Drolet and Teixeira (2022) highlighted that housing unaffordability was a main concern of immigrants settling in the small cities of Kelowna and Kamloops. Characteristics of a smaller city may play a role in immigrant settlement decisions where those contexts may provide benefits, such as the conduciveness for community interaction (Sanchez-Flores, 2018), local proximity to amenities (Zhuang & Lok, 2023), and a quieter lifestyle that is supportive of life-trajectories, such as raising a family (Kelly & Nguyen, 2023). Studies of small and medium-sized municipalities inferred that the sense of belonging perceived by immigrants was related to employment security and homeownership (Kitchen *et al.*, 2015) or could be experienced in specific places such as settlement agencies or religious spaces (Chai, 2021). Hence, immigrants in part make settlement considerations toward a smaller city based on how they perceive that community, highlighting the role of individual agency in settlement decisions (Esses & Carter, 2019).

Immigration, Refugees, and Citizenship Canada defines integration as “a two-way process that involves commitment on the part of immigrants to adapt to life in Canada and on the part of Canada to welcome and adapt to new peoples and cultures” (Government of Canada,

2023c). Hence, under this definition of integration, both the host community and the newcomer community play a role in integration. Despite the benefits of living in a smaller city as perceived by immigrants, studies have also suggested that smaller cities may be challenging settlement and integration locations for immigrants. Relative to larger cities, smaller cities may have deficiencies in service amenities such as public transportation or specialized healthcare services, which can be particularly challenging for newcomer integration, especially for those with fewer resources (Dennler, 2022; Esses & Carter, 2019). Other settlement and integration challenges in smaller cities include having less access to ethnic and cultural networks (Pottie-Sherman & Graham, 2021), ethnic goods and services (Zhuang & Lok, 2023), proneness to experiences of social isolation (Chai, 2021), and the inadequacies of culturally appropriate support systems (Patel *et al.*, 2019). Drolet & Teixeira (2022) highlighted that immigrant service organizations played a formal role in immigrant settlement and integration in the small cities of Kelowna and Kamloops, which was essential in contexts with less informal support infrastructure in communities. With consideration of the challenges of immigrant settlement and integration in smaller cities, scholars studying immigrant settlement and integration in those contexts emphasized the importance of taking into account community factors that shape the lived experiences of immigrants (Kelly & Nguyen, 2023; Zhuang, 2023). Immigrants are less likely to migrate to rural areas (Finlay & Haan, 2024). Furthermore, understanding the local context of reception is imperative in acquiring a nuanced perspective toward inclusion and belonging. This notion, exemplified in Banack’s (2023) ethnographic study of rural Albertan attitudes toward cultural minorities, was attributed in part to rural Albertans’ sense of alienation and rural identity. Overall, the literature and policy attention on immigration in smaller cities in Canada tend to focus on policy approaches of attracting immigrants through regionalization programs. Although there is an emerging body of literature that examines the implications of smaller cities in attracting and retaining immigrants in Canada (Kelly & Nguyen, 2023), these studies typically examine contexts that are proactively seeking to attract and retain immigrants to understand the implications of policy approaches (Kelly & Nguyen, 2023; Pottie-Sherman & Graham, 2021). These studies are important for further understanding immigrant experiences in smaller cities. In spite of that, there are opportunities for empirical examination of the perspectives of place from the experience and perspectives of immigrants living in lesser-studied, but emerging in importance, contexts of non-metropolitan cities. Hence, this study will contribute to this discussion by exploring

place satisfaction as experienced by immigrants living in a non-metropolitan community.

## 1.2. Conceptualizing non-metropolitan community

Based on the literature in the aforementioned sections about population centers and the implications of demographic change as a process occurring in a community, we contribute to the literature on population and demographic change by conceptualizing non-metropolitan communities as a concept that can be applied to understand population centers. Here, we conceptualize smaller cities as population centers and non-metropolitan communities. We build on the definition of a “new immigrant destination” (Winders, 2014), which refers to the four characteristics identified as first, “speed, rather than size, of immigrant settlement” (Winders, 2014, p.158), second, “[the] lack of institutional infrastructures to meet the needs of immigrants” (Winders, 2014, p.158), third, “[the] lack [of] local histories of immigrant settlement” (Winders, 2014, p.159), and fourth, the characteristic of new immigrant destinations as having “often younger than both the native-born populations in their new communities and immigrants in more established destinations” (Winders, 2014, p.161). We differentiate our population center definition of a “non-metropolitan community” by focusing on the qualitative (i.e., physical and social) characteristics of a place and the demographic composition of the community.

We define a non-metropolitan community as a settlement located outside of metropolitan areas that is spatially small (relative to cities in metropolitan areas) and has a minority ethnocultural population demographic within the community. We purposely did not provide a quantitative measure of population or municipality size in our definition, as we intend to provide the relevance of this term to describe a locality with an emphasis on qualitative attributes. Our concept intersects with existing literature about population centers by extending the construct of “place” and “community.” We regard the physical and social attributes of a locality as a “place.” A place is not only the physical attributes (e.g., infrastructure and spaces in the community), but it also entails the socially constructed meanings attached to space, as real or perceived (Tuan, 1977). Hence, a place is real, imagined, and fluid (Sandercock, 1998; Tuan, 1977). We purposely did not provide a quantitative metric for measuring a non-metropolitan community to provide a broad basis for conceptualization. This conceptualization is not intended to provide a generalization for all population centers fitting this criterion, as context should be regarded. Rather, the conceptualization of non-metropolitan communities presented here is intended to provide a conceptual basis for the assessment and analysis of population centers in

smaller cities experiencing demographic change through immigrant (re)settlement. We imagine that qualitatively, a non-metropolitan community would be an urbanized settlement that would resemble a colloquial conception of a small city or town, which differs from sparsely populated settlements such as a hamlet or village. Based on the literature, we identify three characteristics that are relevant to constructing a conceptualization of non-metropolitan communities in the following subsections: socially close-knit culture in the community, less cosmopolitan, and fewer urban amenities, spaces, and services in the community.

### 1.2.1. Socially close-knit culture in the community

Non-metropolitan communities may have a socially close-knit culture in the community (Bonifacio & Drolet, 2017; Kelly & Nguyen, 2023; Wilson-Forsberg, 2012). Community, in a classic regard, has been viewed by urban sociologists through the lens of *gemeinschaft* and *gesellschaft*, which refer to rural, tradition-based societies and urban, impersonal structures, respectively (Tönnies, 1963). Here, *gemeinschaft* becomes relevant and has a direct association with the conception of “community.” The implications of socially close-knit communities for immigrants have been discussed in the literature, such as providing a social environment that is perceived as static and difficult to build social connections for outsiders, like immigrants (Bonafacio & Drolet, 2017; Miraftab, 2016; Garcia & Schmalzbauer, 2017; Wilson-Forsberg, 2012; Wong *et al.*, 2023). For example, in Wilson-Forsberg’s (2012) *Getting Used to the Quiet* book, which documented the experiences of young immigrants in two small cities in a rural area in New Brunswick, Canada, a common experience related to challenges of developing close social relationships with residents was a real and perceived challenge. Studies of smaller cities suggest that there cannot be a generalization about whether local residents are welcoming or unwelcoming to ethnically diverse populations (Kelly & Nguyen, 2023; Wong *et al.*, 2023). Some studies document how immigrants may perceive local residents as “friendly” (Kelly & Nguyen, 2023; Wilson-Forsberg, 2012), while other studies suggest how racial prejudices and xenophobia can be implicitly or explicitly embedded in the social fabric of smaller communities (Garcia & Schmalzbauer, 2017; Wong *et al.*, 2023). Hence, the outcomes of a socially close-knit culture in a community on immigrant experiences have been related to the benefits of social capital and an instilled sense of community. On the other hand, the latent implications of cultural assimilation and potential perceptions of otherness in the community may be present and experienced by immigrants (Bonafacio & Drolet, 2017; Miraftab, 2016; Garcia & Schmalzbauer, 2017; Wilson-Forsberg, 2012; Wong *et al.*, 2023).

## 1.2.2. *Less cosmopolitan*

Cosmopolitanism has been of interest to philosophers and social scientists who want to study the differences and identities in society (Wardle, 2015). Wardle (2015) discussed four perspectives to describe the construct of cosmopolitanism. According to Wardle (2015), cosmopolitanism first “involves commitments to the world at large that transcend loyalty to nation, neighbors, and locally shared conventions” (Wardle, 2015, p. 41). Second, “cosmopolitanism describes an attitude of openness to, tolerance toward, and a desire to comprehend the standpoints of others and their ways of being” (Wardle, 2015, p. 41). Third, “some cosmopolitan views rest on a vision or expectation of historical progress toward a peaceful world community” (Wardle, 2015; p. 41), and fourth, “normative cosmopolitanism is that it does not rest with what is or might be the case, but instead it prescribes what should be done” (Wardle, 2015, p. 41). Hence, the concept of cosmopolitanism is grounded in the principle of diversity and the acceptance of cultural differences in a social context.

Cosmopolitanism occurs at the micro- (individual), meso- (between groups of people in space), and macro-levels (e.g., institutional recognition of difference). Larger, multicultural cities, often in metropolitan areas, are often regarded as cosmopolitan, due to the composition of ethnic diversity and acceptance or tolerance of cultural differences. The relationship between cosmopolitanism and experiences in the city is associated with social interactions and encounters with differences in space (i.e., the meso-level) (Werbner, 2015). Cosmopolitanism may also involve the openness of individuals (micro-level) in accepting and tolerating differences in values and cultures when encountering people from diverse backgrounds through intercultural interaction in space (meso-level) (Valentine, 2008). Sandercock (1998) imagined cities of the 21<sup>st</sup> century to be “cosmopolis,” which she regarded as “cosmopolitan metropolises that are characterized by significant cultural (racial, ethnic, and sexual) diversity” (Sandercock, 1998, p. 163). The idea of the cultural other is an important aspect to consider in cosmopolis (Sandercock, 1998). The current literature about urban settlements is broadly rich in discussing the implications and imperatives of cosmopolitanism as an avenue and characteristic of the acceptance and tolerance of ethnic and cultural differences in the population, where cosmopolitanism tends to be associated with metropolitan cities (Burayidi, 2018).

Smaller cities and rural areas generally have less diversity in the social composition of the demographics, as these contexts tend to be socially homogenous relative to cities with a history of migration of people from various countries

(Garcia & Schmalzbauer, 2017). Furthermore, empirical studies that examine ethnic minorities’ experiences in smaller cities tend to suggest that those individuals may experience being outsiders in culturally homogenous communities (Caxaj & Gill, 2017; Tungohan, 2017). When referring to the literature about smaller cities and rural areas, the literature identifies that rural values are an important aspect of rural identity (Banack, 2023). Smaller cities and rural areas can be less cosmopolitan as they may not necessarily have experience with immigration (Pottie-Sherman & Graham, 2021) or receptivity to difference (Wong *et al.*, 2023). The demographic composition of smaller cities was generalized to have a small proportion of ethnic diversity when compared to metropolitan areas (Garcia & Schmalzbauer, 2017; Pottie-Sherman & Graham, 2021; Zhuang, 2023), which can pose challenges and opportunities for immigrant settlement. Some studies also suggest that communities can be reluctant to social and cultural change (Banack, 2023; Miraftab, 2016), which challenges perspectives about cosmopolitanism (Wardle, 2015). Furthermore, smaller cities and rural areas tend to be quieter or slower in the pace of life (Wilson-Forsberg, 2012), which can limit opportunities for conviviality of social interaction compared to larger cities (Zhuang & Lok, 2023). This challenges prevailing conceptions of cosmopolitan cities as being culturally dynamic.

## 1.2.3. *Fewer amenities and services in the community*

In the context of larger, metropolitan cities, particularly in ethnoburbs (Li, 2009), immigrants have a social environment that is conducive to formal and informal social relations and networks due to the availability of infrastructure such as ethnic retail sites (Zhuang & Chen, 2017), place of worship and ethnic networks (Qadeer & Agrawal, 2011), or government-funded social supports (Kelly & Nguyen, 2023). Hence, available amenities and services play a role in immigrants’ integration into the community. Due to the population size of smaller cities, non-metropolitan communities may have relatively fewer amenities and services than larger metropolitan cities (Zhuang & Lok, 2023). Amenities can be conceived as spaces and places in a community that provide a function for its population (e.g., libraries, community centers, parks and recreation centers, retailing, and places of worship). Services can be regarded as formal support from organizations and/or community actors, which include facets such as employment support, federally funded immigrant settlement and integration agencies, social services and support, and access to healthcare providers. Studies of immigrant settlement in rural areas suggest challenges such as inaccessibility to “culturally appropriate” services (Patel *et al.*, 2019). However, the

inadequacies of services specific to immigrants were not necessarily a challenge faced by immigrants in the community (Kelly & Nguyen, 2023). For example, in Kelly & Nguyen's (2023) study of immigrant settlement in smaller cities in Ontario, Canada, their research participants did not necessarily require access to formalized immigrant settlement and integration support in a smaller city, as participants in that study mainly migrated from a larger metropolitan area where they received services before resettling to a smaller city. Access to ethnic and cultural amenities in smaller cities was particularly important for immigrants (Zhuang & Lok, 2023). Hence, experiences of immigrant settlement in these non-metropolitan communities were uniquely shaped by the availability of infrastructure and the social and cultural context of a place, as these contexts tend to be less ethnically and culturally diverse in relation to larger urban centers that had been historically shaped and impacted by processes of migration.

## 2. Data and methods

This study is exploratory and qualitative, drawing on the perspectives of three sample populations: immigrants, municipal officials, and a key informant working in an immigrant and settlement agency, in a non-metropolitan community in Canada. This study adopts qualitative methods to understand the reasons for migration to a non-metropolitan community and the perspectives about immigration in the community. A total of 13 semi-structured interviews were conducted (10 immigrants, one key informant, and two municipal officials). Interviews with immigrant participants included questions about the reasons for migration to a smaller city (as an immigrant to Canada) and questions that were structured to facilitate participants' reflection on their perception and experience with living in a smaller city. To be included in the study, the immigrant participant must have met all of the following inclusion criteria: a participant is an immigrant to Canada, over 18 years of age, identified as a "visible minority" person, and resided in the municipality (i.e., Brooks) at the time of the study. Recruitment of immigrant participants was facilitated with the assistance of a local immigration agency in Brooks, Alberta, Canada, through social media posts on a local community page, and snowball sampling techniques that involved participants who had completed an interview to share this opportunity with their network through word of mouth. Interviews with key informants and municipal officials involved questions to better understand the policies and processes related to immigration to their municipality, as related to demographic change and the management of affairs related to immigrant settlement and integration in

the community. Immigrant interviewees were provided with a gift card (CAD 20) for their participation. This study is exploratory in understanding the experiences of settlement in a smaller city from immigrants, a key informant, and municipal officials. Hence, we hope that this exploratory study that adopts semi-structured interviews as qualitative research methods will allude to future studies that further enrich this body of research on migration and governance in smaller cities. The key informant was professionally familiar with the immigrant settlement in their community. Municipal officials were asked descriptive questions about the local context and their role, views, and expertise in immigration in and to their community. Municipal officials have a role in municipal governance, but their specific role is not disclosed to protect their identity, which is consistent with the Research Ethics Board. The key informant had a role in immigrant settlement and integration work in their community. These two categories of participants were recruited through an email invitation.

Brooks, Alberta was selected due to population and demographic factors, including a small population size, based on the 2016 Census (Statistics Canada, 2019a; 2019b), (14,436), a high population proportion of immigrants (30.1%), and a high "visible minority" demographic composition (36.8%). We acknowledge the caveats of validity in this study due to sampling. Nevertheless, we hope that the perspectives of immigrants living in a non-metropolitan community, and with key informants and municipal officials from a non-metropolitan community in Canada, this study may be able to shed insights about community-based perspectives at an exploratory level. Hence, the purpose of this study is not the generalizability or transferability of the findings to similar contexts, rather this study provides exploratory insights about experiences from the perspectives of immigrants from multicultural backgrounds, a key informant who had expertise and familiarity with the context of immigrant settlement and integration in their locality, and municipal officials who had a role in governance in a municipality of a smaller city (non-metropolitan community). The characteristics of immigrant participants, municipal officials, and key informants are presented in [Tables 1](#) and [2](#). The study was conducted between February 2021 and July 2021 during the COVID-19 pandemic. Due to the COVID-related restrictions and social distancing enforcement at the time of the study, the entire research process, including recruitment and interviews, was conducted virtually through Zoom or by telephone. All the research had been approved by Toronto Metropolitan University's (formerly Ryerson University) Research Ethics Board.

Table 1. Characteristics of immigrant participants

Country of origin	Years living in the municipality	Did this participant move directly to Brooks upon arrival in Canada?	Gender	Age (years)
Ethiopia	21	No	Female	52
Cambodia	18	Yes	Female	56
Ethiopia	6	Yes	Female	20
Philippines	9	No	Male	20
Philippines	11	Yes	Female	20
Philippines	11	Yes	Female	20
Philippines	10	Yes	Female	19
Ecuador	10	Yes	Female	19
Kenya	13	No	Male	20
Eritrea	16	Yes	Female	18

Table 2. Participant profile of key informants and municipal officials

Category	Municipality	Organization
Key informant	Brooks	Immigrant Settlement and Integration Agency
Municipal official	Brooks	Municipal government
Municipal official	Brooks	Municipal government

### 3. Results

#### 3.1. Employment and family: Catalyzing immigration to a non-metropolitan community

Interviews with immigrants in Brooks revealed that (re) location decisions toward a smaller city were based on economic and personal decisions related to employment prospects and family reunification. For example, Interviewee B mentioned that the location of a meat-processing plant was the reason for moving to Brooks. Interviewee B had immigrated to Canada through family sponsorship and had directly settled in Brooks since their arrival in Canada in 2003. This interviewee described that a “job opportunity and place to work” was an important consideration for settlement in a small city, as they perceived that larger cities tend to have a more competitive labor market with newcomers with limited English proficiency. Similarly, another interviewee (Interviewee A) had also based their settlement decision on employment considerations. Initially, the interviewee resided in Medicine Hat, a city 100 kilometers away from Brooks. The interviewee’s spouse, who worked at the meat-processing plant, had a daily round-trip commute of 2 h. Due to the closer proximity to the workplace, they decided to relocate to Brooks. Other interviewees discussed the role of the employer as a catalyst for immigration as a factor for migration to Canada, particularly settlement in a small

city. Interviewee G, the daughter of a meat-processing plant employee, mentioned that her immigration to Canada was directly related to family sponsorship. Their migration to Canada originated from a family member whom the employer initially sponsored. Interviews with municipal officials affirmed that the employment sector played a role in pulling immigrants into their municipality for settlement.

#### 3.2. Presence of ethnic communities fosters a sense of belonging

Interviewees were asked to reflect on their experience as immigrants living in a smaller city. When being asked, “What made Brooks an attractive place for you to migrate here as an immigrant?,” one interviewee (Interviewee D) who had initially landed in a smaller, remote city in New Brunswick and moved to Brooks due to family in search for better employment opportunities, mentioned that the existence of a compatriot community was a considerable factor for settlement in Brooks (Figure 1) as described: “I can relate more to people. There are more (of the same ethnic people) here. There are more ethnic and cultural events where you can gather with each other and celebrate your culture. In New Brunswick, you are pretty much isolated from other people.”

Beyond ethnocultural similarities and the presence of compatriots, the existence of an ethnically diverse community in Brooks was an important reason for immigrants to feel that they belonged. People from various ethnic, cultural, or religious backgrounds could collectively resonate with newcomers, sharing similar settlement and integration experiences in a smaller city. The role of a multicultural population in Brooks was described by an interviewee (Interviewee C) as: “Brooks is well-diverse. It is multicultural. There are many people from...like your home, back in your home country, but different,



**Figure 1.** Two individuals are seen interacting outside the “Madina Shopping Centre” and the “Africa SuperMarket.” Ethnic stores are common areas for immigrant interaction in Brooks.

you know, a lot of different countries...So it can make you feel like you are home, even though it is not a home, home.” Finding people who shared similar experiences in integration was important, as it was a positive experience of settlement in smaller cities. Having the experience of sharing the same ethnocultural background, or experience as a “visible minority,” was described as satisfactory by an interviewee (Interviewee E): “So because Brooks is so diverse, now, I think one of the good things is that if you are going to immigrate anywhere, and go to Brooks, you will find someone like you, eventually, because everyone is here.” The role of places of worship was a considerable aspect in shaping an immigrant’s experience living in Brooks. [Figure 2](#) depicts a former residential home ([Figure 2](#): Middle building) that was first purchased by the Muslim community and converted into a mosque. It was later expanded in 2013 into a second building ([Figure 2](#): Building on the right). The mosque is located relatively in isolation from the main commercial areas, on the periphery of the municipality. When asked, “How satisfied are you with the stores and services available in Brooks related to your ethnic, cultural, or religious needs?” one interviewee (Interviewee A), who had relocated from Medicine Hat, Alberta, to Brooks in 2000, highlighted the establishment of a mosque and place of worship is paramount for a sense of connection in the community.

### 3.3. Community challenges faced by immigrants in a non-metropolitan community

Interviewees discussed the opportunities and challenges of living in Brooks. The advantages of living in a non-metropolitan community include factors such as proximity to work and services, quiet neighborhoods, and a perceived sense of safety. The disadvantages mentioned encompass a lack of urban amenities, such as a variety of shops, restaurants, and places to visit. One challenge that was consistently mentioned by interviewees in Brooks was related to their perceived sense of belonging in the



**Figure 2.** The mosque (the building in the middle and on the right) in Brooks, Alberta, was expanded in 2013, which provides a place of worship for the local Muslim population

community. Many interviewees in Brooks felt that, while they did feel welcomed in general, there were subtle unwelcoming attitudes embedded within the mainstream community. This was described by one interviewee (Interviewee H) who had immigrated to Canada and had settled in Brooks to reunite with family as: “So I think that Brooks is a spectrum. And there are many people who maybe are against immigration...but there are definitely two sides, because we are super multicultural, but we also have this group of people who maybe do not really like that, but they have lived here their whole life...So those are some challenges, you are always going to seem like an outsider...”

Although Brooks’ multicultural community indicated a welcoming and tolerant environment, as shared by many participants, the influx of immigrants to this traditionally homogenous small town presented challenges in fostering inclusion and intercultural connections. This was described by an interviewee who also immigrated to Brooks to reunite with family (Interviewee I) as: “Some challenges I think, like when you first get to Brooks, is that feel like you are left out because you are different than others, you speak a different language, you cannot communicate as well. So, people just see you as an outsider. And you start to feel like you do not belong in Brooks. But then you realize that there are also nice people in this area, you start to feel welcomed, and you start to feel at home and like it is a new place that you can also make your own.”

There were a variety of responses to the question: “Where are some places that you feel connected to the community?” Some interviewees referred to their workplace, school, or community recreational center as a place where they feel connected to the community. Two interviewees noted that places of worship, such as mosques and churches, play a significant role in connecting individuals to the community. However, various interviewees mentioned that there is no place, or a lack of places, that they feel a connection with. Interviewees indicated that despite the presence of annual multicultural celebrations and events

that recognize multicultural diversity, there is a lack of everyday gathering space in the community to engage the diverse population, promote intercultural interactions, and enhance a sense of belonging.

### 3.4. Importance of municipal and community partnerships

Interviews with municipal officials and a key informant in Brooks highlighted the importance of building partnerships between municipalities and communities. When asked, “Has the municipality focused on any policies in attracting and retaining immigrants?” a municipal official in Brooks emphasized that the municipality’s approach was not to focus on strategies toward attracting or retaining immigrants. Instead, their focus was on being responsive to demographic changes, without necessarily giving special consideration to the ethnocultural demographics of the population.

Regarding collaboration between local immigration agencies and the municipality, the key informant highlighted the importance of their professional role in supporting immigrant settlement in the community. When asked, “How does your organization collaborate with other stakeholders in the community?” the importance of collaboration was suggested toward effective integration of immigrants into the local community, as noted by the key informant in Brooks: “...we work very closely...we believe that although we are an agency we are providing services (which) cannot be provided in a silo. Because at the end of the day, what we are trying to do is to integrate newcomers into the community.” Interviews with municipal officials and the key informant suggested an acknowledgment of a proactive duty in addressing immigrant settlements in the community.

When asked, “What is the role of immigration and settlement agencies in working with municipal programs and organizations?” the key informant in Brooks mentioned the importance of community partnerships and the strategic need for better approaches to welcoming immigrants and representing diversity in the community: “I do believe that Brooks has done a lot in terms of becoming a welcoming community...I think if there is some improvement, we need to look into maybe some sort of systemic policy-level improvement that may address some of the long-term goals. Yes, we celebrate our diversity. Yes, we have these (cultural) events, we have these education programs, we have these celebrations. But what are we doing, for example, to address some of the systemic issues? Whether it is around representation, whether it is around changing attitudes of some people?”

When asked, “What should be the role of the municipality that can make Brooks a place to support

demographic change in community?” the key informant identified the importance of municipal recognition of diversity: “(I) believe that the municipal government has a significant role here, even more than the provincial and the federal government. Because, at the end of the day, this is their community. This is the well-being of their citizens.” Municipal officials acknowledged the role of collaborative partnerships with community stakeholders and settlement agencies toward building a welcoming and inclusive community. When asked, “How does the municipality of Brooks understand the needs and challenges of ethnic communities and immigrants?” the municipal official (A) emphasized the importance of welcoming newcomers along with local immigration agencies. Another municipal official (B) pointed out that funding constraints act as a barrier to creating spaces conducive to intercultural interactions, as they elaborated: “...at the conclusion (the community and municipality do recognize that), ‘yes, your community does need a space for the community.’ But there is no funding currently to fund the actual space for the community.”

## 4. Discussion

This study is exploratory in scope as it seeks to understand experiences that contribute to the perspectives of immigrants living in a non-metropolitan community in Canada. This study explored two research questions: (i) what are the reasons for immigrant settlement into a non-metropolitan community? and (ii) how do immigrants experience settlement in a non-metropolitan community? Building on our conceptualization of a non-metropolitan community which has three community attributes – a socially close-knit culture in the community, less cosmopolitan, and fewer amenities and services in the community – the findings of this study highlight the implications of cosmopolitanism and the implications of amenities and services in the community, as aspects which have a role in shaping immigrants’ perspectives about community as place satisfaction. The interviews with immigrants, the key informant, and municipal officials in Brooks point out that the experiences and challenges of population growth in the community were related to the process of demographic change pertaining to ethnic differences in the community. The interviews with immigrants suggested that migration decisions are in part related to the autonomy of immigrants’ decision-making based on economic and family considerations. Nevertheless, the interviews with the immigrants in this study point out an imperative toward addressing demographic change in the community, as ethnic diversity and differences in the community have an impact on their perspective about the community and their experience being in the community, as well as place satisfaction.

Immigration will continue to be the facilitator of population growth in Canada. As immigrants are (re) settling outside of metropolitan areas into smaller cities as non-metropolitan communities, residents and local actors will experience demographic change through social and cultural diversity as experiences of differences in the community. As immigration programs in Canada continue to seek to attract and retain immigrants toward smaller cities, the programs tend to prioritize labor-based implications of settlement and economic contribution rather than focusing on the experience of immigrants in place. For example, the newly launched Rural and Francophone Immigration Pilot, indicated that the program was designed to help rural and Francophone minority communities attract and retain newcomers with the right skills to help their regions, where each selected community is represented by a local economic development organization, which will work with IRCC to identify its critical labor gaps, designate trustworthy employers and recommend suitable candidates to IRCC for permanent residence (Statistics Canada, 2025). Hence, when immigration programs often bring newcomers to the community based on economic imperatives, they pay less attention to the social implications of settlement – particularly how immigrants may experience smaller cities as a place of settlement; hence, they experience place satisfaction (Erfani, 2022). This study sheds light on the importance of thinking about immigration and immigrant settlement in smaller cities as related to place. The participants of this study mainly reflect migration decisions that were associated with family-reunification decisions, as eight of ten of the immigrant participants have migrated alongside their family, as younger adults, toward settlement in a smaller city. This study illuminates that the implications of settlement and integration are in part influenced by community and a sense of belonging, as well as place satisfaction. Interviews with immigrants in two non-metropolitan communities highlighted that there were varying experiences of belonging, as immigrants in this study shared their perspectives that belonging is, in part, shaped by the presence of ethnocultural diversity in a non-metropolitan community. The findings of this study further suggest that, beyond employment and family-related factors, a multicultural and ethnic community dynamic was realized as a positive factor. The presence of compatriots and those sharing ethnocultural similarities in language, culture, religion, and immigrant status enabled a more positive perspective of living in a non-metropolitan community. Hence, the acceptance of ethnic differences in a community should be considered in alignment with Wardle's (2015) second perspective of cosmopolitanism, which regards an "attitude of openness

to, tolerance toward, and a desire to comprehend, the standpoints of others and their ways of being" (Wardle, 2015, p. 41).

This paper contributes to the emerging body of literature on immigration to smaller cities by providing an exploratory perspective of place-based experiences from migrants in a small and diverse city (Brooks), along with the key informant and municipal officials who have professional experience and perspectives on decision-making in smaller cities that are experiencing immigration in lesser studied contexts. This study intends to support the scholarly literature and policy approaches to demographic change and population growth by highlighting the value of assessing the physical and social attributes of a locality to understand demographic change facilitated by immigration as population growth through the concept of a non-metropolitan community. Immigrants have experiences that may shape their perspectives about a community. This study illuminates that place satisfaction is in part related to ethnic diversity in communities, as exemplified mainly by young adults who had migrated to Canada due to following their families in life trajectories. Although there are emerging studies of immigration and immigrant experiences to smaller cities, which suggest the implications of family-based migration decisions (Kelly & Nguyen, 2023), studies seldom incorporate the perspectives of younger adult immigrants who may not necessarily have agency in migration decisions due to their age and life course factor of following family. Interviews with participants in this study highlighted that migration decisions are in large part related to family settlement factors.

Immigrants from diverse backgrounds moving into a pluralistic society face challenges toward integration into not only a new country but also experience settlement in the context of the community. Sanchez-Flores (2018) suggested that smaller cities may foster an environment that is conducive to immigrant interaction with the host population due to the smaller nature of the community. Municipalities must ensure that some spaces and places are inclusive. Having spaces that foster connection with the community was recognized by immigrants as shaping perspectives about belonging in a non-metropolitan community. Hence, a place for intercultural community interaction should be considered when addressing demographic change in non-metropolitan communities through the lens of place satisfaction (Erfani, 2022). We hope that the findings of this study contribute to an understanding of ethnic diversity and differences in smaller cities, as immigrants are settling into smaller cities due to immigration programs or voluntary resettlement. Further exploration and inquiry on lived experience in

places in smaller cities less known for immigration ought to be studied, and perhaps utilizing our conceptualization of “non-metropolitan communities” may provide an initial basis for inquiry into the place. Further exploration and inquiry into different classifications of immigrants (e.g., refugees, newcomers, or long-term immigrants) and their experience in non-metropolitan communities should be further enhanced.

Municipal officials and the key informant in this study alluded to ongoing work addressing demographic change in the community. Municipal actors should further seek strategies to foster a sense of belonging and inclusion in place, as real or perceived experiences of being an outsider persist for immigrants settling in non-metropolitan communities, as illuminated in this study. Municipalities should further leverage the importance of understanding demographic change through the perspectives of those who are migrating into the community, that is, ethnic and cultural diversity and difference, and not merely a growing population, to meaningfully and proactively address demographic change in the community. This requires municipalities to be proactive in recognizing immigration as a demographic change and the implications of place and cosmopolitanism in non-metropolitan communities. We aspire that initial acknowledgment of the implications of cosmopolitanism in place can be a starting point toward enhancing the acceptance of diversity and difference in non-metropolitan communities. We hope that thinking about demographic change, through the lens of diversity and place satisfaction in a non-metropolitan community, can shed light on further work that addresses current and future processes of demographic change in the community through immigration as population growth.

Due to recruitment challenges during the time of the study, there can be potential sample bias from participants in this study, which mainly consisted of the perspectives of young adult immigrants living in non-metropolitan communities. This limitation points out the importance of further research that would more systematically involve a representative population of immigrant perspectives in non-metropolitan communities. With recognition of these limits, we hope to leverage the importance and value of community-based perspectives as part of understanding processes of demographic and population change. Future studies should seek to understand the varying lived experiences of immigrants residing in non-metropolitan communities across different settlement stages and life courses. This would be valuable for better understanding and critically examining experiences in non-metropolitan communities, as researchers and policymakers deem it not only to attract immigrants to smaller cities but

also to pursue an understanding of how to retain immigrants in these contexts. The potential of involving a holistic community perspective from local residents and immigrants from ethnically different backgrounds may illuminate the implications of cosmopolitanism in non-metropolitan communities toward belonging and inclusion more comprehensively with nuance. As Banack’s (2023) ethnographic study of rural Albertan attitudes toward cultural minorities has indicated, policymakers should consider a holistic community perspective of both the host community and newcomer populations toward fostering a sense of belonging for all in the community, with emphasis that each community is contextually unique. If federal and provincial policymakers decide to redistribute the share of immigrants and economic growth toward smaller cities, municipalities must consider and understand the processes of demographic change and population growth from a community perspective, with differences in mind. Immigrants’ settlement trajectories are in part economic and subjective decisions, as immigrants in this study have migrated to a non-metropolitan community primarily for employment prospects and family reunification. However, to further harness the potential of fostering inclusive and equitable communities, municipalities should strive to recognize the value and implications of cosmopolitanism and ethnocultural diversity in the community.

## 5. Conclusion

Diversity will continue to characterize the demographic change in communities experiencing a population increase. This study involved community-based perspectives about immigrant settlement and multicultural diversity in non-metropolitan communities in Canada. This study found that immigrants may migrate to a non-metropolitan community due to economic and family-related factors. Immigrants’ perspective about a non-metropolitan community is in part shaped by characteristics of ethnic diversity and differences in the community. The small sample size and the unique demographic composition of Brooks as a highly diverse, non-metropolitan community limit the generalizability or transferability of the findings to further contexts. Despite its limitations, this paper contributes to the population and demographic literature by conceptualizing the construct of a non-metropolitan community and aspires to use these non-metropolitan communities as a foundation for further research. Furthermore, the findings of this study illuminated community-based perspectives about demographic change in a smaller city through the perspectives of immigrants, a key informant, and municipal officials. We hope that the conceptualization of a non-metropolitan community and the community-based perspectives about settlement may

further direct research attention to place when assessing demographic change in a community through processes of immigration as population growth. Understanding immigrants' perceptions and lived experience, as a perspective on their place satisfaction, can be beneficial for municipalities addressing population growth and demographic changes, as well as policymakers seeking to attract and retain immigrants outside metropolitan areas. This is becoming increasingly important given that communities are being shaped by ethnic diversity and difference, which underscores the need for scholars, policymakers, and the public to appreciate the varied experiences of people in the community.

## Acknowledgments

The authors would like to acknowledge the participants in this study who generously contributed their time and shared their perspectives. The authors also acknowledge and thank Dr. Anna Triandafyllidou and Dr. Melissa Kelly for their comments and feedback in the earlier draft, and Dr. Jennifer Dean for the support of this final manuscript.

## Funding

This research was made possible by the support of the Canada Excellence Research Chair in Migration and Integration Graduate Student Stipend at Toronto Metropolitan University, awarded in 2020 – 2021.

## Conflict of interest

The authors declare that they have no competing interests.

## Author contributions

*Conceptualization:* All authors

*Formal analysis:* All authors

*Investigation:* All authors

*Methodology:* All authors

*Writing – original draft:* Ryan Thyra Lok

*Writing – review & editing:* All authors

## Ethics approval and consent to participate

The study has been approved by the Research Ethics Board (REB 2020 – 509) at Toronto Metropolitan University (formerly named Ryerson University), in Toronto, Ontario, Canada. Written consent was obtained from all research participants in this study for voluntary participation.

## Consent for publication

Written consent was obtained through signed documents from each of the subjects in acknowledgement of their agreement to publish their data.

## Availability of data

All data analyzed have been presented in the paper.

## Further disclosure

Partial findings have been presented at the Association of Collegiate Schools of Planning conference. This paper had been adapted from Working Paper No. 2024/04 titled Ethnic Diversity, Immigrant Settlement and Integration, and Municipal Planning in a Small Canadian City: the Case of Brooks, Alberta, published by the Working Papers Series, produced jointly by the Toronto Metropolitan Centre for Immigration and Settlement (TMCIS) and the CERC in Migration and Integration at Toronto Metropolitan University.

## References

- Agrawal, S., & Kurtz, N. (2019). Ethnic spatial segmentation in immigrant destinations-Edmonton and Calgary. *Journal of International Migration and Integration*, 20(1):199-222.  
<https://doi.org/10.1007/s12134-018-0604-y>
- Allen, J., Farber, S., Greaves, S., Clifton, G., Wu, H., Sarkar, S., et al. (2021). Immigrant settlement patterns, transit accessibility, and transit use. *Journal of Transport Geography*, 96:103187.  
<https://doi.org/10.1016/j.jtrangeo.2021.103187>
- Banack, C. (2023). Understanding rural attitudes toward cultural and religious minorities via political ethnography: The case of rural Alberta. In: Banack, C., & Pohler, D. (eds). *Building Inclusive Communities in Rural Canada*. Alberta: University of Alberta Press, p.105-128.
- Bauder, H., & Sharpe, B. (2002). Residential segregation of visible minorities in Canada's gateway cities. *The Canadian Geographer*, 46(3):204-222.  
<https://doi.org/10.1111/j.1541-0064.2002.tb00741.x>
- Beine, M., & Coulombe, S. (2018). Immigration and internal mobility in Canada. *Journal of Population Economics*, 31(1):69-106.  
<https://doi.org/10.1007/s00148-017-0645-0>
- Bonifacio, G.T., & Drolet, J. (eds.). (2017). *Canadian Perspectives on Immigration in Small Cities*. Cham: Springer.
- Brown, N.R. (2017). Housing experiences of recent immigrants to Canada's small cities: The case of North Bay, Ontario. *Journal of International Migration and Integration*, 18(3):719-747.  
<https://doi.org/10.1007/s12134-016-0498-5>
- Burayidi, M. (ed.). (2018). *Cities and the Politics of Difference: Multiculturalism and Diversity in Urban Planning*. Canada: University of Toronto Press.
- Carter, T., Morrish, M., & Amoyaw, B. (2008). Attracting immigrants to smaller urban and rural communities: Lessons learned from the Manitoba provincial nominee

- program. *Journal of International Migration and Integration*, 9(2):161-183.  
<https://doi.org/10.1007/s12134-008-0051-2>
- Caxaj, C.S., & Gill, N.K. (2017). Belonging and mental wellbeing among a rural Indian-Canadian diaspora: Navigating tensions in “finding a space of our own”. *Qualitative Health Research*, 27(8):1119-1132.  
<https://doi.org/10.1177/1049732316648129>
- Chai, C.L. (2021). Picturing settlement experiences: Immigrant women’s senses of comfortable and uncomfortable places in a small urban center in Canada. *Journal of International Migration and Integration*, 23(3):1567-1598.  
<https://doi.org/10.1007/s12134-021-00903-4>
- Dennler, K. (2022). Making Rural Immigration Work: Settlement Services in Small and Rural Communities. In: The Conference Board of Canada.
- Derwing, T.M., & Krahn, H. (2008). Attracting and retaining immigrants outside the metropolis: Is the pie too small for everyone to have a piece? The case of Edmonton, Alberta. *Journal of International Migration and Integration*, 9(2):185-202.  
<https://doi.org/10.1007/s12134-008-0050-3>
- Drolet, J.L., & Teixeira, C. (2022). Fostering immigrant settlement and housing in small cities: Voices of settlement practitioners and service providers in British Columbia, Canada. *The Social Science Journal (Fort Collins)*, 59(3):485-499  
<https://doi.org/10.1016/j.soscij.2019.07.010>
- Erfani, G. (2022). Reconceptualising sense of place: Towards a conceptual framework for investigating individual-community-place interrelationships. *Journal of Planning Literature*, 37(3):452-466.  
<https://doi.org/10.1177/08854122221081109>
- Esses, V., & Carter, C. (2019). Beyond the Big City: How small communities across Canada can attract and retain newcomers. Canada: Public Policy Forum.
- Finlay, L., & Haan, M. (2024). The places we’ll go: How have rural residents changed over time? *Journal of Rural Studies*, 105:103181.  
<https://doi.org/10.1016/j.jrurstud.2023.103181>
- Garcia, A.S., & Schmalzbauer, L. (2017). Placing assimilation theory: Mexican immigrants in urban and rural America. *The Annals of the American Academy of Political and Social Science*, 672(1):64-82.  
<https://doi.org/10.1177/0002716217708565>
- George, G., Selimos, E.D., & Ku, J. (2017). Welcoming initiatives and immigrant attachment: The case of Windsor. *Journal of International Migration and Integration*, 18(1):29-45.  
<https://doi.org/10.1007/s12134-015-0463-8>
- Government of Canada. (2023a). Canada Welcomes Historic Number of Newcomers in 2022. Available from: <https://www.canada.ca/en/immigration-refugees-citizenship/news/2022/12/canada-welcomes-historic-number-of-newcomers-in-2022.html> [Last accessed on 2023 Sep 01].
- Government of Canada. (2023b). Canada’s Demographic Estimates for July 1, 2023: Record-high Population Growth Since 1957. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/230927/dq230927a-eng.htm> [Last accessed on 2023 Sep 01].
- Government of Canada. (2023c). Settlement Program. Available from: <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/transparency/program-terms-conditions/settlement.html> [Last accessed on 2023 Sep 01].
- Graham, N., & Pottie-Sherman, Y. (2021). The experiences of immigrant entrepreneurs in a medium-sized Canadian city: The case of St. John’s, Newfoundland and Labrador, Canada. *The Canadian Geographer*, 65(2):184-196.  
<https://doi.org/10.1111/cag.12627>
- Hiebert, D. (2017). Immigrants and refugees in the housing markets of Montreal, Toronto, and Vancouver, 2011. *Canadian Journal of Urban Research*, 26(2):52-78.
- Hou, F., & Bourne, L.S. (2006). The migration-immigration link in Canada’s gateway cities: A comparative study of Toronto, Montreal, and Vancouver. *Environment and Planning A*, 38(8):1505-1525.  
<https://doi.org/10.1068/a37246>
- Hyndman, J., Schuurman, N., & Fiedler, R. (2006). Size matters: Attracting new immigrants to Canadian cities. *Journal of International Migration and Integration*, 7(1):1-25.  
<https://doi.org/10.1007/s12134-006-1000-6>
- IRCC. (2025). Rural and Northern Immigration Pilot: About the Pilot. Available from: <https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/rural-northern-immigration-pilot.html> [Last accessed on 2025 Feb 01].
- Kaida, L., Hou, F., & Stick, M. (2020). Are refugees more likely to leave initial destinations than economic immigrants? Recent evidence from Canadian longitudinal administrative data. *Population Space and Place*, 26(5):e2316.  
<https://doi.org/10.1002/psp.2316>
- Kelly, M., & Nguyen, M. (2023). Choosing to stay: Understanding immigrant retention in four non-metropolitan counties in Southern Ontario. *Journal of International Migration and Integration*, 24:1055-1075.  
<https://doi.org/10.1007/s12134-023-01034-8>
- Kitchen, P., Williams, A.M., & Gallina, M. (2015). Sense of belonging to local community in small-to-medium sized Canadian urban areas: A comparison of immigrant and Canadian-born residents. *BMC Psychology*, 3(1):28-28.  
<https://doi.org/10.1186/s40359-015-0085-0>

- Li, W. (2009). *Ethnoburb: The New Ethnic Community in Urban America*. United States: University of Hawai'i Press.
- McQuillan, K. (2024). *Leaving the Big City: New Patterns of Migration in Canada*, School of Public Policy. Available from: <https://www.policyschool.ca/wp-content/uploads/2024/04/up48-patternsmigrationcda.mcquillan.apr24.r2.pdf> [Last accessed on 2024 Nov 01].
- MirafTAB, F. (2016). *Global Heartland: Displaced Labor, Transnational Lives, and Local Placemaking*. United States: Indiana University Press.
- Okonny-Myers, I. (2010). *Interprovincial Mobility of Immigrants in Canada*. Citizenship and Canada. Available from: <https://www.canada.ca/content/dam/ircc/migration/ircc/english/pdf/research-stats/interprov-mobility.pdf> [Last accessed on 2023 Sep 01].
- Pandey, M., & Townsend, J. (2011). Quantifying the effects of the provincial nominee programs. *Canadian Public Policy*, 37(4):495-512.  
<https://doi.org/10.1353/cpp.2011.0048>
- Patel, A., Dean, J., Edge, S., Wilson, K., & Ghassemi, E. (2019). Double burden of rural migration in Canada? Considering the social determinants of health related to immigrant settlement outside the Cosmopolis. *International Journal of Environmental Research and Public Health*, 16(5):678.  
<https://doi.org/10.3390/ijerph16050678>
- Pottie-Sherman, Y., & Graham, N. (2021). Live, work, and stay? Geographies of immigrant receptivity in Atlantic Canada's aspiring gateways. *Geographical Review*, 111(2):287-307.  
<https://doi.org/10.1080/00167428.2020.1804301>
- Qadeer, M.A., & Agrawal, S.K. (2011). The practice of multicultural planning in American and Canadian cities. *Canadian Journal of Urban Research*, 20(1):132-156.
- Ramsey, D., Michalos, A., & Eberts, D. (2016). Community changes and growth in small cities: Resident perceptions of growth in Brandon, Manitoba, Canada. *Growth and Change*, 47(4):682-699.  
<https://doi.org/10.1111/grow.12150>
- Rishworth, A., Niraula, A., Dean, J., Wilson, K., Ghassemi, E., & Baldo, A. (2023). Rural futures? Mapping newcomers' hopes about potential resettlement in Canadian rural areas. *The Canadian Geographer*, 67(2):253-227.  
<https://doi.org/10.1111/cag.12803>
- Rose, J., & Preston, V. (2017). Canadian municipalities and services for immigrants: A Toronto case study. *Canadian Journal of Urban Research*, 26(1):29-39.
- Sanchez-Flores, M.J. (2018). The inadequacies of multiculturalism: Reflections on immigrant settlement, identity negotiation, and community in a small city. In: Walmsley, C., & Kading, T. (eds.). *Small Cities, Big Issues: Reconciling Community in a Neoliberal Era*. Athabasca, Canada: Athabasca University Press.
- Sandercock, L. (1998). *Towards Cosmopolis: Planning for Multicultural Cities*. Chichester: John Wiley & Sons.
- Sapeha, H. (2017). Migrants' intention to move or stay in their initial destination. *International Migration*, 55(3):5-19.  
<https://doi.org/10.1111/imig.12304>
- Shannon, M. (2015). Canadian migration destinations of recent immigrants and interprovincial migrants: Similarities, differences and explanations. *IZA Journal of Migration*, 4(1):15.  
<https://doi.org/10.1186/s40176-015-0038-7>
- Simpson, S. (2017). Spatial patterns of international migrant resident settlement and incorporation in Winnipeg Manitoba: Spatial patterns of settlement. *Population Space and Place*, 23(1):e2060.  
<https://doi.org/10.1002/psp.2060>
- Statistics Canada. (2015). *Visible Minority of Person: Definition*. Available from: <https://www23.statcan.gc.ca/imdb/p3var.pl?function=dec&id=45152> [Last accessed on 2023 Sep 01].
- Statistics Canada. (2019a). *Census Profile, 2016 Census*. Brooks [Population Centre], Alberta [Province]. Canada: Statistics Canada.
- Statistics Canada. (2021). *Census Metropolitan Area (CMA) and Census Agglomeration (CA)*. Available from: <https://www12.statcan.gc.ca/census-recensement/2021/ref/dict/az/definition-eng.cfm?id=geo009> [Last accessed on 2023 Sep 01].
- Statistics Canada. (2022a). *The Canadian Census: A Rich Portrait of the Country's Religious and Ethnocultural Diversity*. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/221026/dq221026b-eng.htm> [Last accessed on 2023 Sep 01].
- Statistics Canada. (2022b). *Canada in 2041: A Larger, More Diverse Population with Greater Differences between Regions*. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/220908/dq220908a-eng.htm> [Last accessed on 2023 Sep 01].
- Statistics Canada. (2022c). *Immigrants Make Up the Largest Share of the Population in Over 150 Years and Continue to Shape who we are as Canadians*. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/221026/dq221026a-eng.htm> [Last accessed on 2023 Sep 01].
- Statistics Canada. (2023a). *Canada's Demographic Estimates for July 1, 2023: Record-High Population Growth Since 1957*. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/230927/dq230927a-eng.htm> [Last accessed on 2023 Sep 01].
- Statistics Canada. (2023b). *Canada at a Glance, 2023 Immigration and Ethnocultural*. Available from: <https://www150.statcan.gc.ca/n1/pub/12-581-x/2023001/sec2-eng.htm> [Last accessed on 2023 Sep 01].

- Statistics Canada. (2024). Number and Size of Communities in Rural and Small Town Canada: Interactive Dashboard. Available from: <https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2024012-eng.htm> [Last accessed on 2024 Nov 01].
- Statistics Canada. (2025). Canada Launches Rural and Francophone Community Immigration Pilots. Available from: <https://www.canada.ca/en/immigration-refugees-citizenship/news/2025/01/canada-launches-rural-and-francophone-community-immigration-pilots.html> [Last accessed on 2025 Feb 01].
- Teixeira, C., & Drolet, J.L. (2018). Settlement and housing experiences of recent immigrants in small- and mid-sized cities in the interior of British Columbia (Canada). *Journal of Housing and the Built Environment*, 33(1):19-43.  
<https://doi.org/10.1007/s10901-017-9550-9>
- Tönnies, F. (1963). *Community and Society (Gemeinschaft und Gesellschaft)*. First Harper Torchbook edition. United States: Harper & Row.
- Tuan, Y.F. (1977). *Space and Place: The Perspective of Experience*. Tales and Travels of a School Inspector Series. Minneapolis, Minnesota: University of Minnesota Press.
- Tungohan, E. (2017). From encountering confederate flags to finding refuge in spaces of solidarity: Filipino temporary foreign workers' experiences of the public in Alberta. *Space and Polity*, 21(1):11-26.  
<https://doi.org/10.1080/13562576.2017.1270637>
- Valentine, G. (2008). Living with difference: Reflections on geographies of encounter. *Progress in Human Geography*, 32(3):323-337.  
<https://doi.org/10.1177/0309133308089372>
- Veronis, L. (2019). Building intersectoral partnerships as place-based strategy for immigrant and refugee (re)settlement: The Ottawa local immigration partnership. *The Canadian Geographer*, 63(3):391-404.  
<https://doi.org/10.1111/cag.12559>
- Vézina, M., & Houle, R. (2017). Settlement Patterns and Social Integration of the Population with an Immigrant Background in the Montréal, Toronto and Vancouver Metropolitan Areas. Canada: Statistics Canada.
- Wagner, M., & Growe, A. (2021). Research on small and medium-sized towns: Framing a new field of inquiry. *World*, 2(1):105-126.  
<https://doi.org/10.3390/world2010008>
- Walton-Roberts, M. (2005). Regional immigration and dispersal: Lessons from small- and medium-sized urban centres in British Columbia. *Canadian Ethnic Studies*, 37(3):12-34.
- Wardle, H. (2015). Cosmopolitanism. In: *International Encyclopedia of the Social and Behavioral Sciences*. 2<sup>nd</sup> ed., Vol. 5. Amsterdam, Netherlands: Elsevier Ltd., p.41-46.  
<https://doi.org/10.1016/B978-0-08-097086-8.12043-4>
- Werbner, P. (2015). The dialectics of urban cosmopolitanism: Between tolerance and intolerance in cities of strangers. *Identities (Yverdon, Switzerland)*, 22(5):569-587.  
<https://doi.org/10.1080/1070289X.2014.975712>
- Wilson-Forsberg, S. (2012). *Getting Used to the Quiet: Immigrant Adolescents' Journey to Belonging in New Brunswick, Canada*. Canada: McGill-Queen's Press-MQUP.
- Winders, J. (2014). New immigrant destinations in global context. *The International Migration Review*, 48(S1):S149-S179.  
<https://doi.org/10.1111/imre.12140>
- Wong, C.Y., Perales, F., & Bernard, A. (2023). Non-metropolitan settlement and integration outcomes of humanitarian migrants in Australia: Combining spatial, multidimensional and longitudinal perspectives. *Journal of Rural Studies*, 104:103151.  
<https://doi.org/10.1016/j.jrurstud.2023.103151>
- Zhuang, Z.C. (2021). The negotiation of space and rights: Suburban planning with diversity. *Urban Planning*, 6(2):113-126.  
<https://doi.org/10.17645/up.v6i2.3790>
- Zhuang, Z.C. (2023). A place-based approach to understanding immigrant retention and integration in Canadian and American non-traditional gateway cities: A scoping literature review. *Journal of International Migration and Integration*, 24(Suppl 6):1029-1053.  
<https://doi.org/10.1007/s12134-023-01052-6>
- Zhuang, Z.C., & Chen, A.X. (2017). The role of ethnic retailing in retrofitting suburbia: Case studies from Toronto, Canada. *Journal of Urbanism*, 10(3):275-295.  
<https://doi.org/10.1080/17549175.2016.1254671>
- Zhuang, Z.C., & Lok, R.T. (2023). Exploring the wellbeing of migrants in third places: An empirical study of smaller Canadian cities. *Wellbeing, Space and Society*, 4:100146.  
<https://doi.org/10.1016/j.wss.2023.100146>

## RESEARCH ARTICLE

## The paradox of urban decline in India

Nawaj Sarif\*  and Archana K. Roy

Department of Migration and Urban Studies, International Institute for Population Sciences, Mumbai, Maharashtra, India

**Abstract**

Urban shrinkage has become a global challenge in the field of urban studies. Despite significant progress in understanding urban shrinkage in developed countries, further exploration is necessary to comprehend the recent emergence of urban shrinkage in developing countries. This study explores the spatial pattern of urban shrinkage and urban decline and examines the associated factors of population decline in Indian urban centers. The phenomenon of urban decline in India presents a paradox as the country witnesses a steady growth in urbanization, yet some urban centers are facing a decline in population. Results showed that every one in nine urban centers was declining, with one-fifth of them shrinking in terms of population. The urban growth rate and level of urbanization are major contributing factors to this decline, along with city-level characteristics such as small population size, low population density, low fertility, and a higher aging population. To address this rising threat, urban policymakers in India must plan for the growth and development of declining and shrinking cities through revitalization programs, capital investment, infrastructure development, and micro-regional planning. Further, encouraging inclusive development for small and larger cities can help achieve sustainable urban development in India.

**\*Corresponding author:**Nawaj Sarif  
(nawajsarif25@gmail.com)

**Citation:** Sarif, N. & Roy, A.K. (2025). The paradox of urban decline in India. *International Journal of Population Studies*. 11(6): 67-80.  
<https://doi.org/10.36922/ijps.3107>

**Received:** March 6, 2024**Revised:** May 14, 2024**Accepted:** May 16, 2024**Published online:** July 15, 2024

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**Keywords:** Urban decline; Shrinking city; Population decline; Urban growth; Factors**1. Introduction**

The emergence of a global multidimensional phenomenon known as “urban shrinkage,” which is characterized by a decline in population in urban centers, has become increasingly evident in both developed and developing countries (Martinez-Fernandez *et al.*, 2012; Schett, 2011; Slach *et al.*, 2019; Wolff & Wiechmann, 2017). It has been considered a serious challenge for the contemporary urban world (Martinez-Fernandez *et al.*, 2015). Evidence shows that urban shrinkage is predominant, especially in developed countries, but it also occurs in developing countries, although the nature, pattern, and drivers are different (Pourahmad *et al.*, 2016). Previous studies have used several definitions and indicators to identify shrinking cities. These include negative population growth (Li & Mykhnenko, 2018; Turok & Mykhnenko, 2007), vacant houses (Oswalt & Rieniets, 2006), the area of vacant land (Sakamoto *et al.*, 2017), economic transformation (Stryjakiewicz, 2013), and the growth of employment, gross domestic product, and population size (Ma *et al.*, 2020). The Shrinking Cities International Research Network (SCIRN) provides a comprehensive definition of a shrinking city as a densely populated urban center with a minimum population of 10,000 that has

experienced a population decline in many of its parts for more than 2 years and has also experienced the economic change (Hollander *et al.*, 2009a). However, due to data unavailability, many studies considered population decline as the key indicator of urban shrinkage (Hollander *et al.*, 2009b; Long & Gao, 2019).

According to statistics from the World Urbanization Prospect 2018, population decline is a growing concern in cities worldwide, with a large share of cities located in Asian and European countries experiencing this trend (Pourahmad *et al.*, 2016). This phenomenon is prevalent in European and American countries, while paradoxically, developing countries are also experiencing a similar trend (Richardson & Nam, 2014). Despite steady urban growth and relatively low levels of urbanization, many urban centers are still experiencing a decline in population (UN-Habitat, 2008). The regional pattern shows that 54% of urban areas in Europe (of which 42% are large cities), 13% in the United States (Wiechmann & Pallagst, 2012; Haase *et al.*, 2016), and 10% of urban centers in developing countries are experiencing urban shrinkage. UN-Habitat (2008) conducted the first systematic study on shrinking cities in developing countries, which found that 143 urban centers out of 1,408 cities experienced a population decline between 1990 and 2000. Approximately two-thirds of these cities are located in Asian countries such as Israel, Iran, China, India, and North Korea (Ganapati, 2014; Lee *et al.*, 2016; Pourahmad *et al.*, 2016; Li & Mykhnenko, 2018). In Asia, China (58%) and India (18%) contribute the majority share of shrinking cities (UN-Habitat, 2008).

From a global perspective, urban shrinkage is a unique phenomenon with heterogeneous drivers (Ma *et al.*, 2020). Berry (1977) argues that the period of shrinkage is an integral part of urban growth and development. Haase *et al.* (2014) explain that urban shrinkage is intrinsic in the process of the city life cycle, which occurs through suburbanization, capital disinvestment, deindustrialization, and a decline in natural increase in urban population. In the life cycle of an individual city, there are periods of fast growth, followed by slow growth and periods of shrinkage. However, not all cities need to pass through every stage of the life cycle (Czamanski & Dani, 2016). Numerous cities in developed countries such as Rome, Milan, Turin, Detroit, Liverpool, and Buffalo are currently experiencing slow growth or even shrinking as they have already gone through the stages of rapid population growth and are now experiencing low fertility, deindustrialization, and suburbanization, leading to a decline in population.

The research community has made significant progress in understanding urban shrinkage in developed countries. However, significant gaps remain in our understanding

of shrinking cities in developing countries (Long & Gao, 2019), which is concerning given that India has a substantial number of shrinking or declining urban centers. One-fifth of all shrinking cities in Asia are located in India, according to the UN-Habitat (2008) report. Thus, this study aims to understand the spatial growth pattern of urban centers in India, identify the spatial locations of declining and shrinking urban centers, and examine the factors associated with population decline in the Indian context.

## 2. Data and methods

This study has used the latest census statistics given by the Census of India to achieve the objectives. Different aspects of city-level information, derived from census datasets, were used in this study, including demographic information such as population count, child population, and older population, and several local information including area, civic status, the nearest city, and changes in the boundary. Further information on the origin year of the urban center, agglomeration setting, and changes in boundary was also available. The above-mentioned information was available in the town directory files and decadal variation table (A-04) for the years 1901 to 2011. The geographic location of the urban centers was determined from Google Earth by searching with the respective names and localities.

In this study, urban decline is defined as the occurrence of population decline in urban centers. Urban decline was measured by calculating the population growth rate. Annual exponential growth rate (AEGR) was calculated to track the population growth pattern of each urban center in India during the period of 1911 to 2011. Further, it was used to present the growth trajectory of urban centers in India. Later, urban centers were classified into different growth categories based on the AEGR, and primarily, growth rates of 2001–2011 and 1991–2001 were utilized in further analysis (Table 1).

**Table 1. Classifications of urban centers based on their growth rate**

Growth category	Definition
Growing urban center	Urban centers with more than 2% AEGR
Stabilizing urban center	Urban center with 0 – 2% AEGR
Declining urban center	Urban centers with a negative growth rate in the past decade (2001 – 2011)
Shrinking cities	Urban centers with negative growth rates in two consecutive decades (1991 – 2001 and 2001 – 2011)

Classifications based on Liu *et al.* (2020).

Abbreviation: AEGR: Annual exponential growth rate.

The study considered population decline as a key indicator of urban shrinkage like many other studies, as data on economic dimensions at the city level were not available. The classifications of urban center as per population growth are growing, stabilizing, declining, and shrinking. Urban centers with negative population growth from 2001 to 2011 are considered as declining, while those that had experienced population drop for two consecutive decades (1991–2001 and 2001–2011) are considered shrinking. Similarly, growing urban centers are those that have a population growth rate above 2%, and stabilizing urban centers are those that have a growth rate between 0% and 2% per annum. The attribute table with city-level information was linked to the spatial layer of towns/cities' locations for further analysis.

In addition, the bivariate local Moran's-I has been applied to examine the association between the level of urbanization and the share of declining urban centers across the districts. The analysis was performed to identify the spatial clusters where the share of declining urban centers was higher. The following formula was applied in that analysis:

$$\text{Bivariate Local Moran's } I = \frac{n}{S_0} * \frac{\sum_i \sum_j W_{ij} (x_i - \bar{x})(y_j - \bar{y})}{\sum_i (y_i - \bar{Y})^2} \quad (I)$$

where  $x$  and  $y$  represent used variables;  $\bar{x}$  represents the mean of  $x$ ;  $\bar{Y}$  represents the mean of  $y$ ;  $n$  represents the number of spatial units;  $W_{ij}$  is the standardized weight matrix between observation  $i$  and  $j$  with zeroes on the diagonal; and  $S_0$  represents aggregated spatial weights, *i.e.*,  $S_0 = \sum_i \sum_j W_{ij}$ .

In addition to that, bivariate analysis was performed to show the share distribution of growing, stabilizing, and declining urban centers and underscore the characteristics in which population decline in urban centers is prominent. City-level background characteristics variables were entered into this analysis as explanatory variables. A binary logistic regression analysis was applied to understand the factors associated with population decline. The dependent variable for this analysis was population decline ("1" if declining and "0" if not declining), while the independent variables included size-class of urban centers, density, child-woman ratio, and share of the older population in terms of demographic characteristics. In other local-level factors, civic status, distance to the nearest city, urban agglomeration, year of origin, and boundary change were included as explanatory variables. The child-woman ratio, which is the number of children (0–6 years of age) per 1000 women, serves as a proxy for fertility data since direct estimation is not possible in the census. The regression

model was performed multiple times for different groups of urban centers to yield better explanations of the associated factors and intensity of the effect. The groups of urban centers in this context refer to the entirety of urban centers at the surveyed site, encompassing urban centers without larger agglomerations, urban centers without class I cities, and urban centers consisting of only class I cities. The purpose of the analysis was to identify the key demographic and local characteristics that affect urban decline.

Before going into details of the findings, it is pertinent to understand the concept and definition of urban. As per the Census of India, there is a two-fold classification of the urban centers, *i.e.*, statutory town<sup>1</sup> and census town<sup>2</sup>. Further, based on city population size, the Census of India provides a six-fold classification, covering Class I (>100,000 population), Class II (50,000 to 99,999), Class III (20,000 to 49,999), Class IV (10,000 to 19,999), Class V (5000 to 9,999), and Class VI towns (<5,000). Furthermore, this study used "shrinking city" as a scientific term, and "urban centers" was used as a neutral term to describe urban settlements. According to census classifications, urban settlements with populations above 100,000 are regarded as cities. In a few cases, the terms "town" and "city" are used synonymously.

### 3. Results

#### 3.1. Trajectory of urban decline in India

Urban population growth in India is the result of the collective growth of urban centers, as well as the newly classified urban settlements. Therefore, urban growth is significantly associated with the growth rate of urban centers. Figure 1 illustrates the interconnectedness between urban growth and the growth pattern of urban centers, demonstrating how the trajectory of urban growth has changed in the past century, specifically the share of growing, stabilizing, and declining urban centers in India from 1911 to 2011 and the annual urban growth rate. Over the past century, a significant transition has occurred in India's urban landscape. In the early decades, urban centers struggled to grow, with the majority experiencing population decline. However, subsequently, the urbanization process accelerated, and the urban population stabilized and began to increase. In 1981, the urban growth rate reached its highest level

<sup>1</sup> Statutory town: All places with a municipality, corporation, cantonment board or notified town area committee, *etc.*

<sup>2</sup> Census town: Places that follow all three criteria in the following: (i) a minimum population of 5000; (ii) at least 75% of the male main working population engaging in non-agricultural pursuits; and (iii) a density of population of at least 400 persons per square kilometer.

(3.7%), and most urban centers were growing (75%), while the number of declining ones was negligible (1.8%). However, after 1981, as the urban growth rate slowed down, urban centers began to stabilize, while the share of declining ones started to increase. By 2011, the shares of growing, stabilizing, and declining urban centers were 31.1%, 62.4%, and 11.5%, respectively. It is predicted that as urban growth continues to slow down, the share of declining urban centers will continue to increase in future decades.

Further, Table 2 shows that, in a span of three decades, there has been a significant increase in the number of declining urban centers in India. The number increased from 140 in 1981–1991 to 634 in 2001–2011, with the share rising from 4.1% to 11.5% of total urban centers. Conversely, the number of stabilizing urban centers increased from 1135 (33.3%) to 3346 (60.8%). The share of growing urban centers decreased from 2129 to 1523, and the share dropped from 62.5% to 27.7% from 1991 to 2011, respectively. Furthermore, it has been revealed that 276 urban centers experienced a decline in population from 1991 to 2011. Population decline in 113 urban centers was

recorded in the past two consecutive decades (1991–2001 and 2001–2011).

The distribution of growing, stabilizing, and declining urban centers significantly varies across different size-class categories (Figure 2). The figure clearly indicates that the declining urban centers are concentrated in the smaller category of urban centers. Urban centers with populations of less than 20,000 have a higher share of declining urban centers and correspondingly lower shares of growing urban centers. On the one hand, in class IV, V, and VI categories, the share of declining urban centers was 9.5%, 18.6%, and 50%, respectively, while in class I, the share was below 7%. On the other hand, the class VI category had only a share of 13.2% for growing urban centers, but the class I category had a share of 34.9%.

### 3.2. Spatial pattern of declining and shrinking cities

The study has found significant spatial heterogeneity in terms of population growth in urban centers. This section examines the macro and microregional clustering of declining, stabilizing, and growing urban centers

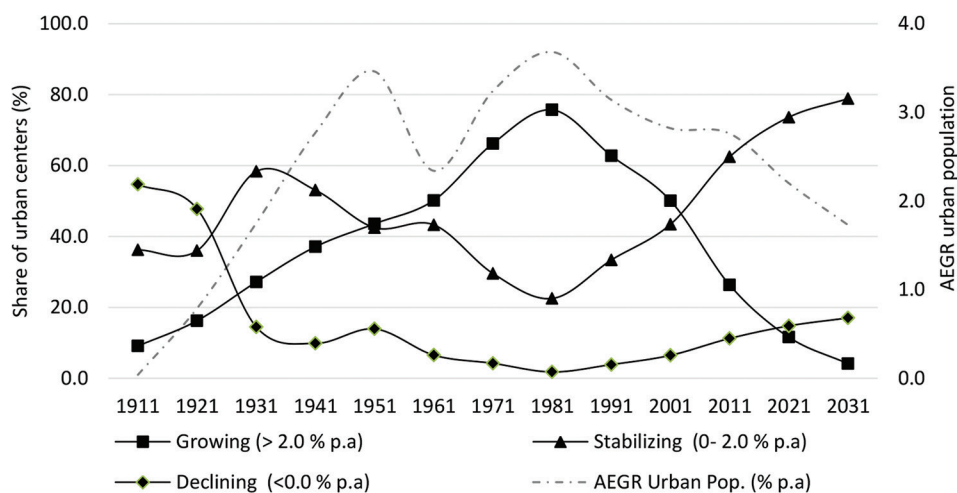


Figure 1. The trend of urban population growth and the share of growing, stabilizing, and declining urban centers in India, 1911–2011

Table 2. Number and share of declining, stabilizing, and growing urban centers in India during 1981–2011

Year	Number of urban centers			Share of urban centers (%)			Total
	Declining	Stabilizing	Growing	Declining	Stabilizing	Growing	
1981–1991	140	1,135	2,129	4.11	33.34	62.54	3,404
1991–2001	252	1,721	2,004	6.34	43.00	50.39	3,977
2001–2011	634	3,346	1,523	11.52	60.8	27.68	5,503
1991–2011	276	754	3,058	6.75	18.44	74.80	4,088
1991–2001 and 2001–2011	113	1,311	745	-	-	-	-

Note: The total number of urban centers is based on the previous census. In some cases, the previous year’s population was available in the data, making growth calculation possible for some urban centers.

and highlights the spatial pattern of urban decline and shrinking cities in India.

The macro clustering was evaluated across states, underlining the level of urbanization and growth pattern of urban centers during 2001–2011. Figure 3 highlights a significant disparity in terms of urbanization levels as well as the growth pattern of urban centers across the states of India. States such as NCT of Delhi, Meghalaya, Haryana, and Mizoram had a higher percentage of growing urban centers, while Kerala, Manipur, Assam, Odisha, and Karnataka had the least. Similarly, the percentage of declining urban centers was the highest in Kerala, Assam, Goa, Jammu and Kashmir, and Andhra Pradesh and the lowest in Manipur, Tripura, Mizoram, and Bihar.

The spatial distribution of the growth status of urban centers is presented through an inventory map. During 1991–2001, most urban centers experienced growth or stabilization, but a scattered distribution of declining urban centers across the country was found. The major

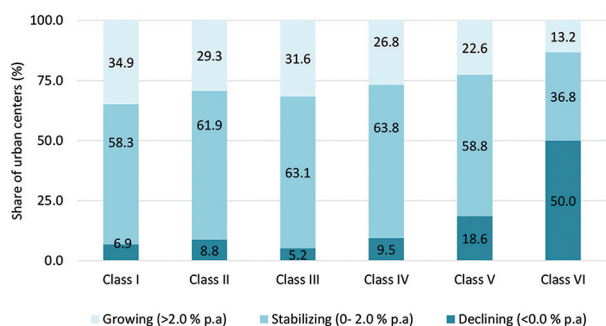


Figure 2. Share distribution of declining, stabilizing, and growing urban centers by categories during 2001–2011

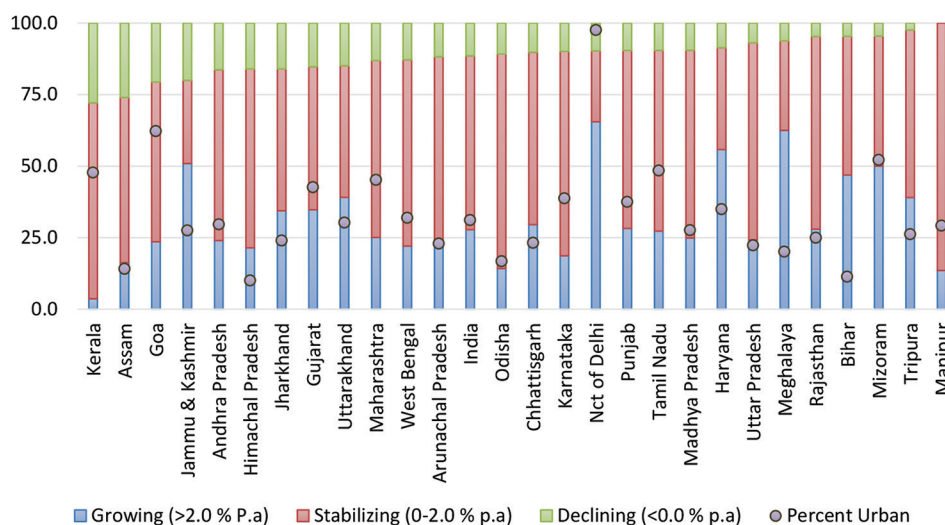


Figure 3. Share of declining, stabilizing, and growing urban centers during 2001–2011 and the level of urbanization in the different states of India, 2011

clusters of decline are located in the eastern and southern regions (Figure 4). However, in the next decade, many urban centers converted into stabilizing and declining ones. The clusters of declining urban centers expanded in several parts of the northern states, such as Jammu and Kashmir, Punjab, and Delhi in eastern states including Jharkhand and West Bengal and southern states such as Kerala and Tamil Nadu. While all states witnessed an increased number of stabilizing urban centers, the country experienced a dwindling number of growing urban centers (Figure 5).

In further analysis, we identified 113 urban centers that have been shrinking (Figure 6). The majority of these shrinking cities are mainly concentrated in the eastern, central, and southern regions of the country. The prime feature of the shrinking cities is that a majority have a small- to medium-sized population below 20,000. To name a few, the following are the rapidly shrinking cities in India: Ukai, Balkudra, Barbari, Virbhadr IDPL, Bhalaria, Dayalbagh, Ambika nagara Rajahmundry, and Eluru. Furthermore, the study found that some urban centers, namely Valparai and Thalassery, have been downgraded from class I cities to class II towns due to rapid population decline.

### 3.3. Urbanization and urban decline

Urbanization has been found to be a significant factor in population decline in urban centers. The result indicates the association between urbanization and urban decline (Figure 3). A mixed distribution was observed in terms of clustering of decline in high- and low-urbanized districts. Clusters of high urbanization and a high share of declining urban centers are primarily observed in districts of Kerala,

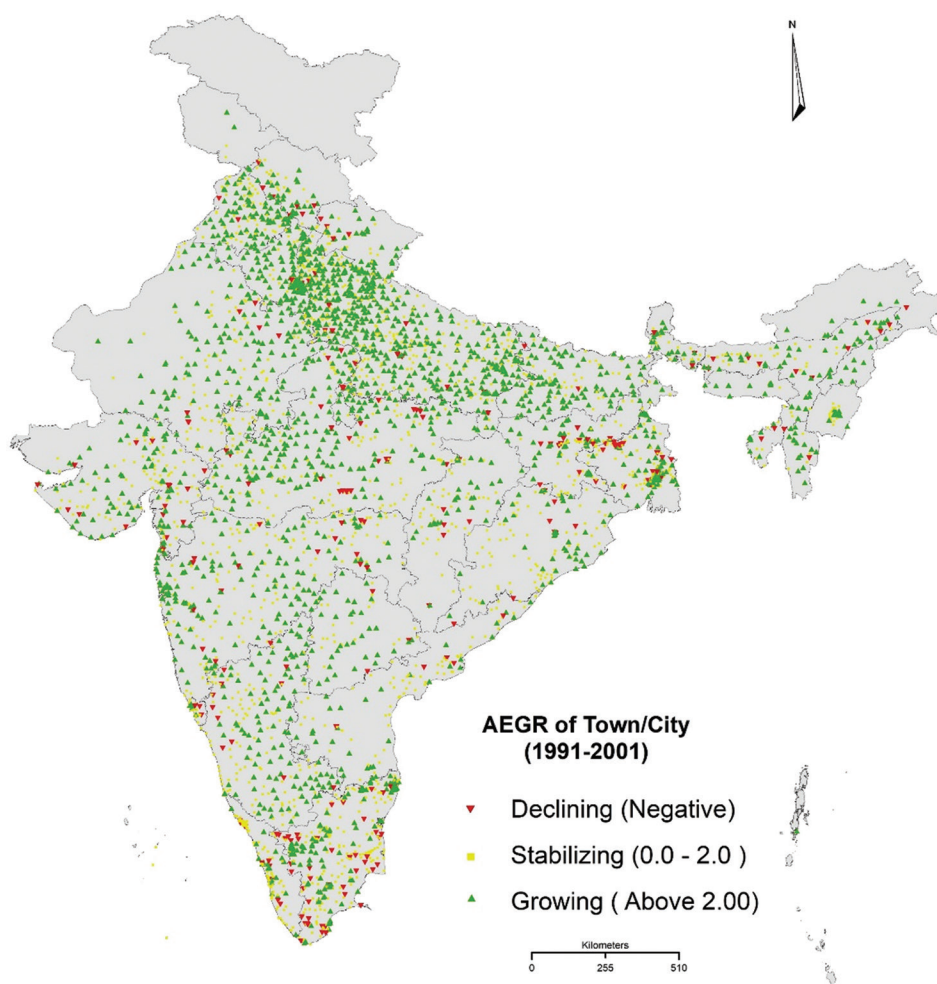


Figure 4. Spatial pattern of growing, stabilizing, and declining urban centers in India, 1991–2001

Tamil Nadu, West Bengal, *etc.*, including 24 districts. In contrast, low-low clusters indicating the concentration of declining urban centers in low-urbanized districts are mainly located in West Bengal, Jharkhand, Tamil Nadu, Maharashtra, *etc.* (Figure 7).

### 3.4. Urban decline and city characteristics

The bivariate analysis presents the growth pattern of urban centers in India based on their demographic and other local characteristics in 2011 (Table 3). The results highlight that the civic status of cantonment boards and census towns have the highest share of declining urban centers at 48.3% and 17.5%, respectively. In contrast, Municipal corporations and municipalities show a lower prevalence of declining urban centers (9%). The population density was also an important factor in the urban decline. The share of declining urban centers has been found to be higher among less dense urban centers (13.2%) compared to highly dense urban centers (7%). Furthermore, urban

centers with a low child-woman ratio (less than 200 and 200–250 account for 22.2% and 11.4% declining urban centers, respectively).

The result further dictates that urban centers located closer to other urban centers with a population of more than 100,000 experienced higher growth rates than those located further away. However, there was no significant difference in terms of declining urban centers. Agglomeration setting also influences the growth pattern. Among the urban centers that experienced population decline, about 14.2% of them are part of urban agglomerations, while 10.6% are not. Older urban centers formed before independence were more likely to be in the growing and stabilizing stage, with a small share of declining urban centers (8.7%). Contrarily, among newly formed urban centers (1991–2001), the share of declining urban centers was higher at 13.6%.

The results further showed that change in boundary or reduction in area decline did not primarily affect population

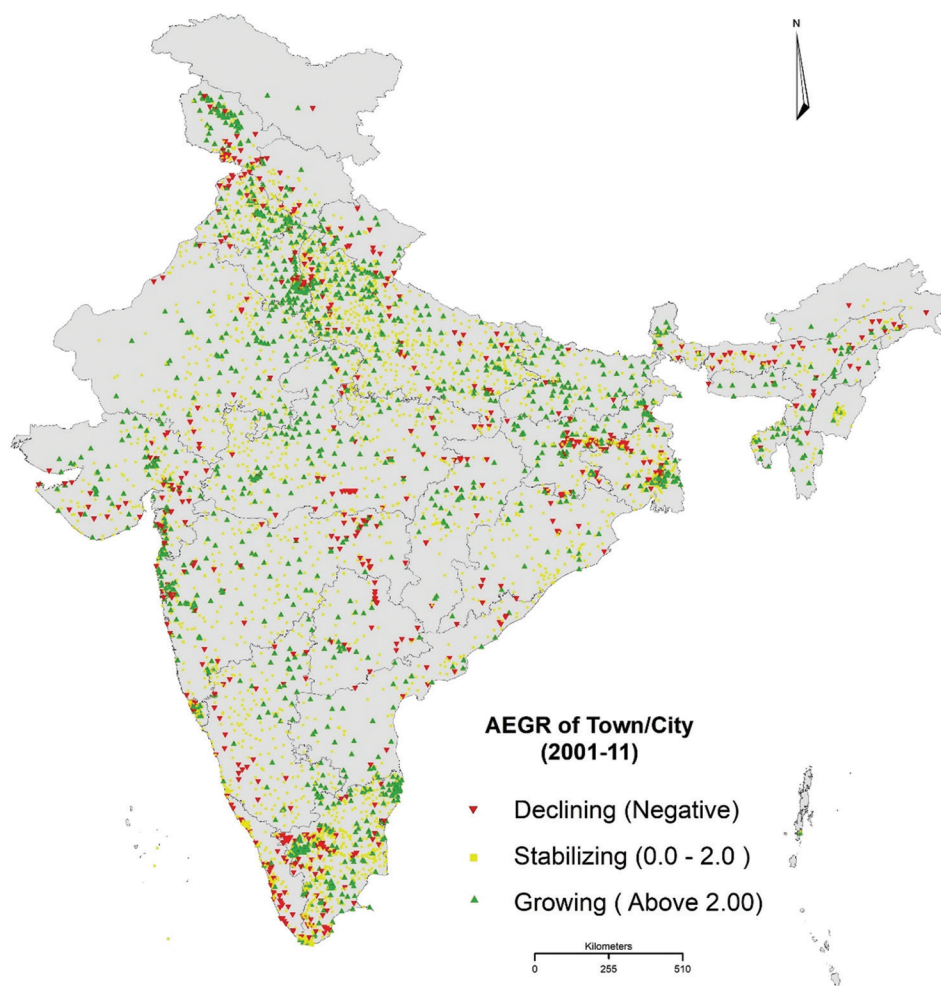


Figure 5. Spatial distribution of growing, stabilizing, and declining urban centers in India, 2001–2011

decline among urban centers. The share of declining urban centers was higher among urban centers where the area remained the same (11.8%) or expanded (14%). Aging is another critical factor responsible for population decline, with 38% of towns with an older population of more than 12% experiencing population decline. In contrast, among towns where the share of the older population was low (less than 8%), only 1.9% were declining.

### 3.5. Demographic factors of urban decline

This study attempted to examine the impact of demographic factors such as population size, density, child-woman ratio, and aging on population decline. The results indicate that the population size of an urban center is a crucial factor in population decline. The first model shows that urban centers in class V (3.606 times) and VI (15.836 times), and in the second model, class IV (2.489 times), V (5.817 times), and VI (24.732 times) are more likely to experience population decline compared to

other urban centers (Table 4). This indicates that a small population size is significantly associated with population decline. Similarly, urban centers with higher population densities are less likely to experience population decline and *vice versa*, although it is not statistically significant.

In addition, the child-woman ratio (fertility) is a significant indicator of population decline in urban centers, and all four models confirm the association. Urban centers with a lower child-woman ratio (below 200) were four times more likely to experience population decline than those with a high child-woman ratio. However, this factor was more crucial for cities. The last model indicates that class I cities with low child-woman ratios were 27 times more likely to experience population decline. Population aging is also a critical factor in population decline. The results indicate that cities with a 12% or higher share of the older population were nine times more likely to experience population decline than the reference category (Table 4).

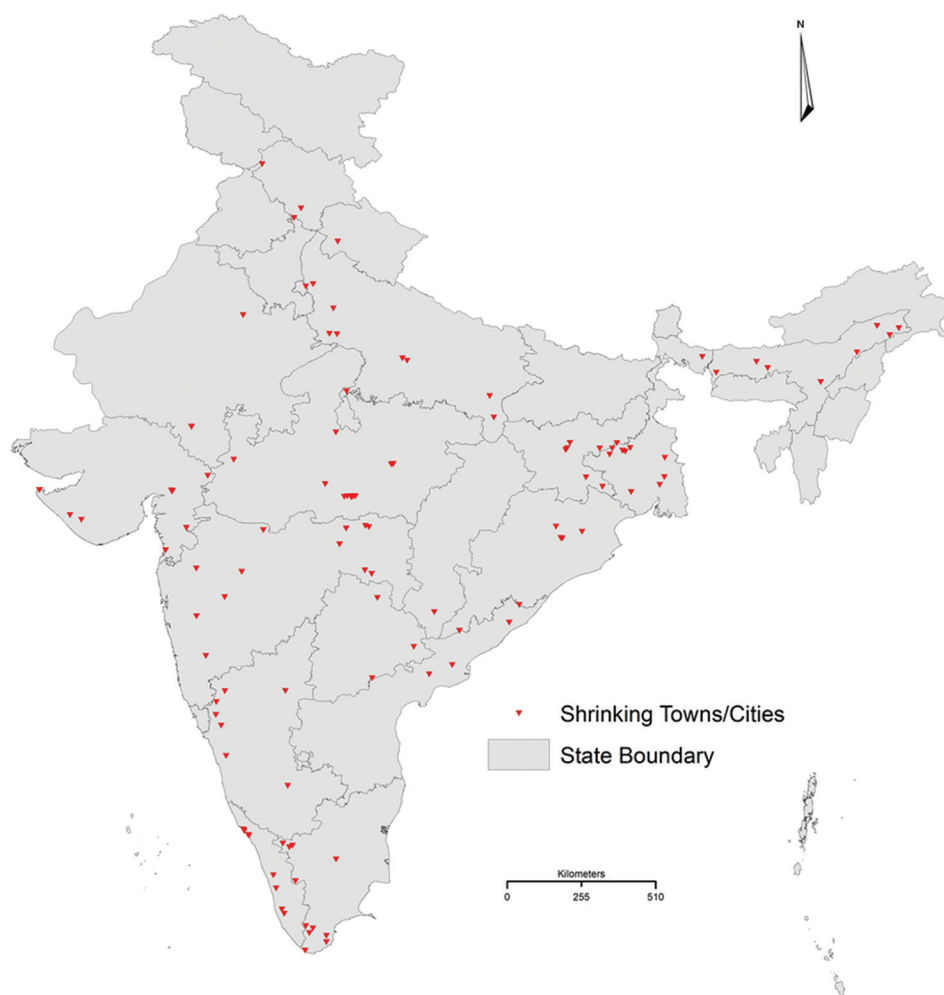


Figure 6. Spatial pattern of shrinking cities in India (population declined during 1991–2001 and 2001–2011)

### 3.6. Other local factors

Other local factors such as civic administrative status and distance from cities and area change status play significant roles in urban decline (Table 4). The results indicate that urban centers with civic status, such as census towns and cantonments, were more likely to experience population decline among all urban centers, while municipalities were less likely to experience the same. While only looking at the cities (4<sup>th</sup> model), municipal councils were more likely to decline (3.085 times) compared to municipal corporations. Another important factor contributing to urban decline is the distance to the nearest class I city. It was observed that urban centers located at a greater distance from the nearest class I city were more likely to experience urban decline than those that are nearer. However, it is not applicable for class I cities. Furthermore, the result indicates that urban centers in an agglomeration were more likely to experience population loss compared to independent urban centers.

The study has carefully examined whether the decline was the outcome of change in delineated boundary and reduction area. The result shows that urban decline in India was not an outcome of the reduction in the area of urban centers as the odds of population decline were found to be significantly higher among the urban centers where the area has expanded for all urban centers. However, the condition was insignificant for cities.

## 4. Discussion

In this study, we uncovered the typical nature of urban growth in India. Many urban centers in India have passed from a low growth rate to a high growth rate and again devolved into the declining and shrinking stage. There was sluggish urban growth during the pre-independence era, but the post-independence era saw a surge in growth. However, post-liberalization, the growth rate slowed down, and many urban centers started to shrink. The pre-

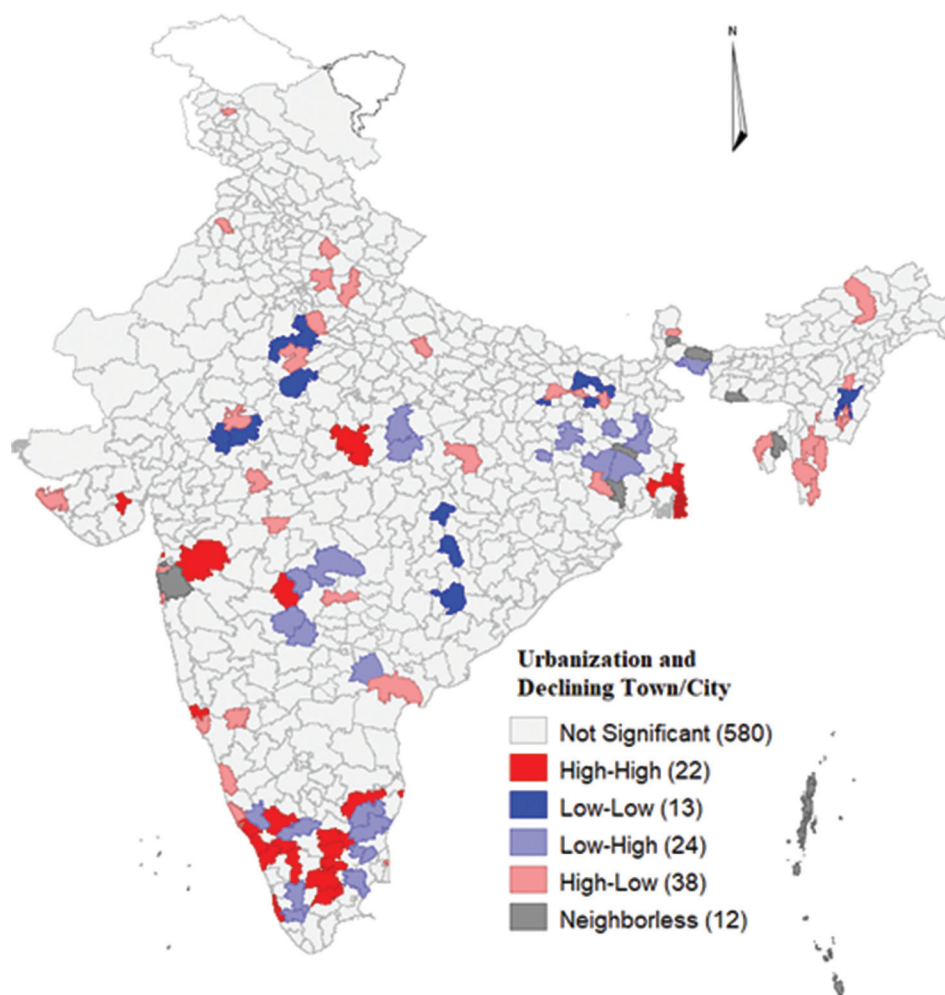


Figure 7. Relationship between level of urbanization and declining urban centers, 2011

independence period saw a decline in population due to epidemics and famines (McAlpin, 1985). During post-liberalization, the decline happened due to the structural transformation of the country (Kundu, 2003; Bhagat & Mohanti, 2008). The concentration of economic activities in selected major cities, such as Bengaluru, Delhi, Chennai, Mumbai, Kolkata, Hyderabad, and Pune, led to slow urban growth across many parts of the country (NITI Aayog, 2022). However, India is a country comprising a diverse range of urban settlements, including small- and medium-sized urban centers. However, the majority of the urban population is concentrated in the larger cities. Therefore, larger cities are the primary engines of urban growth. In recent decades, some larger cities have recorded population decline. In these larger cities, suburbanization or peripheralization is taking place, leading to the formation of an agglomeration economy. Many of these agglomerations are experiencing population decline

at the core due to the ‘Donut Effect.’ As these cities age, they become less capable of supporting further growth (Bhagat, 2004; Haque & Patel, 2018). For example, the largest megacities such as Mumbai, Kolkata, and Delhi have undergone a significant transformation, with rapid growth in their suburban areas in recent decades, while the core cities have experienced population loss. Due to industrial obsolescence, Kolkata (-5.11%) and Mumbai city (-3.5%) have experienced negative net migration, and consequently, the population declined in 2011 (Ganapati, 2014; Bhagat & Jones, 2014; Das *et al.*, 2015).

Population decline in urban centers is predominant in both high- and low-urbanized areas, although reasons for population decline may vary in these two regions. Population redistribution is a commonplace in high-urbanized states, but low-urbanized states are struggling to sustain the existing urban population as well as unable to attract population in urban centers due to a lack of

**Table 3. Share distribution of declining, stabilizing, and growing urban centers by background characteristics**

Characteristics	Declining	Stabilizing	Growing
Demographic characteristics			
Population density (per sq. km)			
<5000	13.2	61.1	25.6
5000–10000	7.4	60.6	31.9
10000–15000	6.7	60.4	32.9
>15000	7.6	57.3	35.1
Child–woman ratio (per thousand women)			
<200	22.2	64.0	13.8
200–250	11.4	65.6	23.0
>250	6.4	55.7	37.9
Older population share* (aged 60 and above)			
<8	1.9	50.0	48.1
8–10	5.9	67.1	27.0
10–12	17.0	69.8	13.2
>12	37.9	58.6	3.4
Other local characteristics			
Civic status			
Cantonment board	48.3	41.4	10.3
Census town	17.5	47.2	35.3
Municipality	9.1	70.1	20.8
Municipal council	7.9	66.9	25.2
Municipal corporation	9.2	52.6	37.5
Nearest city distance (km)			
<20	11.8	50.9	37.3
20–50	11.1	64.9	24.0
>50	11.6	64.8	23.6
Agglomeration part			
Agglomeration urban centers	14.2	52.0	33.8
Non-agglomeration urban centers	10.6	63.6	25.9
Year of origin			
1901–1941	8.7	71.0	20.4
1951–1981	12.5	58.7	28.8
1991–2001	13.6	51.4	35.0
Area change status			
Area declined	6.7	60.1	33.3
Area same	11.8	63.6	24.6
Area increased	14.0	61.3	24.7

\*The older population share data were limited to only class I cities.

facilities, infrastructure, opportunity, *etc.* This study has also found that demographic factors such as population size, child-woman ratio, and aging were significantly associated with population decline. Overall, population decline is more apparent in small- and medium-sized urban

centers. Several urban centers, such as Banasthali, Neyveli, and Valparai, were declining due to the low child–woman ratio (fertility). Socioeconomic factors such as governance, proximity to other cities, and age of the town are associated with population decline. Administrative units such as

**Table 4. Logistic regression (odds ratio) analysis of the factors affecting population decline**

Characteristics	All urban centers	Urban centers excluding larger agglomerations	Urban centers excluding class I cities	Only class I cities
Demographic characteristics				
Size-class				
Class I <sup>®</sup>			-	-
Class II	1.169	1.842*	- <sup>°</sup>	-
Class III	0.791	1.262	0.686	-
Class IV	1.548	2.489**	1.371	-
Class V	3.606***	5.817***	3.182	-
Class VI	15.836***	24.732***	13.706	-
Population density (per sq. km)				
>15000 <sup>®</sup>				
10000–15000	0.568	0.737	0.543	0.495
5000–10000	0.706	1.226	0.753	0.551
<5000	1.065	1.615	1.122	1.139
Child-woman ratio (per thousand women)				
>250 <sup>®</sup>				
200–250	2.005***	2.080***	1.977***	5.786
<200	4.592***	4.471***	4.054***	24.703***
Older population share <sup>a</sup>				
<8 <sup>®</sup>				
8–10	-	-	-	0.953
10–12	-	-	-	2.392*
>12	-	-	-	9.104***
Other local characteristics				
Civic status				
Municipal corporation <sup>®</sup>				
Census town	1.362	0.937	0.074**	
Cantonment board	8.859***	5.363***	0.461	
Municipality	1.079	0.675	0.058**	0.826
Municipal council	0.59	0.397***	0.031***	3.085**
Nearest city distance (km)				
< 20				
20–50	1.479***	1.519***	1.643***	0.297
> 50	1.562***	1.582***	1.701***	0.733
Agglomeration part				
No <sup>®</sup>				
Yes	1.376	1.514	1.364	2.018
Year of origin				
1901–1941 <sup>®</sup>				
1951–1981	0.933	0.916	0.949	0.675
1991–2001	1.185	1.222	1.219	0.872
Area change status				
Not changed <sup>®</sup>				
Reduced	0.668***	0.662**	0.658**	0.514
Expanded	1.482***	1.405**	1.395**	2.157

Notes: \* $p \leq 0.1$ ; \*\* $p \leq 0.05$ ; \*\*\* $p \leq 0.01$ ; <sup>®</sup> is the reference category; <sup>°</sup>The older population share data are limited to only class I cities.

census towns and cantonment boards are more generally experiencing population decline. These urban centers face many challenges, including a lack of basic infrastructure, health facilities, housing shortages, and insufficient funds. In addition, distance from the class I city adversely affects the growth rate of the nearby urban centers. The same was argued by Tripathi (2021) that urban centers located near larger cities experience a faster pace of population growth, but urban centers that are farther away from larger cities experience a low growth rate. One thing needs to be pointed out: population decline in urban centers was not primarily due to a reduction in the area of the urban center. Contrary to the life cycle theory that the older cities are bound to shrink while the new city will experience rapid growth, the urban context in India presents a rather different scene as the newly formed urban centers were declining more compared to the old urban centers (Czamanski & Dani, 2016).

Several other reasons were pointed out by other research for urban decline such as strict urban definition (Ganapati, 2014), poor physical infrastructure, lack of facilities, health infrastructure and opportunities (Bhagat, 2004; Ganapati, 2014; Guin, 2019), selective out-migration (UN-Habitat, 2008), unemployment at the origin place of migration (Guin, 2019; Marchang, 2017), and wage difference (Indian Council of Social Science Research, 2011). The leading cause of population decline is out-migration, which usually takes place from underdeveloped to more competitive locations (Wiechmann & Wolff, 2013) and this type of migration is likely to accelerate more in future decades due to changing labor market demand (Bhagat & Mohanty, 2009; Dyson & Visaria, 2004). Apart from all these investments, policy implications, availability of resources, quality of life, and facility also play key roles in urban shrinkage (Kundu, 2005; Li & Zhang 2020; Hamilton & Colocousis 2004). It is important to note that the findings of this study are unable to capture all the drivers of urban shrinkage; rather, it indicates a set of conditions in which the city experiences population declines.

Overall, this study unequivocally highlights the substantial disparity in the growth of urban centers across different states. It is a stark reality that while some urban centers are experiencing rapid expansion, others are grappling with a decline in population. This phenomenon can be attributed to the significant occurrence of both urban-to-urban migration and urban-to-rural migration. The presence of urban shrinkage among various urban centers in India is a clear indicator of the alarming levels of inequality that persists across a different set of urban centers. It is evident that this phenomenon has the potential to exacerbate urbanization inequality and further widen the gap in development between regions.

This study has added new insights about urban shrinkage in the context of developing countries. However, this study has some limitations. The unavailability of the latest census datasets restricted the study till the year 2011, and with the available city-level information, this study was only able to determine the associated factor for population decline in Indian urban centers. Further research may focus on using timely available satellite-based data and case-specific studies to further explore this phenomenon.

## 5. Conclusions

The global phenomenon of urban shrinkage has become a major threat to urban planning. The impact is expected to be severe in developing countries. This study analyzed the dynamics of urban growth in Indian urban centers and highlights the spatial pattern of urban shrinkage in India. It also examines the associated factors for population decline in Indian urban centers. The study has found that during the period of 1991–2011, one out of every nine urban centers in India experienced a population decline, with one-fifth of them shrinking. This rapid decline has been observed in the majority of states in India over the past two decades. A unique aspect of India's urban shrinkage is that it is happening in both larger cities and smaller urban centers. Furthermore, the study demonstrated that population decline in urban centers is largely associated with factors such as urban growth rate and the level of urbanization. Local-level factors, such as population size, density, governance, fertility, household density, and aging, are also important determinants of population decline among urban centers in India.

As urban decline is becoming more prevalent in both developed and underdeveloped regions of India, it will pose a significant challenge for urban planners and policymakers in the coming decades. Therefore, it is essential to prioritize the growth and development of small- and medium-sized urban centers and adopt a focused development agenda for shrinking cities. Capital investment, infrastructure, and micro-level development planning are necessary to sustain population growth in small-medium urban centers. In addition, better implementation of decentralization policies may also help with integrated urban development and achieve higher economic growth (Vaddiraju 2015; Xavier et al 2021). It is better to address urban shrinkage at an early stage before any further deterioration. Further research on the economic and social aspects of shrinking cities in India is required to disentangle the complexities of urban decline.

## Acknowledgments

None.

## Funding

None.

## Conflict of interest

The authors declare that they have no competing interests.

## Author contributions

*Conceptualization:* All authors

*Investigation:* Nawaj Sarif

*Methodology:* Nawaj Sarif

*Writing – original draft:* All authors

*Writing – review & editing:* All authors

## Ethics approval and consent to participate

Not applicable.

## Consent for publication

Not applicable.

## Availability of data

The data used in this study are available on the Indian official census website (<https://censusindia.gov.in/>).

## References

- Berry, B.J.L. (1976). *Urbanization and Counterurbanization*. United States: Sage Publications.
- Bhagat, R.B. (2004). Dynamics of urban population growth by size class of towns and cities in India. *Demography India*, 33(1):47-60.
- Bhagat, R.B., & Jones, G.W. (2014). Demographic dynamics of mega-urban regions: The case of Mumbai. *Demography India*, 43(1):71-94.
- Bhagat, R.B., & Mohanti, S. (2008). Trends and Patterns of India's Urbanisation: A Demographic Assessment. In: Paper Presented in the Annual Meeting of Population Association of America, New Orleans, USA.
- Bhagat, R.B., & Mohanty, S. (2009). Emerging pattern of urbanization and the contribution of migration in urban growth in India. *Asian Population Studies*, 5(1):5-20.  
<https://doi.org/10.1080/17441730902790024>
- Czamanski, D., & Dani, B. (2016). The life cycle of cities. *Habitat International*, 72(1):100-108.  
<https://doi.org/10.1016/j.habitatint.2016.09.002>
- Das, S., Hazra, S., & Ghosh, T. (2015). Paradox of Migration in Kolkata: A Megacity in GBM Delta-NASA/ADS. Available from: <https://ui.adsabs.harvard.edu/abs/2015agufimgc43g/06d/abstract> [Last accessed on 2021 May 21].
- Dyson, T., & Visaria, P. (2004). Migration and Urbanization: Retrospect and Prospects-LSE Research Online. In: *Twenty-First Century India: Population, Economy, Human Development, and the Environment*, p.108-129. Available from: <https://eprints.lse.ac.uk/20230> [Last accessed on 2022 Jun 06].
- Ganapati, S. (2014). The paradox of shrinking cities in India. In: Richardson, H.W., & Nam C.W. (eds.). *Shrinking Cities: A Global Perspective*. England, UK: Routledge.  
<https://doi.org/10.4324/9780203079768>
- Guin, D. (2019). Contemporary perspectives of small towns in India: A review. *Habitat International*, 86:19-27.  
<https://doi.org/10.1016/j.habitatint.2019.02.003>
- Haase, A., Bernt, M., Großmann, K., Mykhnenko, V., & Rink, D. (2016). Varieties of shrinkage in European cities. *European Urban and Regional Studies*, 23(1):86-102.  
<https://doi.org/10.1177/0969776413481985>
- Haase, A., Rink, D., Grossmann, K., Bernt, M., & Mykhnenko, V. (2014). Conceptualizing urban shrinkage. *Environment and Planning A*, 46(7):1519-1534.  
<https://doi.org/10.1068/a46269>
- Hamilton, L.C., & Colocousis, C.R. (2004). Migration from resource depletion : The case of the faroe Islands. *Society and Natural Resources*, 17(5):443-453.  
<https://doi.org/10.1080/08941920490430232>
- Haque, I., & Patel, P.P. (2018). Growth of metro cities in India: Trends, patterns and determinants. *Urban Research and Practice*, 11(4):338-377.  
<https://doi.org/10.1080/17535069.2017.1344727>
- Hollander, J.B., Pallagst, K., Schwarz, T., & Popper, F.J. (2009a). Planning shrinking cities. *Progress in Planning*, 72(4):223-232.
- Hollander, J.B., Pallagst, K., Schwarz, T., & Popper, F.J. (2009b). Planning shrinking cities. *Progress in Planning*, 72(4):223-232.
- Indian Council of Social Science Research. (2011). National Workshop on Internal Migration and Human Development in India. Vol. 2. United States: UNICEF.
- Kundu, A. (2003). Urbanisation and urban governance: Search for a perspective beyond neo-liberalism. *Economic and Political Weekly*, 38(29):3079-3087.  
<https://doi.org/10.2307/4413810>
- Kundu, A. (2005). Infrastructure Financing and Emerging Pattern of Urbanisation: A Perspective. In: Planning Commission Report. Available from: [https://niti.gov.in/planningcommission.gov.in/docs/reports/genrep/bkpap2020/9\\_bg2020.pdf](https://niti.gov.in/planningcommission.gov.in/docs/reports/genrep/bkpap2020/9_bg2020.pdf) [Last accessed on 2022 Jun 02].
- Lee, J.S., Won, S., & Kim, S. (2016). Describing changes in the built environment of shrinking cities: Case study of Incheon,

- South Korea. *Journal of Urban Planning and Development*, 142(2):05015010.  
[https://doi.org/10.1061/\(asce\)up.1943-5444.0000305](https://doi.org/10.1061/(asce)up.1943-5444.0000305)
- Li, H., & Mykhnenko, V. (2018). Urban shrinkage with Chinese characteristics. *Geographical Journal*, 184(4):398-412.  
<https://doi.org/10.1111/geoj.12266>
- Liu, Z., Liu, S., & Song, Y. (2020). Understanding urban shrinkage in China: Developing a multi-dimensional conceptual model and conducting empirical examination from 2000 to 2010. *Habitat International*, 104:102256.  
<https://doi.org/10.1016/j.habitatint.2020.102256>
- Long, Y., & Gao, S. (eds.). (2019). *Shrinking Cities in China: The Overall Profile and Paradox in Planning*. In: *Shrinking Cities in China*. New York City: Springer.  
[https://doi.org/10.1007/978-981-13-2646-2\\_1](https://doi.org/10.1007/978-981-13-2646-2_1)
- Ma, Z., Li, C., & Zhang, J. (2020). Understanding urban shrinkage from a regional perspective: Case study of Northeast China. *Journal of Urban Planning and Development*, 146(4):05020025.  
[https://doi.org/10.1061/\(asce\)up.1943-5444.0000621](https://doi.org/10.1061/(asce)up.1943-5444.0000621)
- Marchang, R. (2017). Out-migration from north eastern region to cities: Unemployment, employability and job aspiration. *Journal of Economic and Social Development*, 13(2):43-53.
- Martinez-Fernandez, C., Audirac, I., Fol, S., & Cunningham-Sabot, E. (2012). Shrinking cities: Urban challenges of globalization. *International Journal of Urban and Regional Research*, 36(2):213-225.  
<https://doi.org/10.1111/j.1468-2427.2011.01092.x>
- Martinez-Fernandez, C., Weyman, T., Fol, S., Audirac, I., Cunningham-Sabot, E., Wiechmann, T., et al. (2015). Shrinking cities in Australia, Japan, Europe and the USA: From a global process to local policy responses. *Progress in Planning*, 105:1-48.  
<https://doi.org/10.1016/j.progress.2014.10.001>
- McAlpin, M.B. (1985). Fami.e., epidemics, and population growth: The case of India. *Journal of Interdisciplinary History*, 14(2):351-366.  
<https://doi.org/https://doi.org/10.2307/203709>
- NITI Aayog. (2022). *Cities as Engines of Growth*. New Delhi: NITI Aayog.  
[https://doi.org/10.1596/9780821387856\\_ch23](https://doi.org/10.1596/9780821387856_ch23)
- Oswalt, P., & Rieniets, T. (2006). *Atlas of Shrinking Cities*. Ostfildern-Ruit: Hatje Cantz Publishers.
- Pourahmad, A., Khavarian-Garmsir, A.R., & Hataminejad, H. (2016). Social inequality, city shrinkage and city growth in Khuzestan Province, Iran. *Area Development and Policy*, 1(2):266-277.  
<https://doi.org/10.1080/23792949.2016.1170581>
- Richardson, H.W., & Nam, C.W. (2014). In: Feldman, M., Grabher, G., Martin, R., & Perry, M. (eds.). *Shrinking Cities A Global Perspective*. England, UK: Routledge.
- Sakamoto, K., Iida, A., & Yokohari, M. (2017). Spatial emerging patterns of vacant land in a Japanese city experiencing urban shrinkage: A case study of Tottori City. *Urban and Regional Planning Review*, 4:111-128.  
<https://doi.org/10.14398/urpr.4.111>
- Schett, S. (2011). An analysis of shrinking cities. *Urban Ecology*, 12:1-15.
- Slach, O., Bosák, V., Krtička, L., Nováček, A., & Rumpel, P. (2019). Urban shrinkage and sustainability: Assessing the nexus between population density, urban structures and urban sustainability. *Sustainability (Switzerland)*, 11(15):4142.  
<https://doi.org/10.3390/su11154142>
- Stryjakiewicz, T. (2013). The process of urban shrinkage and its consequences. *Romanian Journal of Regional Science*, 7:29-40.
- Tripathi, S. (2021). Towards sustainable urban system through the development of small towns in India. *Regional Science Policy and Practice*, 13(3):777-797.  
<https://doi.org/10.1111/rsp3.12424>
- Turok, I., & Mykhnenko, V. (2007). The trajectories of European cities, 1960-2005. *Cities*, 24(3):165-182.  
<https://doi.org/10.1016/j.cities.2007.01.007>
- UN-Habitat. (2008). *State of the World's Cities 2008/2009*. England, UK: Routledge.
- Wiechmann, T., & Pallagst, K.M. (2012). Urban shrinkage in Germany and the USA: A comparison of transformation patterns and local strategies. *International Journal of Urban and Regional Research*, 36(2):261-280.  
<https://doi.org/10.1111/j.1468-2427.2011.01095.x>
- Wiechmann, T., & Wolff, M. (2013). Shrinking Urban Shrinkage in a Spatial Perspective-Operationalization of Shrinking cities in Europe 1990-2010. In: AESOP-ACSP Joint Congress, p.1-20.
- Wolff, M., & Wiechmann, T. (2017). Urban growth and decline: Europe's shrinking cities in a comparative perspective 1990-2010. *European Urban and Regional Studies*, 25(3):1-18.  
<https://doi.org/10.1177/0969776417694680>

## RESEARCH ARTICLE

## Social exclusions of a Burmese refugee woman's migration journey in the United States

Jue Wang\* and Lan Kolano

Department of Middle, Secondary, and K-12 Education, Cato College of Education, University of North Carolina at Charlotte, Charlotte, North Carolina, United States of America

**Abstract**

With the rise of global migration, an increasing number of women are seeking autonomy and opportunity through movement; however, many face systemic barriers and gendered risks both during their journeys and in host countries. This article examines the structural vulnerabilities faced by migrant women by tracing the life story of Aye, a Burmese refugee who resettled in the United States (U.S.). Her migration journey reflects broader gendered dynamics in global migration. Drawing on narrative inquiry, this study highlights how exclusion from healthcare, education, employment, and legal protections shapes women's migration experiences. It traces how Aye, despite encountering compounded constraints across migration to Malaysia and the U.S., continuously negotiated access to essential resources through self-agency. Her narrative reveals the persistence of gendered expectations within both public systems and family life, even after resettlement. The article underscores the importance of equitable access to education, work, and self-development opportunities for migrant women's survival and autonomy. This study calls for a more grounded and policy-relevant understanding of refugee integration, one that recognizes equitable access as both a lived necessity and a transformative right for migrant women.

**Keywords:** Migrant women; Gendered migration; Structural vulnerability; Equitable access; Self-agency

**\*Corresponding author:**Jue Wang  
(jwang88@charlotte.edu)

**Citation:** Wang, J. & Kolano, L. (2025). Social exclusions of a Burmese refugee woman's migration journey in the United States. *International Journal of Population Studies*. 11(6): 81-91. <https://doi.org/10.36922/IJPS025160060>

**Received:** April 14, 2025**Revised:** June 21, 2025**Accepted:** July 16, 2025**Published online:** July 28, 2025

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**1. Introduction**

In recent years, cross-border population movements, especially from developing countries to developed nations, as well as among developing countries, have significantly impacted international relations (Castles, 2017). By 2020, the number of international migrants had reached 281 million, representing 3.6% of the global population living outside their country of birth (UN's International Organization for Migration, 2024). According to the United Nations Women (2024), women and girls account for roughly half of all international migrants. They also make up about half of all migrant workers who send money back home, known as remittance senders. Women often migrate to improve their livelihoods and economic prospects, among other reasons. For many, migration enhances their autonomy, agency, and independence by providing opportunities for a better life. However, it can also expose women and girls to serious risks, including exploitation, human trafficking, forced labor, and gender-based violence (GBV) (Fleury, 2016).

While existing literature often conceptualizes integration through frameworks of belonging, legal citizenship, or cultural assimilation, these perspectives frequently overlook migrant women's needs for autonomy, self-realization, and professional development. For many migrant women, integration remains difficult due to structural barriers in host societies. However, their aspirations for personal growth and independence become a powerful source of motivation, prompting them to actively negotiate access to the resources necessary for self-development. This study draws on the story of Aye and her intergenerational family history to illustrate how migrant women navigate the tension between caregiving responsibilities and personal ambition. Rather than centering integration policies solely on cultural adaptation, this paper argues for a rights-based, access-oriented approach that prioritizes women's autonomy. By ensuring equitable access to education, employment, and healthcare, integration policies can support migrant women not only in surviving migration but in building independent, self-directed futures.

## 1.1. Literature review

This literature review examined existing scholarship on refugee integration, with particular attention to three interconnected themes: gendered barriers to employment and education, the structural conditions shaping refugee women's experiences, and the concept of belonging. It first explored gendered norms and their impact on refugee women's access to work and education. The review then examined how belonging has been theorized in migration studies and how it differs from related concepts such as assimilation. Finally, it identified key gaps in the literature concerning structural access and proposes a need to expand beyond belonging-centered approaches to better support migrant women.

### 1.1.1. Gender norms, employment, and educational barriers for immigrant women

The rise of female migration has been a notable consequence of globalization. Before the 1970s, the majority of migrant laborers were male. However, global economic expansion and the diversification of labor markets have simultaneously reinforced traditional gender divisions of labor and created new dynamics that shift household responsibilities and economic power toward women. Female migrants are no longer simply accompanying family members; they now constitute a significant share of the labor force and are often the primary breadwinners within migrant households (Ullah & Chattoraj, 2023).

While some scholars argue that globalization has opened up opportunities for women by decentralizing

power and generating employment, others remain skeptical. Critics point out that although women's participation in the labor market has increased, domestic responsibilities, particularly caregiving, remain unevenly distributed. In some cases, transnational corporations have even exacerbated gender inequality by exploiting women as a cheaper, more flexible labor force (Kabeer, 2021). The consequences of globalization may thus disproportionately harm women, particularly through the intensification of poverty (Çağatay & Erturk, 2004). Due to their disadvantaged position in the labor market, heavy involvement in the care economy, and reproductive roles shaped by traditional gender norms, women face systemic barriers to resource access and upward mobility. This phenomenon is widely recognized as the "feminization of poverty" (Ullah *et al.*, 2023, p.2).

Women refugee migrants face distinct gender-based challenges. In many patriarchal societies, women have limited bodily autonomy, an issue that not only constitutes a violation of global human rights norms but also restricts their access to leadership and decision-making roles (Earth & Sthapit, 2002). Even in resettlement contexts, entrenched gender norms continue to marginalize refugee women, preventing their full participation in public, social, and professional spheres (Gálvez, 2023). GBV is another critical issue in the context of migration. Priddy *et al.* (2022), for example, documented the severe GBV experienced by Rohingya women in Myanmar and the ongoing challenges they face in refugee camps in Bangladesh, particularly during the COVID-19 pandemic. The Rohingya, a persecuted ethnic minority in Myanmar, have long suffered from systemic ethnic violence, forcing nearly a million to flee to precarious conditions across the border.

In crisis and emergency contexts, GBV becomes increasingly prevalent, with vulnerable populations, especially women, at heightened risk of abuse, exploitation, and violence. GBV is often rooted in gendered social roles and power structures, targeting individuals based on their gender or the roles they are expected to perform. Cultural taboos, social stigma, and fear of reputational harm often prevent women from reporting such violence, further entrenching their vulnerability. These persistent gender norms severely restrict women's mobility and limit their access to critical services such as healthcare, education, and legal protection, thereby exacerbating structural inequalities.

Employment plays a crucial role in refugee women's independence and integration, yet numerous barriers inhibit their full participation in the labor market. Refugee women consistently experience higher rates

of unemployment and underemployment than their male counterparts (Iglesias *et al.*, 2022). Caregiving responsibilities within the family often limit their time and flexibility to search for or sustain employment (Koyama, 2015). Externally, they encounter systemic barriers such as workplace discrimination rooted in cultural stereotypes, non-recognition of foreign qualifications, gaps in employment history, and the non-transferability of skills (Campbell, 2018; Pittaway & Bartolomei, 2000). These challenges not only hinder economic participation but also deepen patterns of dependency and social marginalization.

Education is frequently identified as a pathway to empowerment and socioeconomic mobility, yet refugee women continue to face considerable obstacles in accessing and completing formal education. Language barriers, disrupted educational histories, and financial hardship remain significant impediments to educational attainment (Burke, 2022; Hartley *et al.*, 2019). Recent work by Burke *et al.* (2023) identified seven critical barriers that restrict refugee women's access to higher education, including rigid gender expectations, intensive caregiving duties, and experiences of racism and xenophobia. As a result, many refugee women report feeling like outsiders within academic institutions and remain disconnected from mainstream educational trajectories. This disconnection not only undermines their sense of belonging but also limits their capacity to advance professionally and build sustainable livelihoods.

### 1.1.2. Sense of belonging in migration studies

The concept of belonging has become a central concern in migration studies, particularly in relation to refugee and migrant integration. Unlike assimilation, which assumes that migrants must adopt the dominant culture to become insiders, belonging is understood as a more subjective and multifaceted experience. While assimilation retains a hierarchical structure that casts migrants as outsiders striving to enter a pre-established cultural order, belonging emphasizes emotional attachment, social inclusion, and the individual's self-positioning within various communities (Chattoraj & Gerharz, 2019).

Belonging, as Gilroy (2000) and others have argued, is not a straightforward process in multicultural societies. Individuals may feel attachments to multiple social groups, including family (Walsh, 2006), co-ethnic diasporas, and national identities (Westwood & Phizacklea, 2000). In the context of migration, these attachments often become fluid, and migrants may simultaneously occupy the position of an insider in one context, such as within an ethnic or religious enclave, and an outsider in another, such as in mainstream national institutions. This dual positioning is

particularly evident in migrant-receiving societies, where belonging operates on multiple levels: as an insider to the dominant cultural group or as an insider within already-established immigrant networks.

Belonging is shaped by both socioeconomic and sociocultural factors, and it frequently functions to reproduce binary distinctions between insiders and outsiders. Migrants often find themselves navigating this borderland, experiencing a partial or aspirational sense of being included without fully achieving it. As a result, belonging is less a fixed status than an ongoing, situated negotiation (Ullah *et al.*, 2021). Chattoraj's (2022) study of internally displaced Tamil populations in Colombo, Sri Lanka, illustrates this process of "becoming insiders" despite their formal inclusion being delayed or contested. Similar dynamics have been observed among privileged migrants. Ullah *et al.* (2021), for instance, showed that even skilled and economically independent Southeast Asian migrants, despite holding legal status and high social capital, may still position themselves as outsiders due to persistent cultural barriers, institutional discrimination, or ideological exclusion. These findings emphasize that belonging is not guaranteed by privilege, legality, or economic contribution; rather, it is contingent upon deeper social recognition and interaction.

Existing studies show that belonging is often conditional, hierarchical, and exclusionary, shaped by dominant cultural norms and state practices. This raises an urgent question: what happens when belonging is unattainable, undesirable, or insufficient? Despite legal status or years of residence, many migrants continue to experience exclusion due to language barriers, cultural dissonance, or gendered expectations. This paper responds to this gap by proposing a shift from belonging-centered integration models toward a focus on access, not just to legal recognition, but to healthcare, education, livelihood, and personal autonomy. By foregrounding the lived experience of a Burmese refugee woman, this study rethinks integration not as a matter of cultural fit but as the ability to claim and exercise rights in material, embodied, and socially embedded ways.

## 2. Data and methods

### 2.1. Research design

This study used a qualitative narrative approach to explore the resettlement experiences and identity formation of a Burmese refugee woman. Narrative inquiry is particularly effective for understanding how individuals interpret their past, present, and future within the context of broader societal structures (Elliott, 2005). This method captures personal stories' temporal and relational aspects, revealing how lived experiences are shaped and understood over

time. The focus extends beyond merely recounting events; it aims to uncover how stories are constructed, presented, and imbued with meaning.

This study also used a constructivist approach, highlighting that narratives are co-created by researchers and participants. It draws on Gadamer's (2004) idea of the "fusion of horizons," which underscores the importance of personal histories and cultural contexts in storytelling. By promoting open dialog and active listening, the researchers allowed narratives to emerge naturally, enabling a deeper exploration of participants' experiences. As Gubrium and Holstein (1997) point out, interviews are dynamic processes that generate meaning through interaction. This reflexive engagement ensures that the narratives remain true to the participant's voice while offering deeper analytical insights.

## 2.2. Data collection

Data were collected through multiple methods to provide a holistic and triangulated understanding of Aye's experiences. Six focus groups were conducted with other Burmese refugees, comprising a total of 21 participants, to help contextualize Aye's story within broader cultural and social frameworks. Participants were recruited through the non-governmental organization (NGO) where Aye worked, which also served as an after-school program for Burmese refugee families whose children attended its programs. As Plummer (1995) noted, narratives gain depth when individual stories are examined alongside the collective meanings shared within a community, such as linguistic barriers and gender expectations, enriching the interpretation of Aye's narrative.

Following the focus groups, three semi-structured interviews were conducted, designed to elicit detailed narratives across different stages of Aye's life. The interviews were organized chronologically, a key component of narrative research that emphasizes temporality in storytelling (Elliott, 2005). The first interview focused on Aye's early life in Burma, her migration experiences in Malaysia, and her eventual resettlement in the United States. The second interview explored her adaptive strategies, cultural resources, and reflections on identity. The final interview addressed her sense of integration and lingering feelings of exclusion, particularly her self-identification as a "guest" despite formal citizenship.

Participant observation further complemented the data collection process. Over a 3-month period, the researcher volunteered at the NGO where Aye works, enabling the researcher to witness her daily interactions and role as a community member. Observational data were systematically recorded in detailed field notes, capturing contextual nuances that interviews might not

reveal. Informal conversations during this period added spontaneous reflections that offered additional insight into Aye's lived experiences. Integrating interviews, focus groups, and participant observation aligns with Riessman's (2008) recommendation for data triangulation, enhancing the credibility and depth of qualitative findings.

The two researchers contributed to the data collection process in complementary ways. Researcher 1 conducted the individual interviews and participant observation, spending three months volunteering at the community organization to build rapport and gather in-depth, contextual data. Researcher 2 led the focus group interviews and contributed to participant recruitment and study design. With a decades-long relationship with the NGO, Researcher 2 brought extensive experience conducting research and evaluation in this setting, ensuring ethical continuity and cultural responsiveness throughout the project.

## 2.3. Data analysis

The data analysis employed a holistic-content narrative approach, focusing on Aye's complete life story to interpret the meanings embedded in her lived experiences (Lieblich *et al.*, 1998). This method treats the narrative as a coherent whole, allowing the identification of interwoven themes across time, rather than fragmenting her account into discrete categories (Elliott, 2005; Riessman, 2008). The goal was to honor the emotional, symbolic, and relational dimensions of Aye's experiences, particularly as they relate to identity, agency, and access.

The analysis unfolded in several stages. First, all interviews and field notes were transcribed verbatim and carefully reviewed multiple times by both researchers to ensure immersion in the data. Second, preliminary coding was conducted independently by the first author using an open coding strategy to identify recurring patterns, concepts, and expressions relevant to the research questions (Saldaña, 2016). Codes included concepts such as "forced migration," "economic responsibility," "gendered expectations," "freedom," and "feeling like a guest."

Third, these initial codes were then reviewed collaboratively by both researchers, who brought different positional and professional perspectives to the interpretation process. Through a series of reflective meetings, the research team grouped codes into higher-order thematic categories, such as access and agency, gendered constraints, negotiating belonging, and transformative resilience. The team used memo-writing and thematic mapping to clarify how these themes emerged across Aye's narrative and intersected with focus group data.

In line with Lieblich *et al.*'s (1998) holistic-content framework, the researchers paid particular attention to key turning points in Aye's story, such as her decision to migrate for her mother's medical care, her response to marital abandonment, and her re-entry into education and work. These moments were analyzed not only for their content but for how they reflected evolving patterns of autonomy, resistance, and adaptation.

Focus group data, while not analyzed as deeply as the central case study, were coded thematically to contextualize and validate Aye's narrative within the broader social experiences of Burmese refugee women. These discussions reinforced common challenges and served as a comparative backdrop that added texture and depth to the central case.

This iterative and collaborative approach ensured that the analysis remained reflexive, culturally grounded, and sensitive to power dynamics, preserving Aye's voice while critically engaging with the broader systemic structures shaping her experience.

## 2.4. Ethical considerations

Ethical protocols were strictly adhered to ensure the safety, confidentiality, and dignity of participants. Informed consent was obtained before data collection, and pseudonyms were employed to protect participant anonymity. Special attention was given to the ethical implications of power dynamics, especially in the context of refugee research, where participants may feel vulnerable or marginalized. To address these concerns, the researchers adopted a collaborative and respectful approach, prioritizing Aye's agency in sharing her story throughout the research process (Plummer, 2001).

## 3. Results

### 3.1. Intergenerational migration history: A legacy of women's agency

Aye's family migration trajectory reflects how, under the unequal conditions of global economic development and regional political instability, women are often compelled to migrate for economic reasons due to familial responsibilities. Her family's story highlights the gendered vulnerabilities experienced during migration. Women face layered exclusions in this process, shaped by educational, economic, linguistic, and cultural barriers, as well as restrictive gender expectations within the family. While individual agency plays a crucial role in how women navigate and survive such exclusionary environments, structural change is also necessary to support and protect their efforts. Despite living in a society that placed structural limits on women's education, independence, and social participation, both her grandmother and mother

modeled resilience and strategic negotiation of access, offering early lessons in how to survive and adapt through self-determination.

Her grandmother, left to raise six daughters alone after her husband became a monk and "was not interested in women or other things," refused to remain economically dependent or immobile. Initially, she chose to support her six children through sewing, but with limited opportunities and still unable to afford her family, she decided to migrate to the capital city, Yangon. As Aye explained, "Because in a poor city, a lot of people's income is not enough to pay for sewing work. So, instead of waiting, she worried about her future. So that is why she moved to another city so she can get money daily and then save money to live." This decision to relocate to Yangon was not just a survival strategy; it was a deliberate act to gain material access to income and stability. It repositioned her family geographically and socially, providing new opportunities in the face of rural poverty and war-related instability.

This legacy of agency continued through Aye's mother, who carried the burden of caregiving from a young age. "My mom has to stay home. She took care of her five sisters. Her mom's working. So, when her mom worked, she had to take care of her sisters and did chores and everything." Despite having little time or support to attend school, Aye's mother pursued learning informally: "she wanted to go to school, but her mom never allowed her... There is one temple, like a religious place... So, she learned to read there." Her resourcefulness, even in limited circumstances, reflected a refusal to accept exclusion from knowledge as permanent.

After marrying Aye's father, who worked at a bank in a different city, Aye's mother remained the primary caregiver. Still, she sought financial independence. "So, my mom's life was so poor, so she did not want to stay at home. So, she has a very small grocery store, and then she can sell food, and then she sells vegetables. So, we have groceries." For her, access to stability meant creating income autonomously, even while raising four children mostly on her own.

This emphasis on education and self-sufficiency became central to how she raised her children. Despite having little formal education herself, she pushed all four of her children to study hard. If the results did not meet her standards, Aye recalled her mother would punish the children by hitting their palms with a stick, with the number of strikes corresponding to the number of points they missed. Aye's early educational experience was influenced by inadequate school support and fear of punishment from her mother and brother. Aye described her struggle: "I do not understand anything what teacher said... My brother, he always got good scores, and then he said, 'You do not know

how to do that.' He taught me one time and two times, and then he is angry. He's been mad. I do not understand. My tears... I forgot because I was scared of him."

Even in this emotionally difficult environment, her mother actively sought solutions. When a skilled math teacher moved into their neighborhood, she paid for tutoring: "my mom knew that I was weak at math... so that is why she gave the teacher money... and then I can overcome it because he teaches really well." This targeted support helped Aye gain confidence and overcome her fear of math. Eventually, all four children in the family were admitted to university. Aye studied physics, while her brothers pursued engineering, math, and international relations.

These stories reflect how Aye's access to education, confidence, and mobility was not granted by systems but actively built through the labor and foresight of women in her family. While formal institutions, schools, work structures, and even families limited women's options, her grandmother and mother modeled an alternative: self-agency as a strategy for seeking integration in a new cultural context for survival. Their actions created pathways that were not designed for women, and Aye inherited not just their struggles but also their strategies. This intergenerational agency became the foundation from which she later navigated life in Malaysia and the United States. When Aye recounted the stories of her grandmother and mother, it became clear that structural constraints on women's autonomy often necessitated migration as a means of survival and child-rearing. Within this process, what these women sought was not belonging, but access to resources, safety, and opportunities. The intergenerational self-pursuit of integration emerged as a form of legacy, passed down through maternal lines.

### **3.2. Constrained choices, strategic negotiation: Aye's migration journey through Malaysia and the United States**

Aye's migration journey was shaped not by displacement in the conventional refugee sense but by a constellation of structural exclusions, gendered family obligations, and health-related precarity that left her with few viable choices. Her story illustrates how access to education, income, legal protection, and healthcare must be negotiated relationally and strategically, rather than assumed through formal pathways like citizenship or refugee status.

After completing 2 years of university in Burma, Aye's education was abruptly halted by national unrest. "I studied for 2 years," she recalled, "after that we [had] big

conflicts and then school closed for about 3 years. Because they strike people... people cannot gather, and they are not allowed to be in groups." Although the institution had shut down, Aye continued to support her family by working in a bamboo weaving factory while attending online classes, eventually completing her degree.

Even after earning an accounting diploma through a British Embassy program and working as an accounting assistant, with a salary three times higher than her previous job, Aye still could not meet her mother's medical needs. As the only daughter, she felt a deep personal obligation to care for her. "Because I am close to my mom, she suffered all the time. So, I do not want to see it... If she has no money, she cannot go to the doctor, has no medicine, and has no treatment." To generate more income, Aye migrated to Malaysia through an employment agency and took a job in a factory as a human resource assistant. Her salary was again triple what she had earned in Burma. She explained: "so I keep some money, so my salary is higher, my mom got more, but she always said, I have no money, no money, I need this, I need this... So, it made me go to another country... that is why I went to Malaysia."

Her life in Malaysia, however, was defined by legal and social constraints. During the week, workers were not allowed to leave the factory. Though weekends offered the chance to go outside, Aye typically chose to work extra shifts for double pay: "I work Monday to Friday, and Saturday and Sunday, I work extra... So I do not have break time." For 2 years, she worked nearly nonstop, her health gradually deteriorating as a result.

Eventually, Aye developed a serious kidney condition. A doctor warned her that she would need dialysis. But without legal residency or health coverage, Malaysia could no longer offer her access to care. Returning to Burma was equally impossible. "If I go back to my country, I cannot make money... [If I stayed in Malaysia] with no legal permit, people will put me into jail... Some girls were sent to Thailand... a lot of undocumented people, especially women, were made into sex workers." Her reflection reveals the compound vulnerabilities faced by undocumented women in transit states, vulnerabilities intensified by gender, class, and health.

To avoid both detention and untreated illness, Aye made a difficult decision: she married a man with refugee status to gain protection and relocate to the United States. "So I chose the second option," she said. "It was a risky decision for my marriage, but I made it to support my family." Strikingly, after arriving in the United States, her

condition improved rapidly, "After I got married, I got better... I recovered."

Aye's narrative reveals how access is the defining concern of refugee and migrant life. Her trajectory was shaped not by a linear path to integration but by successive negotiations: leaving school, moving abroad, working under exploitative conditions, and entering a strategic marriage. These decisions were not purely personal; they were shaped by the interplay of national policy, gendered responsibility, and bodily vulnerability. Her story underscores that survival and dignity for migrant women often depend not on formal rights or recognition, but on contextual, improvised, and high-risk strategies to maintain access to protection, income, and health.

### 3.3. Reclaiming agency through access: A new chapter of freedom and purpose

Aye's journey in the United States highlights the ongoing efforts of women to gain meaningful access to work, independence, safety, education, and a voice in society to achieve a sense of belonging. Her story illustrates that even after migrating to another country, the gendered constraints of the country of origin often persist within the household. Confronted with external societal barriers and internal gendered expectations, it is ultimately access to employment opportunities that provides women with a path to reclaim their identity and independence.

In 2011, Aye migrated to the United States. Initially, the migration to the United States seemed to offer stability. She gave birth to two children and became a housewife, adhering to her husband's wishes. Yet, she felt confined and disconnected. "I could not speak or understand English," she recalled, "so I could not see my future." When her husband proposed that she work while he stayed home, Aye eagerly accepted, finding purpose in factory work. But this shift was temporary; when he tired of domestic life, she was expected to return to the home. Still, the period of work ignited something in her: a sense of possibility through independence, not submission.

Their marriage reflected a deeper cultural conflict, which comes from her country of origin. Aye, raised in a city with a lineage of independent women, challenged her husband's rural, patriarchal expectations. "I told my husband, you should marry a countryside girl because they listen to whatever you say... Look at me, not that way." Her resistance, especially around cooking and obedience, eventually led to a rupture. One day, after an argument, her husband left. "I said, go ahead," she recalled. "And I did not know... I went to the market. When I came back, he was no more at home. He was gone, really gone."

At first, the abandonment devastated her. "I cry. One day, two days, three days, I cry, cry. I feel like people think your husband left you, so they are gonna think it is my fault." But after this initial shock, she experienced something transformative. "And after that – no. I am free right now." Her realization echoed across her life: from childhood confinement to labor restrictions in Malaysia, and now, to full autonomy. "When I lived with my parents, no outside... when I was in Malaysia, we cannot go out after 9 p.m.... after getting married, 24 h stay home... So, I got my freedom. I was so happy."

With this freedom, Aye mobilized her agency. She turned to a local church for housing support and drew from her savings to care for her children. When her children returned to school, she sought work and found a position as a teaching assistant at an NGO supporting refugee children. This job gave her not only income but also a sense of belonging and a safe environment for her children. "I was so happy," she reflected. "They helped me."

Still, her new life was filled with complex challenges. As a single mother, Aye had to leave her young children at home alone while she worked, which led to significant safety risks. This concern was echoed by other participants in the focus group, many of whom were parents limited to low-wage jobs with long hours, leaving them unable to care for their children after school. Aye described a frightening incident involving her child being home alone, "One day, my son used the microwave for instant noodles... and maybe he did not pour water. Smoke came out... the neighbor asked, 'Where is your mom?'" Incidents like this forced Aye to reflect deeply on the difficulty of balancing parenting and employment on her own.

In 2020, after 2 years of her husband's leaving, he contacted her about returning. "He called me again and again," Aye said. Though hesitant, she agreed, not from dependence, but for her children's safety. She explained, "I did not want him, but my children need somebody." His return was on new terms: no longer did he expect obedience, and Aye continued to make her own decisions. Her narrative reflected a clear shift in power, "Because I got freedom, right?" she said. "Now I can do what I want."

Aye obtained her citizenship in 2015, despite gaining legal citizenship, Aye's sense of identity in the United States remained unsettled. She described herself not as a resident, but a "guest." "Honestly, I am like a guest... If I had grown up here, I would have been familiar with the culture." She praised the country for its safety and support, "I have always appreciated Americans..."

they provided us with a lot,” but continued to feel socially peripheral. Her daily struggles, buying drinks, navigating stores, and joining workplace events became reminders of linguistic and cultural dissonance. “I feel like shame,” she admitted. “I want that color, but I do not know the name.”

Although Aye experienced a lack of belongingness, she remains hopeful about the future. This hope stems from the access she has gained to self-actualization, through education, she envisions professional advancement; through employment, she achieves economic independence. These forms of access empower her to look forward with optimism. While the experience of being an outsider remains part of her everyday life, the hope brought by access allows her to continue living with resilience and purpose.

## 4. Discussion

### 4.1. Reframing integration through access and agency

Aye's life story highlights that integration for refugee women is not primarily about emotional belonging or cultural assimilation, but about meaningful and equitable access to education, employment, healthcare, safety, and autonomy. Her identification as a “guest” despite formal citizenship captures the enduring disconnect between legal status and lived inclusion. This echoes broader migration literature (Bosniak, 2006; Ullah *et al.*, 2021), which shows how structural exclusion persists even when surface-level indicators of integration are achieved.

Rather than seeking symbolic belonging, Aye's narrative reveals an ongoing pursuit of functionality, stability, and self-determination. Access becomes the means through which dignity, survival, and future-building are negotiated. Her story shows that refugee integration cannot be fully understood without considering material realities, job access, child care, safety, language barriers, and how these are navigated daily.

### 4.2. Intergenerational resilience and feminized survival

A significant finding from this research is the intergenerational transmission of female agency. From her grandmother's urban migration to her mother's informal education and income generation, and Aye's own trajectory across countries and jobs, women in her family consistently resisted structural and cultural constraints by strategically pursuing access. These actions were not framed as acts of empowerment in abstract terms but as urgent and practical responses to exclusion.

This legacy supports Ullah and Chatteraj's (2023) notion of the “feminization of survival,” whereby women adapt and persist through socially sanctioned responsibilities, often invisible, yet creatively transform hardship into opportunity. Aye's use of marriage as a strategy for legal protection, her shift from submissive housewife to a working single mother, and her re-negotiation of marriage terms upon her husband's return reflect resistance embedded within necessity.

### 4.3. Gendered constraints and conditional empowerment

A central finding of this study is the cyclical and relational nature of constraint and empowerment. Aye repeatedly gained access through education, jobs, and networks, only to face new gendered expectations, especially within the household. Her initial empowerment through factory work in the United States was reversed when her husband required her to return to unpaid domestic labor. Similarly, her children's needs led her to allow her estranged husband back into the home, not out of personal dependence, but as a strategic decision.

This highlights a critical insight: access and autonomy for refugee women are often conditional, shaped by familial roles, health, and social stigma. Empowerment, therefore, is non-linear and often negotiated within constrained environments rather than emerging from absolute freedom or policy support.

### 4.4. Reclaiming integration through action, not identity

The study also shows that while Aye's sense of social belonging remained tenuous, her narrative conveys a strong sense of purpose and transformation. Rather than internalizing marginalization, she actively constructed a life of meaning through work at a refugee-serving NGO, parenting, and continued learning. This affirms the importance of shifting from belonging-based to access- and action-based models of integration.

Her transformation from dependency to self-definition, “I am free now,” did not stem from external validation but from functional access to resources and the ability to make decisions. Her hope for the future stems not from acceptance by others but from control over her own trajectory.

### 4.5. Limitations

This study is based on a single narrative, which naturally limits its generalizability. While Aye's story provides in-depth, context-rich insight into the lived experience of a Burmese refugee woman, it should not be viewed as representative of all refugee women's trajectories.

Individual narratives are shaped by unique personal, cultural, and social contexts.

However, the use of triangulated methods, including focus groups and participant observation, helps contextualize Aye's experience within broader patterns among Burmese refugee women. Common challenges identified across participants include unsafe housing, low-wage employment, cultural stigma, and caregiving burdens. These shared struggles underscore the relevance, though not the universal applicability, of Aye's narrative.

Narrative inquiry values depth over breadth, prioritizing the complex, situated ways in which individuals interpret and respond to structural conditions. This study contributes not definitive claims but a deep, embodied account that can inform more grounded understandings of integration policy and gendered vulnerability.

## 5. Conclusions

This study has illuminated how the migration journey of a Burmese refugee woman, Aye, reflects the gendered contours of exclusion and survival in the context of forced migration and resettlement. Through an in-depth narrative analysis, it reveals that access to education, employment, legal protection, and healthcare is a more immediate and enduring concern for refugee women than symbolic belonging or formal citizenship. Aye's story underscores how refugee women draw upon intergenerational legacies of agency to navigate constrained environments, often relying on relational and strategic decisions to maintain autonomy and sustain their families.

The findings challenge dominant models of integration that emphasize emotional or cultural assimilation, advocating instead for a rights-based, access-oriented framework that centers material conditions and structural inclusion. Aye's experience shows that empowerment is neither linear nor guaranteed by legal status but emerges through the ongoing negotiation of access under gendered, institutional, and social constraints.

While limited in scope, the study provides a rich, grounded account that contributes to understanding the lived realities of refugee women. It calls for integration policies and support systems that recognize women's practical needs and caregiving responsibilities and offer flexible, reliable pathways to self-determination. For refugee women like Aye, integration is not only about being welcomed but also about being able to flourish.

## Acknowledgments

We would like to thank the Burmese refugee community members for sharing their experiences and insights.

We also acknowledge the support of the Bridge of Hope organization and the local community partners who made this study possible.

## Funding

None.

## Conflict of interest

The authors declare that they have no competing interests.

## Author contributions

*Conceptualization:* All authors

*Data curation:* All authors

*Formal analysis:* Jue Wang

*Investigation:* All authors

*Methodology:* All authors

*Writing—original draft:* Jue Wang

*Writing—review & editing:* Lan Kolano

## Ethics approval and consent to participate

The study protocol was approved by the Institutional Review Board of the University of North Carolina at Charlotte (Approval ID: IRB-23-0623). Informed consent was obtained before data collection, and pseudonyms were employed to protect participant anonymity.

## Consent for publication

The participant provided informed consent for their data to be used in this study and published in anonymized form. Consent was obtained through both verbal and written processes, during which the participant was informed about the purpose of the research, how the data would be used, and their right to withdraw at any time. The participant was also made aware that, although her identity would remain confidential through the use of pseudonyms and the removal of identifying details, her narratives and experiences might be quoted or described in published materials.

## Availability of data

Due to the sensitive nature of the data and the confidentiality agreement with participants, the datasets generated and/or analyzed during the current study are not publicly available.

## References

- Burke, R. (2022). Reimagining language in higher education. *Opening up the University: Teaching and Learning with Refugees*, 5:220-233.
- Burke, R., Baker, S., Hartley, L., & Field, R.S. (2023). What do we know about how women with forced migration experiences

- access tertiary education in resettlement contexts? A scoping study. *Gender and Education*, 35(3):215-233.  
<https://doi.org/10.1080/09540253.2022.2147488>
- Çağatay, N., & Erturk, K. (2004). Gender and globalization: A macroeconomic perspective. International Labour Office Working Paper. 19. Available from: [https://webapps.ilo.org/static/english/integration/download/publicat/4\\_3\\_204\\_wcsdg-wp-19.pdf](https://webapps.ilo.org/static/english/integration/download/publicat/4_3_204_wcsdg-wp-19.pdf)
- Chattoraj, D., & Gerharz, E. (2019). Strangers at home: Narratives of northern Muslim returnees in post-war Sri Lanka. *Sri Lanka Journal of Social Sciences*, 42(2):113-126.  
<https://doi.org/10.4038/sljss.v42i2.7686>
- Chattoraj, D. (2022). Mobilities and home: The notion of becoming insiders among the Sri Lankan Northern Tamil IDPs in Colombo. *Mobilities*, 17(4):616-631.  
<https://doi.org/10.1080/17450101.2021.1920338>
- Campbell, S.C. (2018). What's a sundial in the shade: Brain waste among refugee professionals who are denied meaningful opportunity for credential recognition. *Emory LJ*, 68:139.
- Castles, S. (2017). The challenges of international migration in the 21<sup>st</sup> century. In: Citizenship Education and Global Migration: Implications for Theory, Research, and Teaching. p3-21. Available from: <https://www.torrossa.com/en/resources/an/5328006#page=48>
- Earth, B., & Sthapit, S. (2002). Uterine prolapse in rural Nepal: Gender and human rights implications. A mandate for development. *Culture, Health and Sexuality*, 4(3):281-296.  
<https://doi.org/10.1080/13691050110090248>
- Elliott, J. (2005). Using Narrative in Social Research: Qualitative and Quantitative Approaches. London: Sage Publications.
- Fleury, A. (2016). Understanding Women and Migration: A Literature Review. KNOMAD WORKING PAPER 8. Available from: <http://www.atina.org.rs/sites/default/files/KNOMAD%20Understaning%20Women%20and%20Migration.pdf>
- Gálvez, D.A. (2023). Challenges of Migrant and Refugee Women in Local Integration Processes: Case of Venezuela And Colombia "Welcome All." Proceedings of The Global Conference on Women's Studies. Available from: <https://doi.org/10.33422/womensconf.v1i1.77>
- Gadamer, H.G. (2004). Truth and Method (2<sup>nd</sup> rev. ed., J. Weinsheimer & D. G. Marshall, Trans.). New York: Continuum.
- Gilroy, P. (2000). Against Race: Imagining Political Culture Beyond the Color Line. Cambridge: Harvard University Press.
- Gubrium, J.F., & Holstein, J.A. (1997). The New Language of Qualitative Method. Oxford: Oxford University Press.
- Hartley, L., Baker, S., Fleay, C., & Burke, R. (2019). My study is the purpose of continuing my life: The experience of accessing university for people seeking asylum in Australia. *Australian Universities' Review, The*, 61(2):4-13.
- Iglesias, J., Villaseñor, G.C.E., & Pardo-Carrascal, A.M. (2022). "To the South, Always to the South". Factors shaping refugee's socio-economic integration in Spain. *Journal of Immigrant and Refugee Studies*, 21(3):457-470.
- Kabeer, N. (2021). Gender equality, inclusive growth, and labour markets. In: Women's Economic Empowerment. London: Routledge. p13-48.
- Koyama, J. (2015). Constructing gender: Refugee women working in the United States. *Journal of Refugee Studies*, 28(2):258-275.  
<https://doi.org/10.1093/jrs/feu026>
- Lieblich, A., Tuval-Mashiach, R., & Zilber, T. (1998). Narrative Research: Reading, Analysis, and Interpretation. London: Sage Publications.
- Pittaway, E., & Bartolomei, L. (2001). Refugees, race, and gender: The multiple discrimination against refugee women. *Refugee*, 19(6):21-32.  
<https://doi.org/10.25071/1920-7336.21236>
- Plummer, K. (1995). Telling Sexual Stories: Power, Change and Social Worlds. London: Routledge.
- Plummer, K. (2001). The call of life stories in ethnographic research. In: Handbook of Ethnography. London: SAGE Publications Ltd. p395-406.
- Priddy, G., Doman, Z., Berry, E., & Ahmed, S. (2022). Gender-based violence in a complex humanitarian context: Unpacking the human sufferings among stateless Rohingya women. *Ethnicities*, 22(2):215-232.  
<https://doi.org/10.1177/14687968221078373>
- Riessman, C.K. (2008). Narrative Methods for the Human Sciences. London: Sage Publications.
- Saldaña, J. (2016). Goodall's verbal exchange coding: An overview and example. *Qualitative Inquiry*, 22(1):36-39.  
<https://doi.org/10.1177/1077800415603395>
- Ullah, A.A., & Chattoraj, D. (2023). Unraveling gender dynamics in migration and remittances: An empirical analysis of asian women's "exposure to migration". *Genealogy*, 8(1):4.  
<https://doi.org/10.3390/genealogy8010004>
- Ullah, A.A., Hasan, N.H., Mohamad, S.M., & Chattoraj, D. (2021). Privileged migrants and their sense of belonging: Insider or outsider? *Asian Journal of Social Science*, 49(3):161-169.  
<https://doi.org/10.1016/j.ajss.2021.03.004>
- UN's International Organization for Migration. (2024). World

Migration Report 2024. Available from: <https://publications.iom.int/books/world-migration-report-2024>

United Nations Women. (2024). Women on the Move: FAQs on Migration and Gender. Available from: <https://www.unwomen.org/en/articles/faqs/women-on-the-move-faqs-on-migration-and-gender>

Walsh, K. (2006). Dad says I'm tied to a shooting star! Grounding (research on) British expatriate belonging. *AREA*, 38(3):268-278.

<https://doi.org/10.1111/j.1475-4762.2006.00687.x>

Westwood, S., & Phizacklea, A. (2000). *Trans-nationalism and the Politics of Belonging*. U.K: Psychology Press.

## RESEARCH ARTICLE

HopeScape: Redesigning public spaces for  
women and girls in South African citiesKiara Rampaul\* and Hangwelani Hope Magidimisha-Chipingu

Department of Town and Regional Planning, Faculty of Built Environment and Development Studies, University of KwaZulu-Natal, Durban, KwaZulu-Natal, South Africa

**Abstract**

Inclusive public spaces are essential for fostering community engagement, social interaction, and equitable access, yet women and girls often encounter challenges such as safety concerns and limited amenities that restrict their participation. This study introduces the HopeScape model—a framework developed through a mixed-methods approach that integrates insights from international case studies (Vienna and Tunis) and local examples (Durban Beachfront, People’s Park, and the Watershed at the V&A Waterfront). Key indicators, including accessibility, safety, identity, and multifunctionality, were identified to help address these challenges. The findings highlight significant gaps in South African public spaces, particularly regarding safety and inclusivity for women and girls. By synthesizing global best practices with local insights, the HopeScape model offers actionable strategies for creating safe, accessible, and inclusive public spaces, contributing to equitable urban development.

**\*Corresponding author:**Kiara Rampaul  
(k.rampaul1811@gmail.com)

**Citation:** Rampaul, K. & Magidimisha-Chipingu, H.H. (2025). HopeScape: Redesigning public spaces for women and girls in South African cities. *International Journal of Population Studies*. 11(6): 92-115.  
<https://doi.org/10.36922/ijps.5813>

**Received:** November 7, 2024**1st revised:** May 10, 2025**2nd revised:** May 24, 2025**Accepted:** June 23, 2025**Published online:** August 6, 2025

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher’s Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**Keywords:** Inclusive public spaces; Women and girls; Urban planning; Safety and accessibility

**1. Introduction**

Public spaces are frequently upheld as vital arenas of democracy, social interaction, and cultural expression—sites where people from different backgrounds come together to engage, move, rest, or protest (El-Bardisy, 2024). These spaces are integral to urban life, not only as physical infrastructure but also as symbolic reflections of societal values and power dynamics. However, the lived realities of women and girls within public spaces often contradict the rhetoric of inclusivity. Around the world, and particularly in South Africa, women and girls face a range of obstacles that limit their ability to safely and confidently access and occupy public spaces (Ralane, 2023). Harassment, surveillance, physical violence, and social exclusion form a continuum of threats that render many public environments inaccessible or hostile to their participation (Turner & Swaine, 2023). As a result, their rights to the city—including mobility, visibility, and belonging—are repeatedly curtailed.

In South African cities, these dynamics are intensified by the enduring spatial legacies of apartheid, which produced highly fragmented and unequal urban landscapes (Béni-Gbaffou & Todes, 2024; Harrison *et al.*, 2023). Public spaces in affluent areas tend to be well-resourced, landscaped, and maintained, whereas those in historically marginalized communities are underdeveloped, unsafe, or altogether absent (De Souza e Silva *et al.*,

2023; Lemanski & Smit, 2023). The spatial and symbolic divide reflects and reinforces gendered and class-based inequalities, creating barriers to equitable public space use (Bennet & Rupprecht, 2024). While urban policies may gesture toward inclusivity, prevailing planning practices continue to operate on assumptions of user neutrality, often overlooking the differentiated needs, fears, and aspirations of women and girls in particular (Kitchin *et al.*, 2023; Parnell & Pieterse, 2024). The absence of gender-disaggregated data, participatory planning mechanisms, and inclusive tools exacerbates this oversight, limiting the potential for truly equitable urban design (Matsinhe *et al.*, 2024).

This article responds to the critical recognition of gender inequality in public spaces as a central urban justice issue rather than a peripheral concern (Schwanen & Zuniga-Teran, 2023). It introduces the HopeScape model—a conceptual and applied framework developed to guide the inclusive design and evaluation of public spaces in South African cities through a gender-sensitive lens. Grounded in empirical research, site observations, interviews, and perception surveys in Cape Town and Durban—combined with comparative global best practice analysis—the model distills six key indicators of inclusivity: safety and security, accessibility, identity and expression, multifunctionality, inclusive amenities, and clear signage and wayfinding. Each indicator addresses both the material and symbolic dimensions of exclusion often faced by women, offering practical criteria for transforming these environments into spaces of dignity and empowerment (Rampaul & Magidimisha-Chipungu, 2022).

At the core of the HopeScape model lies the fundamental recognition that safety—encompassing freedom from violence, harassment, and fear—is essential for women's ability to access and fully enjoy public spaces (Georgi *et al.*, 2021). In this model, safety is not treated as a discrete or isolated element but is deeply embedded within broader spatial dynamics, including the quality of infrastructure, esthetic considerations, and opportunities for cultural expression that public spaces provide (Rigon & Castan Broto, 2021). Accessibility is reconceptualized beyond mere physical mobility—it encompasses social and psychological ease of use, recognizing that women's experiences of public space are shaped by perceptions of inclusion or exclusion, comfort, and trust (Drey, 2022). Identity and expression within the HopeScape model refer to the extent to which diverse users feel represented, welcomed, and free to occupy public space freely without fear of judgment, exclusion, or symbolic erasure.

The model is both aspirational and pragmatic—it avoids utopian ideals, focusing instead on the lived experiences and needs of users who have historically

been marginalized or excluded from spatial design processes (Rampaul & Magidimisha-Chipungu, 2022). HopeScape provides a practical vocabulary and actionable framework that enables planners, architects, policymakers, and communities to critically assess and reimagine the inclusivity of existing and proposed public spaces. The concept intentionally reframes public space as a terrain of possibility where hope, visibility, and empowerment can be cultivated through thoughtful, participatory, and equitable design interventions (Gugerell & Penker, 2023).

Although international literature has advanced calls for gender-responsive urban design, most notably exemplified in Vienna's progressive planning strategies, empirical research originating from African urban contexts remains limited. Existing South African studies have predominantly focused on women's experiences in informal settlements and transportation infrastructures (Teffo, Earl & Zuidgeest, 2019; Meth, 2010), leaving formal and highly symbolic public spaces such as waterfronts, promenades, civic plazas, and recreational parks largely understudied. These formal public spaces are precisely where issues of visibility, belonging, and symbolic inclusion are most intensely negotiated and contested (Brown-Luthango, 2016). This article addresses this critical gap by investigating how women interact with and are shaped by these spaces, drawing on case studies from Cape Town and Durban to reveal prevailing patterns of exclusion alongside strategies for transformative change.

This research aims to shift dominant models in South African urban planning by advocating for a feminist reorientation of space making—one that centers the everyday lived experiences of women and girls and insists that public space is as much about justice, identity, and hope as it is about infrastructure. Through the HopeScape model, this article contributes a grounded and forward-looking framework to ongoing debates on spatial equity, participatory design, and gender-inclusive urbanism within the Global South.

## 1.1. Theoretical background

### 1.1.1. Understanding public spaces

Public spaces are foundational to the spatial, social, and cultural life of cities. They function as platforms for democratic engagement, sites of cultural expression, and stages for everyday social interaction. In an increasingly fragmented urban landscape, public space offers rare opportunities for unplanned, cross-cultural encounters that foster a sense of belonging and urban identity (Gehl, 2010). These spaces include parks, plazas, sidewalks, and transit corridors—each playing diverse roles in shaping the urban experience. Public spaces support relaxation,

mobility, cultural events, informal economies, and political expression, and are essential to the vitality and cohesion of urban life (Wilson & Wanjiku-Kihato, 2023; Zhang *et al.*, 2024).

The value of public space lies not only in its physical structure but in its ability to facilitate inclusion, access, and shared experiences. Recent research has moved beyond viewing public spaces as passive containers for activity, instead positioning them as active arenas of social reproduction and spatial justice (Benny *et al.*, 2024; Dovey & Pafka, 2023). In this framing, public spaces are dynamic territories where power, identity, and rights are constantly contested and negotiated. Their design and management reflect broader social hierarchies and can either reinforce exclusion or serve as tools for empowerment and integration.

Effective public spaces are intentionally designed to be inclusive, safe, and multifunctional. Universal accessibility is a fundamental principle ensuring that children, elderly individuals, people with disabilities, and other often-overlooked groups can safely and meaningfully participate in public spaces (Lawton Smith, 2023). The provision of amenities such as seating, shade, toilets, lighting, and safe pedestrian infrastructure has been identified as crucial to the everyday usability of these spaces (Biddulph *et al.*, 2023). Research increasingly emphasizes the intersectional dynamics of exclusion, noting that women, girls, informal workers, and lesbian, gay, bisexual, transgender, queer, and other (LGBTQ+) individuals experience public space differently due to real and perceived threats of violence, surveillance, and discrimination (Rodríguez *et al.*, 2025; Viswanath & Kamath, 2023).

South African cities present a particularly complex terrain for the evolution of public space. The spatial legacies of apartheid persist in the urban form, with patterns of segregation, unequal infrastructure provision, and socio-spatial fragmentation still visible in public environments (Rampaul & Magidimisha-Chipungu, 2022; Visagie & Turok, 2023). Despite the constitutional commitment to spatial justice, many public spaces in townships, informal settlements, and peri-urban areas remain underfunded, insecure, or inaccessible—reflecting enduring patterns of marginalization. Public space is often the only accessible form of “common” infrastructure available to lower-income communities, serving as sites for informal trade, childcare, spiritual activity, and recreation (Lombard & Rakodi, 2023). Inclusive public spaces are critical in cities of the Global South where high levels of inequality, informality, and youth unemployment intersect with rapid urbanization. The notion of spatial justice, widely adopted in post-apartheid urban policy discourse, demands that public space be planned not only as a site of service

delivery or beautification but also as a strategic lever for social transformation (Sutherland & Anderson, 2024). Research by UN-Habitat (2023) reinforces the idea that the design of safe, accessible, and participatory public space contributes directly to urban resilience, social cohesion, and gender equity.

Recent global and African urban policy frameworks, including the New Urban Agenda, Africa’s Agenda 2063, and South Africa’s Integrated Urban Development Framework, have underscored the importance of inclusive public space as central to sustainable, equitable development. These frameworks emphasize not only the physical design of public space but also governance processes that foster community participation, co-management, and long-term stewardship (South African Cities Network [SACN], 2023; UN-Habitat, 2023).

Public space must be understood as a barometer of democracy and urban equity. When designed and governed inclusively, public space becomes more than just a void between buildings—it becomes a generative site of hope, solidarity, and transformation (Wilson & Wanjiku-Kihato, 2023). Conversely, when neglected or securitized, it can reinforce urban exclusion and deepen social divides. In this light, reimagining public space is not simply a design challenge, but a deeply political act.

### 1.1.2. Defining inclusivity

Inclusivity refers to the intentional creation of environments where all individuals—regardless of gender, race, age, disability, or socioeconomic status—can participate fully, safely, and meaningfully. In the context of public spaces, inclusivity goes beyond physical accessibility to encompass safety, representation, cultural relevance, and equal access to urban amenities and opportunities (Benny *et al.*, 2024; Lawton Smith, 2023). Inclusive public spaces actively respond to the diverse experiences and needs of city residents, creating environments that foster dignity, belonging, and mutual respect (Rodríguez *et al.*, 2025).

As cities become more diverse and unequal, the imperative for inclusive design has grown. Recent global frameworks, including the UN-Habitat Global Public Space Toolkit (2023) and the New Urban Agenda, explicitly identify inclusive public space as foundational to achieving just, resilient, and sustainable cities. Inclusive design is not merely about compliance or accessibility audits—it is a rights-based, user-centered approach that challenges planners, designers, and policymakers to interrogate who public spaces serve and who they exclude (SACN, 2023; UN-Habitat, 2023). The aim is to dismantle physical, social, and psychological barriers that hinder participation and reinforce urban marginality (Dovey & Pafka, 2023).

Principles of inclusive design emphasize engaging a diversity of users during all stages of planning and implementation, including women, children, persons with disabilities, informal traders, and LGBTQ+ communities—groups often sidelined in traditional urban processes (Wilson & Wanjiku-Kihato, 2023). Co-design and participatory planning are essential approaches that enable residents to actively shape spaces in ways that reflect their lived experiences and cultural identities (Biddulph *et al.*, 2023; Nagle & Cloke, 2024). This participatory ethos builds on longstanding theories of human-centered design, such as those by Gehl (2010), while addressing the structural exclusions embedded in many urban environments.

The materiality of public space—such as benches, lighting, signage, pathways, and restrooms—can either invite or deter participation. Research shows that gender-sensitive infrastructure, safe walkways, multi-generational play areas, and clear sightlines dramatically improve perceived and actual safety, especially for women, children, and older people (Lawton Smith, 2023; Viswanath & Kamath, 2023). Public space design must consider temporality and adaptability, allowing spaces to support diverse uses at different times of day and across different seasons (Benny *et al.*, 2024). Inclusivity in public space design is a political and ethical commitment. It challenges spatial practices that reproduce inequality and affirms the right of all people to shape and occupy the city. In this way, inclusive design not only improves usability but also actively contributes to social justice, collective well-being, and democratic urban life (Sutherland & Anderson, 2024; UN-Habitat, 2023).

### 1.1.3. Defining inclusive public spaces

Inclusive public spaces are intentionally designed to meet the different needs, preferences, and identities of those who use them. These spaces are distinguished by their accessibility, safety, and inclusion, which foster a sense of belonging and involvement among users from diverse backgrounds. Inclusive public spaces prioritize fair access to resources, facilities, and opportunities—ensuring that everyone, regardless of age, gender, ability, or socioeconomic background, can fully participate in and benefit from the place. They emphasize not only physical accessibility but also the social and cultural components of inclusion, with the goal of creating spaces in which everyone feels welcomed, valued, and respected. These spaces may include diverse programming, facilities, and architectural aspects that reflect the interests and preferences of many user groups, fostering a sense of community and social cohesion (Gehl, 2010).

Inclusive public spaces are planned and designed using universal design principles and indicators, to reduce

obstacles to participation while increasing the comfort and convenience of all users (Newman, 1972). These may include amenities such as accessible walkways, seating areas, restrooms, signage, lighting, landscaping, and wayfinding features to improve the overall usability and enjoyment of the space (Carr *et al.*, 1992). Cities that prioritize inclusion in public space design and management create environments that promote social equity, well-being, and quality of life for all residents and visitors (Whitzman *et al.*, 2014). Inclusive public spaces play a vital role in fostering connections, interactions, and community resilience, all of which contribute to the overall livability and sustainability of urban settings (UN-Habitat, 2020).

### 1.1.4. The importance of inclusive public spaces

Inclusive public spaces play a crucial role in advancing social equity, fostering community cohesion, and enhancing the overall quality of life in urban environments. These spaces serve as vital arenas for social interaction, leisure, and cultural expression, providing diverse populations with opportunities to connect, share experiences, and engage meaningfully with their urban surroundings (Benny *et al.*, 2024; Gehl, 2010). Recent empirical research confirms that access to well-designed, inclusive public spaces positively correlates with improved physical health, enhanced mental well-being, increased social capital, and greater satisfaction with urban life (Lawton Smith, 2023; Rodriguez *et al.*, 2025).

Beyond individual benefits, inclusive public spaces contribute significantly to the economic viability of cities. They attract visitors, stimulate local commerce, and often lead to increases in property values and neighborhood desirability (Biddulph *et al.*, 2023; Wilson & Wanjiku-Kihato, 2023). By providing equitable access to safe and welcoming environments, these spaces enable people of all ages, abilities, and socioeconomic backgrounds to fully participate in public life. This fosters meaningful social encounters that break down cultural and social barriers, challenge stereotypes, and cultivate a strong sense of belonging and mutual respect among diverse urban residents (Sutherland & Anderson, 2024; Viswanath & Kamath, 2023).

In the South African context—marked by historical spatial segregation, persistent inequality, and fragmented urban form—the creation and stewardship of inclusive public spaces are not only urgent but transformative (SACN, 2023; UN-Habitat, 2023). Safe, accessible, and culturally inclusive public spaces play a critical role in addressing past injustices by facilitating social integration, empowering marginalized groups, and strengthening the resilience and equity of urban communities (Nagle & Cloke, 2024).

Cities that actively invest in inclusive public space design and management are better equipped to nurture social inclusion, promote community well-being, and enhance the overall urban experience for all citizens. The strategic prioritization of inclusive public spaces represents more than a matter of social justice—it is a fundamental element of sustainable urban development. Such investments yield tangible returns in health outcomes, economic vibrancy, and social harmony, thereby making cities more vibrant, resilient, and livable for current and future generations (Benny *et al.*, 2024; UN-Habitat, 2023).

### **1.1.5. Demonstrating the need for inclusive public spaces**

The problems and disparities that continue to persist in urban contexts, particularly in South African cities, highlight the need for inclusive public spaces. A thorough literature study and empirical studies revealed that access to safe, accessible, and inclusive public spaces is not only desired, but also necessary for tackling multiple social, economic, and environmental challenges (UN-Habitat, 2020). In South Africa, as in many other countries, urbanization, rapid population growth, and spatial disparities have contributed to the spread of informal settlements, inadequate infrastructure, and restricted access to essential services (Turok, 2014). These spatial inequities have exacerbated social fragmentation, exclusion, and marginalization—particularly among vulnerable groups, including women, children, and older persons.

Literature indicates that traditional approaches to public space design and management have frequently perpetuated these inequities, with many public spaces characterized by poor upkeep, insufficient amenities, and limited accessibility. As a result, women and girls, in particular, encounter major impediments in accessing and enjoying public spaces, including safety concerns, harassment, and inadequate amenities. According to previous studies, exclusionary public spaces can intensify social tensions, reinforce existing inequalities, and hamper efforts to create cohesive and resilient urban communities (Whitzman *et al.*, 2014). In contrast, inclusive public spaces can foster social cohesion, encourage social interaction, and cultivate a sense of belonging and ownership among diverse urban populations (UN-Habitat, 2016). Therefore, the need to design and maintain inclusive public spaces is evident. Cities that prioritize inclusion in public space design and management may address structural disparities, foster social cohesion, and provide welcoming, safe, and accessible environments for all residents, regardless of age, gender, or socioeconomic position.

## **2. Data and methods**

### **2.1. Research design**

This study employed a mixed-methods approach to investigate the barriers that women and girls encounter in accessing and enjoying public spaces, and to develop actionable strategies for fostering inclusivity through the HopeScape model. The mixed-methods approach combined qualitative and quantitative techniques to capture a comprehensive understanding of public space dynamics, drawing on both empirical evidence and theoretical insights.

The qualitative component involved an in-depth analysis of case studies, interviews with key stakeholders (e.g., urban planners, policymakers, and community members), and field observations. This approach helped to uncover nuanced experiences, perceptions and needs specific to women and girls in diverse urban settings. The international case studies—such as those in Vienna and Tunis—were selected for their recognized practices in inclusive public space design, serving as benchmarks for comparison. The local case studies—Durban Beachfront, People's Park, and the Watershed at the V&A Waterfront—provided contextual insight into inclusivity in South African cities.

The quantitative component included the use of spatial data and safety audits to assess the physical and functional aspects of public spaces. Key indicators, such as accessibility, safety, identity, and multifunctionality, were measured and compared across different sites.

By integrating qualitative and quantitative methods, this research ensures a holistic examination of the factors that influence the inclusivity of public spaces. The mixed-methods design also facilitates triangulation, enhancing the reliability and validity of the findings. This comprehensive approach aligns with the study's objective of proposing a practical and evidence-informed framework for inclusive urban design in South Africa.

### **2.2. Data collection**

The data collection process involved gathering information from both primary and secondary sources to provide a robust foundation for the development of the HopeScape model.

#### **2.2.1. Case study selection**

The research employed a multi-scalar approach by selecting both international and South African case studies to critically assess inclusive public space design practices. Internationally, Vienna (city of Austria) and Tunis (city of Tunisia) were chosen for their notable commitment to gender-sensitive planning and participatory urbanism.

Vienna, often cited as a pioneer in gender mainstreaming within urban design, has implemented a range of interventions aimed at making public spaces safer, more accessible, and responsive to the needs of women and marginalized groups. Similarly, Tunis provides a valuable counterpoint from the Global South, where initiatives aimed at reclaiming urban space for women have gained momentum despite complex sociopolitical constraints. These global case studies were selected not only for their progressive frameworks but also for their potential adaptability to emerging contexts such as South Africa.

On the domestic front, the Durban Beachfront, People's Park in Durban, and the Watershed at the V&A Waterfront in Cape Town were selected for their spatial diversity and urban significance. These sites represent a cross-section of urban environments that experience high public footfall, cater to diverse user groups, and face varying socio-spatial challenges. The Durban Beachfront, for instance, serves as a high-use recreational corridor intersecting with informal trading and tourism, while People's Park has emerged as a family-oriented green space embedded within a stadium precinct. The Watershed at the V&A Waterfront presents a commercially vibrant, privately managed public realm within a historically significant urban quarter.

Case study selection was informed by several criteria, including scale of use, demographic diversity, spatial complexity, and the presence or absence of infrastructural provisions for safety, accessibility, and inclusivity. Collectively, these case studies offer a grounded framework for examining how inclusive design principles are interpreted, contested, and operationalized across different urban scales and governance models.

### **2.2.2. Primary data collection**

To gain empirical insights into the lived experiences of users—particularly women and girls—in public spaces, a combination of qualitative and spatial methodologies was employed during the primary data collection phase. Field observations were conducted at the three South African case study sites over multiple periods, including weekdays and weekends, to capture dynamic usage patterns, levels of pedestrian activity, and spatial behavior. Observational checklists were used to document physical features such as seating, lighting, surveillance infrastructure, as well as indicators of social interaction, informal economic activity, and perceived safety. These observations enabled the mapping of exclusionary zones, underutilized areas, and points of conflict or vulnerability.

Complementing the observational data, semi-structured interviews were conducted with a range of stakeholders, including municipal urban planners,

local policymakers, safety officers, non-governmental organization representatives, and community-based organizations. These interviews focused on understanding the conceptualization of inclusivity, the challenges of implementation, and the lived experiences of those who navigate and engage with public spaces daily. Special attention was given to eliciting narratives from women, caregivers, youth, and traders, whose voices are often underrepresented in planning processes. The integration of professional and community perspectives facilitated a deeper analysis of both policy intentions and everyday practices, revealing the persistent disparities between design and experience.

### **2.2.3. Secondary data collection**

Secondary data collection was instrumental in contextualizing the primary research and framing it within broader planning and policy paradigms. An extensive review of existing urban development policies, gender mainstreaming guidelines, spatial development frameworks, and municipal safety strategies was conducted to identify the extent to which inclusivity is embedded in South Africa's planning discourse. These documents were analyzed for their normative content and for the operational mechanisms through which inclusive design is implemented or constrained within the governance apparatus.

Academic literature provided further analytical grounding, with peer-reviewed articles, evaluation reports, and comparative studies offering insights into both successful and contested models of public space design. Emphasis was placed on literature that critically engaged with themes of gender, spatial justice, and urban inequality, particularly within post-colonial and post-apartheid contexts. In addition, spatial data—such as base maps, zoning information, and geographic information systems datasets—were utilized to assess connectivity, proximity to transport nodes, walkability, and the spatial distribution of amenities. This geospatial layer of analysis helped triangulate findings from the field and literature, enabling a more robust understanding of physical access and spatial integration in the case study areas.

### **2.2.4. Data documentation and organization**

All data were systematically recorded, coded, and categorized using thematic analysis for qualitative data and statistical tools for quantitative data. This structured approach ensured consistency in identifying patterns and drawing meaningful conclusions across the case studies.

## **2.3. Ethical considerations**

This study was conducted in full compliance with the highest ethical standards to safeguard the integrity of

the research process and uphold the rights and dignity of all participants. Ethical clearance was obtained from the Humanities and Social Sciences Research Ethics Committee of the University of KwaZulu-Natal, with formal approval granted on March 24, 2024. This approval confirmed that the research protocol aligned with institutional and national guidelines governing responsible academic inquiry involving human subjects.

To ensure ethical rigor throughout the study, several key principles were carefully implemented. Informed consent was obtained from all participants after they were provided with comprehensive information regarding the study's objectives, methodology, and their rights—including the right to decline participation or withdraw at any stage. Consent forms were completed before interviews and other data collection activities to document voluntary agreement.

Confidentiality was rigorously maintained by anonymizing participants' identities and securing all data in password-protected formats, accessible only to the research team. Participation was entirely voluntary, with no form of coercion or obligation imposed on individuals or organizations. The research process was also designed to be culturally sensitive, with particular care taken to respect the values, norms, and contexts of the diverse communities engaged, especially in South African urban settings.

These ethical safeguards ensured that the research was not only methodologically sound but also socially responsible, reflecting a commitment to human rights, transparency, and respect for all stakeholders involved in the study.

## 3. Empirical findings

### 3.1. Insights from international case studies: Lessons for inclusive design

This study was conducted in two stages, providing a comprehensive evaluation of approaches to inclusive public space design. The first stage involved a detailed analysis of policies and frameworks implemented in international contexts, focusing on Vienna and Tunis. These policies were then compared to South Africa's existing policies to evaluate their alignment with the goal of enhancing inclusivity in public spaces. The second stage built upon this analysis by exploring specific initiatives in these regions to identify practical strategies and lessons that could inform local applications.

Vienna emerges as a pioneer in gender-sensitive urban planning, with policies emphasizing inclusivity through data-driven approaches. The city has developed and implemented frameworks that prioritize accessibility,

safety, and diversity in public spaces. Initiatives such as the *Frauen-Werk-Stadt* housing project integrate features such as well-lit walkways, inclusive amenities, and areas designed for diverse activities. These measures address the unique needs of women and girls while promoting broader community engagement. Vienna's policies reflect a strong commitment to embedding inclusivity within formal urban planning processes, making it a valuable model for South Africa.

The Tunisian case highlighted community-driven efforts to improve public space inclusivity despite limited resources. Policy analysis revealed a focus on empowering local communities to transform underutilized areas into vibrant public hubs. This bottom-up approach is characterized by direct engagement with women and girls, ensuring their perspectives shape the design and functionality of these spaces. Tunis' policies underscore the importance of leveraging community participation and cultural contexts to achieve meaningful improvements in public space inclusivity.

The comparative analysis revealed that while South Africa has made strides in policy development, there is a need for more integrated and gender-sensitive frameworks. Drawing lessons from Vienna's structured urban planning and Tunis' grassroots initiatives, South Africa can adopt a hybrid approach that combines formal policy interventions with community-driven solutions. This dual focus offers the potential to address barriers to inclusivity and create public spaces that are safe, accessible, and welcoming to all users, particularly women and girls.

Table 1 presents the international case studies of inclusive public spaces and the relevant variables.

#### 3.1.1. Vienna: The feminist city with a female face

Vienna, often referred to as the "feminist city" or the "city with a female face," has emerged as a global leader in gender-sensitive urban planning and inclusive public space design. This distinction is attributed to the city's innovative policies and practical implementations that prioritize inclusivity and equity. Vienna was selected as a case study for this research due to its exemplary integration of gender perspectives into urban planning, providing valuable lessons for South African cities striving to improve their public spaces.

Central to Vienna's success is the pioneering work of urban designer Eva Kail, whose contributions have shaped the city's approach to creating gender-inclusive public spaces. Kail's advocacy for integrating gender mainstreaming into urban planning has set a global standard, demonstrating how urban landscapes can be designed to meet the diverse needs of all residents (Kail, 2005). Gender mainstreaming in Vienna involves

**Table 1. International case studies of inclusive public spaces**

Variables	The city of Vienna, Austria	The city of Copenhagen, Denmark	The city of Tunis, Tunisia
Principles of inclusivity in planning and design of public space	Incorporates gender mainstreaming in urban planning to create spaces that meet the needs of all genders. Emphasizes lighting, clear sightlines, and surveillance to enhance safety, particularly for women. Ensures public spaces are accessible to everyone, including individuals with disabilities and parents with strollers. Public spaces should reflect and celebrate the diversity of the community, including distinct cultural expressions.	Places strong emphasis on community involvement in the design process to ensure public spaces align with local needs. Designs are made adaptable for various activities, fostering social interaction and community building. Incorporates green spaces and sustainable materials to improve environmental quality and usability. Integrate design elements that cater to all ages, abilities, and backgrounds, ensuring inclusivity.	Implement specific initiatives, such as the Femmedina program, aimed at transforming public spaces to be more welcoming for women. Measures such as improved lighting and enhanced visibility are introduced to increase safety for women and girls. Spaces are designed to respect and reflect local cultural contexts and practices. Facilities include clean public restrooms, seating areas, and play spaces for children.
Legislative framework	<ul style="list-style-type: none"> <li>(i) Gender Mainstreaming Ordinance: Mandates the integration of gender perspectives in all urban planning projects to ensure inclusivity.</li> <li>(ii) Vienna Women's Office (Frauenbüro): Established to oversee the implementation of gender-sensitive policies and projects in urban development.</li> <li>(iii) City of Vienna's Urban Development Plan: Includes specific guidelines for creating gender-sensitive and inclusive public spaces.</li> </ul>	<ul style="list-style-type: none"> <li>(i) Copenhagen Municipal Plan: Highlights community involvement and sustainable development, ensuring public spaces meet the needs of a diverse population.</li> <li>(ii) Strategic Framework for Sustainable Development: Focuses on inclusive and sustainable urban growth, including the design of multifunctional public spaces.</li> <li>(iii) Local Government Act: Supports citizen participation in urban planning processes to ensure spaces reflect community needs.</li> </ul>	<ul style="list-style-type: none"> <li>(i) The Femmedina program: An initiative aimed at transforming public spaces to be more inclusive for women, supported by local legislation.</li> <li>(ii) National Strategy for Gender Equality: A framework that promotes gender equality in all aspects of public life, including urban planning.</li> <li>(iii) Municipal Law on Public Spaces: Provides regulations that guide the design and maintenance of inclusive public spaces in urban areas.</li> </ul>
Thematically deductive lessons for South Africa	<ul style="list-style-type: none"> <li>(i) Implementing gender-sensitive urban planning ensures public spaces meet the needs of all genders. The Vienna Women's Office plays a pivotal role in incorporating gender perspectives in urban projects, resulting in safer and more accessible public spaces for women and girls.</li> <li>(ii) Designing public spaces with safety in mind—such as installing well-lit pathways and ensuring open sightlines—enhances the sense of security for women and girls. Vienna's approach to integrating safety measures in public space design serves as a model for creating environments where all users feel safe.</li> </ul>	<ul style="list-style-type: none"> <li>(i) Emphasizing community involvement in urban planning fosters a sense of ownership and ensures that public spaces reflect the needs of diverse groups. The Copenhagen Municipal Plan and Strategic Framework for Sustainable Development highlight the importance of citizen participation in creating multifunctional, inclusive spaces.</li> <li>(ii) Integrating sustainability with inclusivity ensures that public spaces are not only accessible and welcoming but also environmentally friendly. Copenhagen's Strategic Framework for Sustainable Development exemplifies how these principles can be combined, demonstrating how urban spaces can be both inclusive and sustainable.</li> <li>(iii) Designing public spaces to serve multiple functions caters to the diverse needs of urban populations. Examples from Copenhagen show how spaces can simultaneously support recreation, social interaction, and community events, making them more inclusive and vibrant.</li> </ul>	<ul style="list-style-type: none"> <li>(i) Programs such as the Femmedina program demonstrate the impact of targeted initiatives in transforming public spaces to be more inclusive for women. These programs, supported by national strategies for gender equality, underscore the importance of focused efforts to address specific needs within urban planning frameworks.</li> <li>(ii) The integration of gender equality policies within the municipal framework ensures that inclusivity remains a core consideration in urban development. The National Strategy for Gender Equality in Tunisia provides a strong policy basis for creating public spaces that accommodate the needs of women and girls.</li> </ul>

Source: Rampaul & Magidimisha-Chipungu (2022).

systematically evaluating and addressing the varying demands and behaviors of men and women during the planning, design, and development stages of public

spaces. This proactive approach includes gender impact evaluations to ensure that new initiatives are inclusive from their inception (Kail, 2005).

The city's urban design principles prioritize accessibility for all, including people with disabilities, the elderly, and parents with strollers. Public spaces feature wide walkways, ramps, seating areas, and other amenities designed to make them comfortable and navigable for everyone (Förster, 2016). For example, parks and recreational spaces have been reimagined to include facilities catering to diverse age groups and needs—from play areas for children to quiet zones for older adults. These efforts foster a sense of belonging and ensure that no demographic feels excluded or marginalized.

Safety is another cornerstone of Vienna's inclusive design philosophy. Recognizing that women and girls often face heightened vulnerabilities in urban settings, the city has implemented measures such as enhanced lighting, clear sightlines, and the deployment of security personnel to create safer environments (Kail, 2013). These interventions are crucial in mitigating the fear of crime, enabling women and other vulnerable groups to participate more actively in community life.

A defining feature of Vienna's approach is its emphasis on participatory planning. The city engages communities through public consultations, workshops, and seminars to ensure that the voices of diverse stakeholders are incorporated into urban design decisions (Förster, 2016). This inclusive process not only enhances the relevance of public spaces but also strengthens community ownership and trust in local governance.

For South Africa, Vienna offers a robust model of gender-sensitive urban planning that is both practical and adaptable. The city's systematic use of data, community engagement, and targeted safety measures provides transferable insights that can inform the design of more inclusive public spaces in South African cities. By adopting similar strategies, such as gender impact evaluations and participatory design processes, South African urban planners can address the barriers that limit women's access to public spaces and create environments that are equitable and welcoming for all. Vienna's success illustrates that a city designed with a "female face" benefits not only women but society as a whole, offering a powerful example of how inclusive urban planning can transform communities.

### **3.1.2. Tunis: The Femmedina program as a model for inclusive public spaces**

Tunis has become a notable case study in the global conversation on inclusive urban planning, largely due to the Femmedina program—an initiative focused on transforming public spaces in the historic medina of Tunis to better meet the needs of women and girls. This program exemplifies a targeted effort to address gender

inequality in the use of public spaces and serves as a model for other cities seeking to enhance inclusivity in urban environments. The Femmedina program was developed in response to growing recognition that women in Tunisian cities—particularly in densely populated areas such as the medina—often face multiple barriers to fully engaging with public spaces. These barriers include safety concerns, lack of amenities, and limited consideration of women's needs in the design and maintenance of urban environments. The program's core objective was to reimagine public spaces to be gender-responsive, ensuring that these spaces promote social interaction, enhance safety, and improve accessibility for all, particularly for women and girls (Jabeen, 2020).

The Femmedina program adopts a participatory planning approach, wherein women are not merely consulted but are actively involved in the design and transformation of their urban environments. Local women, community groups, and women's organizations played an integral role in identifying the challenges they faced in the public realm. Issues such as inadequate lighting, poorly maintained streets, and a lack of spaces for social gatherings were highlighted as key obstacles to women's engagement with public spaces (Soraganvi *et al.*, 2021). In response, the Femmedina program implemented several interventions, including improved street lighting, the introduction of new public amenities, safer walking routes, and community-led cleaning initiatives. These improvements aimed to address the immediate needs of women while also promoting a greater sense of ownership and community involvement. The success of these efforts is evident in the increased use of public spaces by women, particularly after dark, following the installation of enhanced lighting and security measures (Soraganvi *et al.*, 2021). This has had the added benefit of making these spaces more accessible for people of all genders and ages, reinforcing the idea that designing public spaces for women ultimately benefits the entire community (Jabeen, 2020).

One of the key lessons from the Femmedina program is the importance of community engagement and participation in the planning process. By directly involving women in decision-making, the program ensured that implemented changes aligned with their needs and lived experiences. This participatory model fostered a sense of empowerment among women, who were able to witness the tangible outcomes of their involvement. Another important lesson is the need for a multifaceted approach to urban design. The program demonstrated that improving public spaces requires more than physical modifications—it also demands attention to the social and cultural dimensions that shape public space usage (Soraganvi *et al.*, 2021).

The inclusion of safety measures, such as the installation of surveillance cameras and the involvement of local security forces, played a critical role in shifting perceptions of safety in public spaces, especially for women. The program also addressed urban obstacles such as narrow walkways and poor street maintenance, which previously limited women's mobility and engagement in public spaces (Jabeen, 2020). Furthermore, the Femmedina program's success highlights the need for continuous maintenance and long-term urban planning to ensure sustainability. Urban spaces must remain adaptable to the evolving needs of communities, and the program's flexible, ongoing approach provides a valuable model for other cities (Soraganvi *et al.*, 2021).

The Femmedina program offers invaluable insights into how cities can better design public spaces to meet the diverse needs of their populations, particularly women. The lessons drawn from this initiative are applicable to other contexts, including South African cities, where safety, accessibility, and gender inclusivity in public spaces remain pressing concerns. The program's participatory model can serve as a crucial step toward creating urban environments where all members of society—regardless of gender—feel safe, valued, and included (Soraganvi *et al.*, 2021). By applying these lessons, urban planners can design spaces that not only promote social interaction but also foster a sense of community and equality. Ultimately, the Femmedina program exemplifies the transformative power of inclusive design and highlights how reimagining public spaces can contribute meaningfully to broader social goals, such as gender equity and empowerment (Soraganvi *et al.*, 2021).

### 3.2. South African perspective and local case studies

South Africa's urban planning history is deeply intertwined with the legacy of apartheid, which deliberately barred and marginalized women and non-white populations from public spaces. Apartheid-era spatial planning strategies have imposed segregation, resulting in urban landscapes that are not only racially separated but also markedly unequal in terms of access to amenities and opportunities (Turok, 2014). This historical background has had a lasting influence on South African cities, making the development of inclusive public spaces increasingly vital in the post-apartheid era.

The abolition of apartheid in 1994 marked a turning point in the pursuit of more inclusive and equitable urban environments. Subsequently, South African urban policy began to prioritize redressing historical injustices and promoting social inclusion. Key regulations and procedures were introduced to guide the planning and

development of inclusive public spaces. The 2013 Spatial Planning and Land Use Management Act (SPLUMA) is an important legislative framework aimed at promoting equitable and coordinated urban development (Harrison *et al.*, 2008). Furthermore, the National Development Plan 2030 emphasizes the importance of inclusive cities in which all individuals, regardless of gender or ethnicity, have access to safe and welcoming public spaces (Newman, 1972).

South Africa's public space policy framework represents a comprehensive and evolving approach to urban planning and development. It seeks to create inclusive, accessible, and safe public spaces for the country's diverse population. Rooted in the nation's struggle against apartheid and its ongoing commitment to democracy, this framework aims to redress historical spatial inequalities and enhance the social, cultural, and economic well-being of all citizens. According to the United Cities and Local Governments (UCLG, 2017), the framework aims to encourage cities to develop localized, citywide public space policies, raise awareness of local governments' roles in public space development, and maximize the benefits of public space at the local level.

Unlike comprehensive policy interventions, a public space policy framework provides a strategic and adaptable plan for local governments to translate high-level objectives—such as those outlined in the Sustainable Development Goals—into context-specific actions. The framework reflects the country's dedication to designing and managing public spaces that foster community engagement, cultural expression, and economic development. This approach acknowledges the critical role that public spaces play in promoting social cohesion and providing opportunities for diverse socioeconomic activities. The framework also serves as a guide for municipal governments, positioning public space as a central axis of urban development. Grounded in research and best practices, this approach treats public space as a catalyst for urban growth, underpinned by principles of equity, public involvement, accessibility, openness, efficiency, justice, and accountability. These values are essential in developing citywide public space implementation plans.

The importance of utilizing public spaces for the public good has long been recognized in South African policy discourse. In South Africa, public spaces have the potential to function both as sites of increased exposure to violence and crime and as powerful tools for fostering social cohesion. This duality is particularly relevant given South Africa's historical context and the persistence of inequality and poverty. Urban theorist Jane Jacobs argued that thoughtful design can foster a sense of safety and discourage crime and aggressive behavior (Jacobs, 1961).

Table 2 provides a brief overview of key policies and strategies supporting area-based violence prevention interventions, with a focus on environmental design, social violence prevention, and the development of sustainable, safe public spaces. It also outlines the lead departments responsible for their implementation. These policies and initiatives demonstrate how to activate public spaces by making social interactions transparent and inclusive. They emphasize the importance of multi-level stakeholder participation at various stages of intervention, aligning with a range of developmental goals.

### 3.2.1. South African public space gender equality policies

South Africa has made significant strides in promoting gender equality in public spaces through various policies and legislative frameworks. These efforts are essential for addressing the historical injustices and spatial inequalities created during the apartheid era. The following policies and frameworks are key to advancing gender equality and inclusivity in South African public spaces:

- (i) Constitution of the Republic of South Africa (1996): This document is the cornerstone of democracy in the

Table 2. Conceptual framework for maximizing the public space dividend

Government department	Policy strategy	Relevant sections	Key considerations
Inter-departmental strategy team comprising the Departments of Correctional Services, Defense, Intelligence, Justice, Safety and Security, and Welfare.	National Crime Prevention Strategy (1996)	Pillar 2: Reducing crime through environmental design.	Emphasizes that the causes of violence and crime must be disaggregated to enable effective preventive interventions, as different types of crimes have distinct causes and therefore require tailored solutions.
Department of Social Development	Integrated Social Crime Prevention Strategy (2011)	Relevant strategic objectives: (i) Facilitating targeted, collaborative partnerships with other government departments and civil society organizations. (ii) Promoting sustainable institutional mechanisms within communities. (iii) Improving the social fabric and cohesion within families. (iv) Ensuring investment in preventive and early intervention services that provide long-term benefits.	(i) Provides a rationale to enable government departments to respond to crime-related issues in a coordinated and targeted manner by addressing the root causes of crime. (ii) Emphasizes the importance of implementing crime prevention measures by government departments, communities, civil society organizations, community-based organizations, and the general public.
Multiple departments; the Civilian Secretariat for Police Service to coordinate and facilitate	White Paper on Safety and Security (2016)	(i) Section 7.1.2: Early intervention to prevent crime and violence and promote safety. (ii) Section 7.1.5: Safety through environmental design. (iii) (iii) Section 7.1.6: Active public and community participation.	(i) Highlights the importance of preventive interventions aimed at reducing the social, economic, and environmental risk factors. (ii) Suggests that building safer communities requires evidence-based initiatives that address underlying risk factors at the individual, relationship, community, and societal levels.
Department of Cooperative Governance	Integrated Urban Development Framework (2016)	(i) Cross-cutting issue: Urban safety within the main objective of creating safe and livable urban spaces. (ii) Policy Lever 3: Integrated Sustainable Human Settlements. (iii) Policy Lever 7: Empowered Active Communities.	(i) Promotes the integration of crime and violence prevention initiatives into urban planning. (ii) Emphasizes that public infrastructure should foster a sense of belonging and that municipalities must provide quality public spaces where citizens feel valued.
Department of Women, Youth, and Persons with Disabilities	National Strategic Plan on Gender-Based Violence and Femicide (2020)	Relevant key initiatives: (i) Changing social norms and behaviors through high-level awareness-raising and prevention campaigns. (ii) Strengthening existing architecture and promoting accountability. (iii) Creating opportunities for women and youth who are vulnerable to abuse as a result of poverty.	(i) Focuses on comprehensively and strategically responding to gender-based violence and femicide by providing a multi-sectoral, coherent strategic policy and programming framework. (ii) Highlights the importance of having an inter-generational, youth-friendly approach that is co-created for different social contexts.

Source: Adapted from UCLG (2017).

country. It emphasizes the rights to equality, human dignity, and freedom, laying a strong foundation for gender equality. Section 9 of the Constitution specifically prohibits discrimination on the grounds of gender, sex, and other characteristics, thereby mandating the creation of inclusive public spaces that do not marginalize any group (Republic of South Africa, 1996).

- (ii) The White Paper on National Policy for Gender Equality (1998) aims to promote gender equality across all sectors, including urban planning and public space design. It emphasizes the need for gender-sensitive policies and practices to create environments that cater to the needs of women and girls. This policy framework has been instrumental in guiding municipalities and urban planners in incorporating gender considerations into their designs (Department of Women, 1997).
- (iii) SPLUMA (2013): SPLUMA provides a comprehensive framework for spatial planning and land use management in South Africa. One of its key objectives is to promote spatial justice and equity, ensuring that public spaces are inclusive and accessible to all. SPLUMA mandates municipalities to consider the needs of different gender groups in their spatial development frameworks and land use schemes (Republic of South Africa, 1996).
- (iv) The National Development Plan (NDP) 2030: The NDP 2030 outlines a vision for South Africa's future, emphasizing the importance of inclusive cities. It calls for the creation of public spaces that are safe and accessible for all, with specific attention to the needs of women and girls. The plan advocates for urban environments that promote social cohesion and inclusivity, recognizing that these elements are critical for the overall development of the country (National Planning Commission, 2012).
- (v) The Gender Policy Framework for Local Government (2011): This framework provides guidelines for local governments to mainstream gender into their policies, programs, and activities. It highlights the importance of designing public spaces that cater to the needs of women and girls, ensuring their participation in public life. The framework calls for the incorporation of gender-responsive budgeting and planning processes to create inclusive public spaces (Republic of South Africa, 1996).

These policies collectively form a robust framework that guides the creation of inclusive public spaces in South Africa. They ensure that gender considerations are integrated into urban planning and design processes, addressing the specific needs of women and girls. The

HopeScape model builds on these policies by providing a practical approach to designing inclusive public spaces that reflect the principles of gender equality and inclusivity. The World Economic Forum (WEF) has tracked global progress toward narrowing the gender gap since 2006 (The World Economic Forum, 2023). This index—the longest-running of its kind—measures global progress toward gender parity. The metrics are reviewed annually, and the most recent study reveals that, at the current rate of development, gender equality will take another 132 years to achieve (The World Economic Forum, 2023).

South Africa supports the aforementioned WEF global policies and has consequently developed local strategies to facilitate policy implementation and attainment. The right to equality is guaranteed under South Africa's Constitution, regardless of gender, color, religion, or sexual orientation. This has led to the development of a human rights-based legal framework capable of addressing and combating gender disparity across the country. In 2020, the National Strategic Plan (NSP) on Gender-Based Violence and Femicide was released. According to a preface by President Cyril Ramaphosa, South Africa is one of the most dangerous places in the world for women. Power (2020) notes that the COVID-19 pandemic worsened this situation, as services for individuals affected by gender-based violence were disrupted by lockdown restrictions, and incidents of gender-based violence surged due to “stay-in-place” orders that trapped women in unsafe homes.

The NSP encompasses a wide range of national measures, all of which are linked in some way to gender equality. Without detailing each component, it is evident that gender remains a central priority on South Africa's agenda. Nevertheless, progress has been uneven and slow. The large number of policies, culminating in the 2020 NSP, demonstrates South Africa's capacity to develop strong frameworks, yet also reveals its persistent challenges in implementation and effective administration.

The Constitution of the Republic of South Africa, established in 1996, forms the foundation of the country's gender equality policy framework. It enshrines the principle of gender equality, prohibits gender discrimination, and acknowledges the need for affirmative action to address past gender-based injustices. In line with its authority over the national gender program, the Presidency requested Cabinet approval of the policy framework developed by the Office on the Status of Women. Originally titled *South Africa's National Policy Framework for Women's Empowerment and Gender Equality*, this document is now referred to as the Gender Policy Framework. The Gender Policy Framework provides crucial assessment and monitoring mechanisms, with key indicators including: improved access for women

to economic resources; increased earning power and participation in the economy; reduced vulnerability to social injustices such as poverty, human immunodeficiency virus/acquired immunodeficiency syndrome, and violence; greater representation in political decision-making; shifts in societal attitudes toward women and recognition of their value; and increased access to professional opportunities. These metrics serve as performance indicators that support the advancement of gender equality.

### **3.2.2. Local case studies: Insights into inclusive design in South Africa**

In exploring how policies and inclusive design translate into practice, the present study selected three local case studies: the Durban Beachfront, People's Park in Durban, and the Watershed at the V&A Waterfront in Cape Town. These spaces were chosen to provide insights into the current state of public space design and use in South Africa, and to highlight both the successes and challenges in creating inclusive public environments. The choice of these locations was strategic, as they represent a mix of urban, recreational, and cultural settings that each offer unique opportunities and challenges for inclusive design. While all three case studies have been actively involved in efforts to improve public space accessibility, each also presents distinct characteristics that reveal how inclusive design principles can differ depending on context.

The Durban Beachfront, a major public space located along the city's coastline, serves as a popular recreational destination for both locals and tourists. It is a space with substantial foot traffic and a variety of amenities, making it a key focal point for community engagement and tourism. Despite its popularity, the beachfront has faced challenges related to safety and accessibility, especially for women and girls. According to the survey, while lighting and amenities have improved in recent years, safety concerns persist after dark, which significantly undermine the inclusivity of the space. In particular, women report feeling unsafe in certain areas at the beachfront after sunset due to inadequate lighting and isolated spaces. This safety concern is a critical issue when considering how accessible a public space truly is, as it directly impacts the ability of certain groups—particularly women, children, and the elderly—to freely and safely use the space. Although the city has made efforts to improve the physical infrastructure of the beachfront, these ongoing safety concerns suggest the need for a more comprehensive approach that incorporates both environmental design and community engagement to enhance safety and inclusivity for all users.

People's Park in Durban, located near the city center, offers a distinct contrast to the beachfront, serving as a more

localized park designed with an emphasis on accessibility and the provision of spaces for various community groups. The park is equipped with a variety of facilities, including playgrounds, walking paths, and picnic areas, aimed at providing a safe and accessible environment for all ages and abilities. However, observations during the research indicate that while the park is generally welcoming, it could benefit from enhanced safety measures, particularly around the issue of surveillance and lighting at night. The park's relatively isolated location and lack of constant monitoring can make it feel less secure, especially during off-peak hours. In addition, while the park's amenities cater to diverse interests, it is clear that the park's infrastructure and design elements could be more inclusive, particularly in terms of accessibility for people with disabilities. The need for better integration of accessible pathways, seating arrangements, and more varied social spaces for different user groups (e.g., elderly, children, people with mobility challenges) was emphasized by local community members during consultations. People's Park serves as a valuable case study in demonstrating how public spaces can cater to the needs of a diverse population, but it also highlights the importance of addressing safety concerns and ensuring that accessibility features are fully integrated into the design.

The Watershed at the V&A Waterfront in Cape Town presents a stark contrast to the other two case studies. It is an example of a revitalized urban space that successfully combines economic, cultural, and recreational activities in a way that strives to be inclusive of a broad range of users, including women and girls. The Watershed is a contemporary public space that incorporates retail outlets, restaurants, exhibition spaces, and open areas for leisure, making it an attractive destination for both locals and tourists. Its design places significant emphasis on accessibility, with clear signage, well-lit spaces, and a variety of services that meet the needs of diverse groups. The incorporation of these features makes the Watershed a model for inclusive public space design in South Africa. The space not only caters to the physical needs of users by ensuring accessibility for people with disabilities and families with young children, but it also considers the social inclusivity of its design. The inclusion of community-driven events, cultural exhibitions, and recreational activities ensures that the space remains engaging and welcoming for all groups. Furthermore, the presence of security personnel and surveillance cameras has contributed to a perception of safety that has helped encourage more women and girls to frequent the space, particularly during the evening. The Watershed exemplifies how inclusive design can be successfully integrated into commercial and recreational spaces, showing that inclusivity does not have to be at odds with economic development.

Through the analysis of these three local case studies, key takeaways regarding the actual use of inclusive design concepts in South African public spaces were identified. One of the most important lessons is the need for comprehensive safety measures, particularly in areas with high foot traffic or where users may feel vulnerable. This was evident in both the Durban Beachfront and People’s Park, where safety concerns persist despite improvements in amenities and infrastructure. These findings suggest that a truly inclusive public space must consider not only physical accessibility but also social factors such as safety and community engagement. The second key takeaway is the importance of clear signage and wayfinding, which was successfully implemented in the Watershed but could be improved in both the Durban Beachfront and People’s Park. Effective signage ensures that people with varying abilities can navigate the space easily, and this is especially important in large, complex urban areas. Finally, another key takeaway is the need for accessible services and amenities, which play a significant role in ensuring that public spaces cater to all user groups, particularly those with disabilities and families with young children. These lessons directly influenced the development of the HopeScape model, which aims to design public spaces that are not only physically accessible but also socially inclusive and welcoming to all members of the community.

In summary, the three local case studies selected—each representing a different context and set of challenges—have provided a comprehensive insight into the complexities of designing truly inclusive public spaces in South Africa. The Durban Beachfront, People’s Park, and the Watershed illustrate both the progress made and the areas in need of improvement. Together, these case studies underscore the importance of integrating safety, accessibility, and community engagement into public space design, offering valuable insights that can inform future urban planning practices across the country. By considering the lessons learned from these spaces, South African cities can move towards creating more inclusive public environments that better serve the diverse needs of their populations.

### 3.3. Study findings from local case studies

In this section, the findings from the local case studies are presented in detail, following the earlier discussion of these spaces in the article. These findings provide an in-depth understanding of the current state of public space design and the application of inclusive design principles in South Africa. Through observations, surveys, and analysis of the selected case studies—Durban Beachfront, People’s Park in Durban, and the Watershed at the V&A Waterfront in Cape Town—the study explored how local public spaces are being transformed to better accommodate diverse user

groups, with particular attention to the needs of women, girls, and other vulnerable groups. The findings highlight both the successes and challenges in creating inclusive environments, and offer valuable insights into the key components of inclusive design that can be applied within South African urban contexts.

The study employed a carefully selected set of indicators to evaluate the inclusiveness of public space design in the three case studies. These indicators were developed using international best practices and tailored to the South African environment.

Figure 1 illustrates the survey findings, demonstrating issues beyond safety concerns that limit women and girls’ access to and presence in public spaces in South African cities. Accessibility, transportation, victimization, and a lack of amenities are among the most notable problems that women and girls encounter when participating in urban life.

One particularly poignant testimony from a survey respondent encapsulates the pervasive sense of vulnerability and apprehension experienced by many women and girls in navigating public spaces. One respondent’s remark was, “As a young woman, it feels unsafe to drive alone or even be out with a group of girls, regardless of the time of day. I simply want to feel free and at ease, without the stress of potential dangers.” These words underscore the profound impact that safety concerns and fear of victimization have on individuals’ lived experiences. Such testimonies highlight the daily reality of women and girls who must remain in a constant state of alert and concern while traversing public spaces fraught with potential dangers and threats to their safety. This underscores the critical need for comprehensive initiatives that address not just the physical safety of public spaces, but also the broader sociocultural norms and attitudes that perpetuate gender-based violence and discrimination.

The study’s diagnostic phase provided valuable insights into the existing conditions of public spaces in Durban and Cape Town. Observations and survey data revealed that,

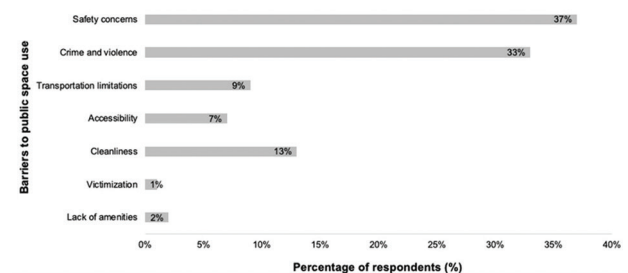


Figure 1. Factors that prevent women and girls from being present in public spaces in South African cities, adapted from survey data

while these spaces are typically well-used, there are notable design and management flaws that impact inclusion and usability for women and girls. The major challenges identified include inadequate safety measures, poor maintenance of facilities, and a lack of attention to women's and girls' needs throughout the planning process. One key finding is the identification of fundamental barriers that prevent women and girls from fully using public spaces in their cities. The primary barriers found through surveys and interviews were crime and violence, which emerged as major concerns among women and girls, with many reporting incidents of harassment, theft, and violence. The fear of crime considerably reduces their presence in public spaces.

Another key finding relates to safety concerns—the pervasive sense of unease in public spaces, particularly after dark, was a significant disincentive to criminal activity. This includes insufficient lighting, a lack of visible security officers, and poorly designed spaces that provide hiding places for potential criminals. During the site visit, several women and girls expressed their concerns and thoughts regarding the public space. A 19-year-old girl shared, “I love coming to the beachfront during the day, but I feel uneasy about being here after sunset. The lack of security measures makes me feel vulnerable, especially when walking alone.” This statement highlights women's and girls' concerns regarding the safety and accessibility of the Durban Beachfront after sunset, emphasizing the need for modifications to improve the evening experience and encourage broader inclusion in the area.

A visitor from another South African city—a 26-year-old woman—expressed her worries about the beachfront:

It's a shame that the beachfront is n't more inviting at night. I live in Johannesburg, and whenever I come to Durban, I love to spend time with my family at the beach. We don't come often, and whenever we do, we try to make the most of the best spot in Durban, the beaches. I would love to enjoy the sea breeze and ocean views in the evening, but the deserted atmosphere makes me feel uncomfortable.

Several major observations were revealed during the evaluation of public spaces in Durban and Cape Town from the perspective of inclusivity for women and girls. The chosen case studies, the Durban Beachfront, People's Park in Durban, and Watershed at the V&A Waterfront in Cape Town, provided a thorough understanding of the current condition and challenges of public space design in South African cities. The Durban Beachfront emerged as a vibrant, highly utilized space during daylight hours. However, the findings revealed a considerable reduction in the number of women and girls after sunset. Safety

concerns, particularly fear of crime and harassment, were identified as significant deterrents. Despite meeting eight of the eleven inclusive design criteria, the facility struggled with insufficient lighting and a lack of visible security measures. One participant said, “I never come here after dark. It's just not safe,” emphasizing the critical need for improved security infrastructure to make the space more inclusive.

People's Park in Durban demonstrated a combination of strengths and areas for improvement. The park's design incorporated various elements aimed at women and girls, such as child-friendly zones and designated safe spaces. However, there were reports of safety concerns and maintenance issues. For example, a woman stated, “The park is nice for the kids, but there should be more security patrols,” demonstrating a disconnect between the design intentions and actual user experiences.

The Watershed at the V&A Waterfront in Cape Town emerged as a prime example of inclusive public space design in South Africa. This case study scored highly across all inclusive design indicators, showcasing effective strategies such as adequate lighting, clear signage, diverse amenities, and a strong sense of community safety. One participant stated, “I feel safe here even at night, and there are plenty of things to do,” demonstrating the successful application of inclusive design principles. The Watershed's positive reception and diversity underscore the importance of comprehensive planning and ongoing maintenance in establishing accessible public spaces. The findings indicate that, while efforts have been made to develop inclusive public spaces in South African cities, significant challenges remain, particularly concerning safety and security. The study's findings emphasize the importance of targeted improvements and evidence-based design approaches to enhance inclusivity in these spaces. These findings underpin the HopeScape model, which seeks to address these gaps by combining best practices and lessons learned from both local and international contexts, thereby fostering more inviting and inclusive public spaces in South African cities.

### 3.4. HopeScape model: Addressing the need for inclusive design in South African public spaces

Public spaces play a crucial role in fostering social interaction, enhancing community cohesion, and improving overall well-being. However, in South Africa, as in many other countries, access to and inclusion in public spaces are often unequal. This inequality can be particularly pronounced for women, girls, and other marginalized groups, who may face physical, social, or safety-related barriers when attempting to use these spaces. Recognizing these challenges, the HopeScape model has emerged as a strategic framework aimed at promoting

inclusivity, accessibility, and safety in public spaces. The model integrates a broad spectrum of influences, drawing from empirical research findings, insights from literature reviews, and indicators derived from successful public spaces both within South Africa and internationally. The HopeScape model is underpinned by the notion that public spaces should cater to the diverse needs of all members of society, with particular attention given to ensuring that women and girls feel safe, included, and empowered in these environments. By focusing on key indicators such as accessibility, safety and security, inclusive amenities, clear signage, wayfinding, and multifunctionality, the model outlines a comprehensive framework to guide urban planners and policymakers. It provides practical strategies for transforming public spaces into areas that foster a sense of belonging, promote social interaction, and improve overall quality of life.

Figure 2 illustrates the HopeScape model, demonstrating how these key indicators interact to create a cohesive and inclusive environment. Through the careful application of these principles, public spaces can be designed to better reflect the needs and aspirations of all community members. The HopeScape model encourages an integrated approach to urban planning, which is crucial for creating cities that are truly inclusive, safe, and vibrant for everyone, regardless of gender, age, or ability.

### 3.4.1. Background and rationale of the HopeScape model

The HopeScape model represents a visionary approach to designing inclusive public spaces that foster hope, empowerment, and a sense of belonging within



Figure 2. The six inclusive design indicators outlined in the HopeScape model

communities across South Africa. The model is founded on the core principle of hope, aspiring to transform urban landscapes into dynamic, welcoming spaces where all individuals—particularly women and girls—can thrive. The HopeScape framework seeks to break down existing barriers to inclusion, promote social cohesion, and enhance the well-being of communities by focusing on accessibility, safety, identity, expression, and inclusive facilities. The HopeScape model envisions a future where public spaces act as catalysts for positive change, encouraging collective prosperity through innovative designs, collaborative efforts, and an unwavering commitment to equality.

The motivation for the HopeScape model stems from the widespread concern regarding the exclusion and marginalization experienced by women, girls, and other vulnerable groups in South African public spaces. In many urban environments, public spaces fail to adequately cater to the diverse needs of all individuals, resulting in feelings of alienation and disempowerment. Therefore, the HopeScape model aims to reimagine the function and purpose of public spaces by addressing these challenges. By recognizing that public spaces should serve as inclusive platforms for all members of society, HopeScape sets out to reshape urban areas in a way that reflects the aspirations, identities, and lived experiences of their residents. Nurturing a sense of optimism and belonging is central to fostering social cohesion and improving quality of life. The HopeScape model underscores the importance of creating environments where people feel safe, valued, and empowered to interact with one another. The model proposes that the design of public spaces must promote not only physical accessibility but also social inclusion. By embedding these principles into public space design and urban policy, HopeScape aims to create spaces that embody diversity, fairness, and inclusion, thereby contributing to more equitable urban access and enhancing the collective well-being of society.

The HopeScape model's inclusive design indicators are drawn from a combination of international best practices and South African case studies. These indicators serve as the foundation for building public spaces that are accessible, safe, and welcoming for all. One key indicator is accessibility, which emphasizes the importance of making public spaces navigable and usable for individuals of all ages, abilities, and mobility levels. This indicator was developed based on a detailed analysis of accessibility data, which revealed that physical barriers remain one of the primary obstacles to public space inclusion in South Africa. To address these challenges, the HopeScape model advocates for universal design principles, inclusive infrastructure, and community engagement to ensure that the needs of diverse users are met.

Another key indicator of the HopeScape model is safety and security, which focuses on addressing concerns related to crime and violence, particularly among women and girls. Surveys and case studies in South Africa revealed that safety remains a significant concern in public spaces, with women often feeling vulnerable, especially in poorly lit or isolated areas. To mitigate these risks, the HopeScape model advocates for the implementation of Crime Prevention Through Environmental Design (CPTED) principles, which focus on creating public spaces that inherently reduce the likelihood of criminal behavior. Measures such as improved lighting, natural surveillance, territorial reinforcement, and security patrols are integral to the framework, alongside fostering collaboration between law enforcement, community organizations, and local residents.

The identity and expression indicator within the HopeScape model highlights the importance of public spaces reflecting the diverse identities of the community. A critical aspect of inclusivity is ensuring that public spaces are not only functional but also culturally and socially representative. This indicator draws from research suggesting that women, girls, and other marginalized groups feel more connected to spaces that represent their values, identities, and histories. The HopeScape model encourages the integration of design elements that allow for self-expression and recognition of diverse identities, ensuring that public spaces become places where all individuals can feel seen and heard.

Inclusive amenities also play a vital role in the HopeScape framework. The inclusive amenities indicator stresses the need for public spaces to provide a wide range of facilities that cater to diverse needs. From children's play areas to seating for the elderly, accessible toilets, and safe, welcoming rest areas, the provision of these amenities enhances the experience of public spaces and promotes greater inclusivity. The findings of this study revealed that spaces with diverse amenities, such as the Watershed at the V&A Waterfront in Cape Town, are perceived as more inclusive and functional by the public. Amenities that support community interaction, recreation, and relaxation are integral to creating public spaces that are accessible to all, regardless of age or ability.

The clear signage and wayfinding indicators emphasize the importance of navigational aids in public spaces. Clear, easy-to-read signs and intuitive wayfinding systems make public spaces more accessible and reduce barriers for those with limited mobility or unfamiliarity with the area. Effective signage not only improves navigation but also enhances users' safety and overall experience. The Watershed case study further demonstrated how well-

placed signage can increase accessibility and reduce confusion for visitors, particularly those with special needs or those visiting for the first time. In line with this, the HopeScape model suggests that wayfinding should be incorporated into the public space design to make it more welcoming and easier to navigate for all users.

The multifunctionality indicator advocates for the design of public spaces that can accommodate a variety of activities and cater to the diverse interests of different user groups. Public spaces should not be static or one-dimensional but should evolve to support multiple purposes, such as recreation, cultural expression, economic activity, and social gatherings. By adopting multifunctional design principles, public spaces become more versatile and inclusive. International examples, such as New York City's Bryant Park and Copenhagen's Superkilen, demonstrate how multifunctional spaces can successfully serve diverse needs, and similar principles are being applied in South African contexts like the People's Park in Durban and the Watershed in Cape Town.

Incorporating these indicators into the design and planning of public spaces will help to create environments that foster inclusivity, safety, and social cohesion, thereby improving the overall quality of life in urban areas. The HopeScape model provides a comprehensive framework for urban planners, designers, and policymakers to create spaces that truly serve the needs of all community members, with a focus on ensuring that marginalized groups, such as women and girls, have equal access to the benefits of public space. Through its emphasis on accessible design, safety, identity, and multifunctionality, HopeScape sets a path for creating public spaces that are not only functional but also empowering, welcoming, and inspiring.

### **3.4.2. The six circles of HopeScape**

The HopeScape model offers a visual and conceptual model that encapsulates the key elements required to create inclusive public spaces. This model is structured around six core design indicators, each represented by a circle. The circular design was chosen to symbolize wholeness, interconnectedness, and the idea that these elements work in harmony to create a balanced, inclusive public space. The circles are visually arranged in a way that each element reinforces the others, suggesting that the success of one is dependent on the presence and strength of the others. The framework encourages a holistic approach to urban planning, where no single element is prioritized over the others, and each contributes to the larger goal of inclusivity.

#### **(a) Safety and security (red circle)**

The red circle represents urgency and alertness. Safety and security are foundational to the success of public

spaces and are often the most significant barriers to inclusion. Research has shown that a lack of a sense of safety, particularly among women and girls, is the most pronounced challenge to creating truly inclusive spaces. Public spaces that make people feel unsafe, whether due to crime or the fear of violence, cannot serve as areas where individuals feel empowered to participate in community life. The use of red emphasizes the critical nature of safety and security in the design process and draws attention to its importance as a primary factor in determining the success of inclusive spaces. This circle signifies the need to implement design strategies that mitigate safety risks, such as CPTED principles, adequate lighting, and surveillance. The focus on safety promotes not only physical security but also psychological well-being, ensuring that everyone—regardless of gender, age, or background—can feel comfortable and protected in public spaces.

(b) Accessibility (blue circle)

The blue circle symbolizes calmness, clarity, and openness. Accessibility is a fundamental aspect of inclusivity, ensuring that public spaces can be used by individuals of all ages, abilities, and mobility levels. The blue hue invokes a sense of tranquility and openness, reinforcing the idea that public spaces should be welcoming and easy to navigate for everyone, without barriers. This circle emphasizes the need for universal design principles that prioritize the physical accessibility of spaces. It advocates for the incorporation of ramps, elevators, wide pathways, and tactile elements to ensure that individuals with disabilities or mobility challenges can move freely within spaces. Accessibility is the bedrock on which other aspects of inclusivity, such as safety and multifunctionality, are built.

(c) Multifunctionality (green circle)

The green circle represents growth, diversity, and balance. Multifunctionality reflects the versatility of public spaces, allowing them to serve multiple activities and functions. The green color emphasizes how spaces can grow and evolve to meet different needs while fostering a sense of community and interaction. The multifunctionality circle stresses the importance of designing public spaces that can accommodate a wide range of activities, such as recreation, cultural expression, social gatherings, and economic engagement. By incorporating adaptable elements, such as flexible seating, movable stages, or open-air markets, public spaces can cater to different user groups, thereby improving their utility and appeal for everyone. This approach ensures that the space can

support a diverse range of needs while fostering social cohesion.

(d) Clear signage and wayfinding (yellow circle)

The yellow circle symbolizes clarity, guidance, and awareness. Clear signage and wayfinding systems are essential for creating spaces that are easy to navigate and accessible to all users. Yellow is often associated with visibility and attention, making it the perfect color for this indicator, as it underscores the importance of making information easily accessible and understandable. This circle represents the need for comprehensive signage systems that help users navigate public spaces with ease. This includes visual signs, tactile guides, and multilingual instructions that ensure people of all backgrounds, including those with disabilities, can move confidently and safely within the space. Clear wayfinding enhances accessibility and reduces confusion, making the space feel more welcoming and inclusive.

(e) Identity and expression (purple circle)

The purple circle stands for creativity, diversity, and personal expression. Identity and expression are integral to the concept of inclusivity, as public spaces should reflect the identities, cultures, and values of the people who use them. Purple, a color traditionally associated with creativity and individuality, highlights the importance of allowing people to express themselves and feel recognized within public spaces. The identity and expression circle focuses on the need for public spaces to celebrate diversity by incorporating design elements that represent the values, histories, and cultural identities of various communities. This includes art installations, murals, and culturally significant architectural features that allow individuals to see themselves reflected in the space. Such expressions of identity contribute to a sense of belonging and pride, reinforcing the idea that public spaces are for everyone.

(f) Inclusive amenities (orange circle)

The orange circle symbolizes inclusivity, warmth, and engagement. Amenities are the functional aspects of public spaces that support social interaction, comfort, and well-being. The orange color evokes feelings of warmth and inclusivity, underscoring the role that amenities play in ensuring that public spaces meet the needs of all individuals. The inclusive amenities circle highlights the importance of providing a range of services that cater to community needs. This could include children's play areas, restrooms, seating areas, shade, water fountains, and spaces for social interaction. By ensuring that public spaces are equipped with essential amenities, urban planners can

foster environments that encourage people to stay, socialize, and participate in community life.

The use of a circular figure in the HopeScape model was intentional. Each circle is a symbol of wholeness, indicating that these indicators are not isolated but interconnected components that work together to create inclusive public spaces. The framework suggests that no element can be successful without the support of the others. For instance, accessibility cannot be fully realized if safety is not addressed, and multifunctionality loses its value without clear signage to guide users. By placing the circles in close proximity to one another, the model visually conveys that the success of one indicator is linked to the strength of the others, creating a balanced and integrated approach to inclusive design.

The HopeScape model provides a clear and actionable guide for transforming South African public spaces into environments that are truly inclusive, where every individual—regardless of background or ability—can feel empowered, safe, and valued. Each of these design indicators contributes to the creation of spaces that promote social cohesion, foster well-being, and reflect the diverse identities and needs of the communities they serve. By integrating these principles into public space design and planning, urban environments can become more accessible, safe, and welcoming for all users.

## 4. Discussion

The findings of this study reveal persistent barriers to inclusive public space design for women and girls, highlighting critical distinctions and similarities across international and South African contexts. The application of the HopeScape model, underpinned by six indicators—including accessibility, safety and security, identity and expression, inclusive amenities, clear signage and wayfinding, and multifunctionality—enabled a comprehensive analysis of public spaces through both diagnostic and prescriptive lenses. The framework's application revealed systemic gaps in urban planning that perpetuate gender-based exclusion, echoing broader feminist critiques of spatial inequity (Beebejaun, 2017; Fenster, 2005).

Internationally, Vienna stands out as a leader in gender-sensitive urban planning. The city's inclusive design practices, such as well-lit pedestrian routes, multifunctional parks, and clearly demarcated pathways, demonstrate how political will and policy frameworks can produce safer and more accessible urban environments (Greed, 2016; Sánchez de Madariaga & Roberts, 2013). Vienna's use of gender budgeting and its participatory approach to planning have been central to institutionalizing equity in spatial decision-

making, offering an instructive model for other cities. In contrast, the case of Tunis reveals the challenges of fostering inclusive public spaces in resource-constrained settings. The absence of basic safety infrastructure, limited access to amenities, and weak enforcement of planning policies continue to create environments that marginalize women and girls (Cities Alliance & USAID, 2022).

However, this study also observed the emergence of grassroots, community-led initiatives in Tunis, which, though limited in scale, indicate the potential for bottom-up transformation of public spaces. Such efforts resonate with Lefebvre's (1991) concept of the "right to the city"—the idea that spatial justice is shaped through everyday practice and collective agency. When juxtaposed with these international examples, the South African case studies—the Durban Beachfront, People's Park, and Watershed at the V&A Waterfront—illustrate a complex, hybrid reality. These spaces not only feature vibrant activity and multifunctional potential but also reveal persistent shortcomings in safety, accessibility, and gender-responsive design. For instance, the Durban Beachfront, while a popular and scenic site, lacks adequate lighting and gender-sensitive amenities, contributing to perceptions of insecurity among female users. Similarly, People's Park offers open green space but is hampered by unclear signage, poor surveillance, and insufficient infrastructure designed to meet the needs of women and girls. The Watershed, though integrated with commercial and recreational uses, fails to embed inclusivity more deeply, particularly for marginalized social groups.

Safety emerged as the most consistent barrier across all case studies, reaffirming literature that positions fear of violence and harassment as a primary deterrent for women in public spaces (Ceccato & Newton, 2015; Furlong, 2016; Valentine, 2007). In the South African context, this is compounded by high rates of gender-based violence, which intensify spatial vulnerability and limit civic engagement among women (Naicker, 2021). The exclusion of women from public life due to these risks reflects what Crenshaw (1991) defines as intersectional marginalization, where gender-based exclusion intersects with broader socioeconomic and racial inequalities.

The application of the HopeScape model in this context is pivotal. As a contextually grounded framework, it enabled the identification of specific spatial design elements that either foster or obstruct inclusivity. The results suggest that inclusive urban development cannot rely solely on physical infrastructure; rather, it must be supported by participatory planning processes, policy coherence, and cultural transformation (Fainstein, 2014). While the model provides a structured diagnostic tool, its value lies

in its adaptability to South African's urban realities, where planning systems often struggle to address the needs of marginalized populations due to legacies of apartheid, institutional fragmentation, and uneven development (Turok & Borel-Saladin, 2018). Importantly, this study underscores the urgent need for inclusive development as a foundation for sustainable urban futures. Public spaces should enable all users—not just dominant or visible groups—to experience safety, belonging, and freedom of movement. However, the findings indicate that women and girls continue to face spatial barriers that exclude them from full participation in urban life. This exclusion is not only physical but also symbolic, reinforcing power imbalances through everyday design decisions (Kern, 2020; Madgin, 2020).

The implications for South African cities are profound. Inclusive design must move beyond generic notions of “universal access” to explicitly address the unique lived realities of women and girls. As Meth (2010) and Beebeejaun (2017) argue, embedding gender responsiveness into urban planning is essential for redressing systemic spatial injustices. This includes improving safety infrastructure (e.g., lighting, surveillance, and visibility), enhancing wayfinding and signage, providing gender-sensitive amenities, and cultivating spaces for expression and identity that challenge dominant norms. Moreover, the study advocates for greater integration of international best practices with local insights. Although Vienna offers valuable lessons in institutionalizing gender-sensitive planning, the direct transplantation of these models without adaptation may be ineffective. South African cities require context-specific interventions that respond to their social, cultural, and economic complexities. Tunis's community-driven strategies—despite resource constraints—suggest that small-scale, participatory approaches can yield transformative outcomes when local knowledge and ownership are prioritized (Harvey, 2012; Simone, 2011).

The future of inclusive public space development must embrace intersectionality and sustainability. This includes recognizing how spatial exclusion operates differently for women based on race, age, ability, and class (Crenshaw, 1991), and how inclusive spaces contribute not only to equity but also to urban resilience, cohesion, and environmental justice. Future research should explore the longitudinal impact of implementing frameworks such as the HopeScape model and expand the focus to include more diverse user experiences, particularly in informal and peri-urban areas where formal planning is weak. This study affirms that inclusive public spaces are foundational to equitable urban development. The HopeScape model, by offering a replicable and adaptable model, contributes meaningfully

to the discourse on spatial justice in post-apartheid South Africa. However, its effective implementation will require committed collaboration between planners, policymakers, civil society, and—most importantly—the communities themselves, especially women and girls whose voices have long been sidelined in urban planning processes. Through such a holistic and grounded approach, the vision of safe, accessible, and empowering public spaces can be realized.

## 5. Conclusion

This study introduced the HopeScape model as a structured framework for creating inclusive public spaces that address the specific needs of women and girls. Drawing from local case studies and comparative analysis, the research highlights ongoing challenges in the design and use of public spaces, particularly related to safety, accessibility, and the sense of belonging. Although some progress has been made in integrating inclusive elements into urban design, significant gaps remain, especially in addressing gender-based barriers to public space access.

This study underscores the critical importance of grounding urban planning in the lived experiences of diverse communities, advocating for approaches that are both participatory and responsive to local conditions. The HopeScape model emerges not merely as a conceptual lens but also as a practical, scalable model for reshaping urban environments through inclusive, justice-oriented design. By aligning global principles with the complex realities of South African cities, this framework advances a transformative agenda for public space—one that challenges exclusion, reclaims dignity, and promotes meaningful access for all individuals. This research expands the discourse on spatial justice, revealing how design decisions directly shape social outcomes and influence the everyday experience of urban life.

Looking ahead, future research should deepen this inquiry by elevating the voices and perspectives of marginalized groups and rigorously assessing the enduring impacts of inclusive design. With sustained political will and cross-sector collaboration, public spaces can evolve into powerful catalysts of equity, safety, and collective belonging.

## Acknowledgments

None.

## Funding

None.

## Conflict of interest

The authors declare that they have no competing interests.

## Author contributions

*Conceptualization:* Kiara Rampaul

*Data curation:* Kiara Rampaul

*Investigation:* Kiara Rampaul

*Methodology:* Kiara Rampaul

*Project administration:* Hangwelani Hope Magidimisha-Chipingu

*Supervision:* Hangwelani Hope Magidimisha-Chipingu

*Validation:* Hangwelani Hope Magidimisha-Chipingu

*Writing—original draft:* Kiara Rampaul

*Writing—review & editing:* Hangwelani Hope Magidimisha-Chipingu

## Ethics approval and consent to participate

Ethical approval for this study was granted on March 24, 2024, by the Humanities and Social Sciences Research Ethics Committee, University of KwaZulu-Natal (Approval ID: HSSREC/00006729/2024). All participants provided written informed consent prior to enrolment. They were informed that participation was voluntary and that they could withdraw from the study at any time without consequence.

## Consent for publication

Written informed consent for publication was obtained from all participants.

## Availability of data

The data used in this study is available from the corresponding author upon reasonable request.

## References

- Beebeejaun, Y. (2017). Gender, urban space, and the right to everyday life. *Journal of Urban Affairs*, 39(3):323-334.  
<https://doi.org/10.1080/07352166.2016.1255526>
- Bénit-Gbaffou, C., & Todes, A. (2024). Urban fragmentation and spatial inequality in post-apartheid South Africa. *Cities*, 138:104123.  
<https://doi.org/10.1016/j.cities.2023.104123>
- Bennett, G., & Rupprecht, C.D.D. (2024). Social exclusion in urban public spaces: Impacts on marginalized populations. *Urban Studies*, 61(3):531-549.  
<https://doi.org/10.1177/00420980231114578>
- Benny, N., Natarajan, S., & Pillai, M. (2024). Can urban design foster greater inclusivity for women in public spaces? *Journal of Contemporary Urban Affairs*, 8(2):557-581.  
<https://doi.org/10.25034/ijcua.2024.v8n2-16>
- Biddulph, M., Gospodini, A., & Honey-Rosés, J. (2023). Designing for everyday publicness: A framework for evaluating inclusive urban space. *Cities*, 140:104401.  
<https://doi.org/10.1016/j.cities.2023.104401>
- Brown-Luthango, M. (2016). Collective (in)Efficacy, Substance abuse and Violence in “Freedom Park,” Cape Town. *Journal of Housing and the Built Environment*, 31:123-140.  
<https://doi.org/10.1007/s10901-015-9448-3>
- Carr, S., Francis, M., Rivlin, L.G., & Stone, A.M. (1992). *Public Space*. Cambridge: Cambridge University Press.
- Ceccato, V., & Newton, A. (2015). *Safety and Security in Transit Environments: An Interdisciplinary Approach*. Milton Park: Routledge.
- Cities Alliance, & USAID. (2022). *Femmedina in Tunis: Key Results and Learnings [Rapid Learning Appraisal]*. Brussels: Cities Alliance.
- Commission on Gender Equality (CGE). (2011). *Gender Policy Framework for Local Government: A Framework to Promote Gender Mainstreaming and Women’s Empowerment in South African Municipalities*. Johannesburg: Commission on Gender Equality. Available from: [https://iknowpolitics.org/sites/default/files/09361\\_f13-\\_gender\\_policy\\_framework\\_for\\_local\\_government1.pdf](https://iknowpolitics.org/sites/default/files/09361_f13-_gender_policy_framework_for_local_government1.pdf) [Last accessed on 2023 May 07].
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6):1241-1299.  
<https://doi.org/10.2307/1229039>
- De Souza e Silva, A., Bhan, G., Pieterse, E., & Simone, A. (2023). Unequal urban public space provision and access in African cities. *Landscape and Urban Planning*, 233:104627.  
<https://doi.org/10.1016/j.landurbplan.2023.104627>
- Department of Women. (1997). *White Paper on National Policy for Gender Equality*. Pretoria: Government Printer.
- Dovey, K., & Pafka, E. (2023). Urban design as spatial politics: Rethinking public space. *Urban Studies*, 60(1):105-123.  
<https://doi.org/10.1177/00420980221107849>
- Drey, J. (2022). *Vienna: Urban Planning for and with Women*. Feministarium. Available from: <https://feministarium.ee/en/vienna-urban-planning> [Last accessed on 2023 Jun 07].
- El-Bardisy, N. (2024). Urban culture as a challenge of enhancing social interaction in public spaces. *Discover Cities*, 1:27.  
<https://doi.org/10.1007/s44327-024-00030-6>
- Fainstein, S.S. (2014). The just city. In: Fainstein, S.S., & DeFilippis, J., (eds). *Readings in Planning Theory*. 3<sup>rd</sup> ed. New Jersey: Wiley-Blackwell, p.261-275.
- Förster, W. (2016). Inclusive Urban Development: Lessons from Vienna. *International Journal of Urban and Regional Research*, 40(2):367-383.
- Förster, W. (2016). *Inclusive Urban Development: Lessons*

- from Vienna. *International Journal of Urban and Regional Research*, 40(2):376-390.  
<https://doi.org/10.1111/1468-2427.12359>
- Fenster, T. (2005). The right to the gendered city: Different formations of belonging in everyday life. *Journal of Gender Studies*, 14(3):217–231.  
<https://doi.org/10.1080/09589230500264125>
- Furlong, M. (2016). Fear and everyday urban space: Geographies of gender-based fear. In: Pain, R., & Valentine, G. (eds.). *Mapping Women's Fear: Public Space and Everyday Life*. London: Routledge, p.45-61.
- Gehl, J. (2010). *Cities for People*. Washington, DC: Island Press.
- Gehl, J. (2011). *Life Between Buildings: Using Public Space*. Washington, DC: Island Press.
- Georgi, N.W., Buthelezi, S., & Meth, P. (2021). Gendered infrastructural citizenship: Shared sanitation facilities in quarry road west informal settlement, Durban, South Africa. *Urban Forum*, 32(4):437-456.  
<https://doi.org/10.1007/s12132-021-09421-z>
- Greed, C. (2016). *Inclusive Design for Getting Outdoors: A Guide to Improving Access to Outdoor Environments for All*. 2<sup>nd</sup> ed. England: Routledge.
- Gugerell, K., & Penker, M. (2023). Gender-sensitive urban planning: The case of Vienna's Aspern Seestadt. *Urban Planning International*, 38(2):45-53.  
<https://doi.org/10.1016/j.upi.2023.02.005>
- Harrison, P., Todes, A., & Watson, V. (2008). *Planning and Transformation: Learning from the Post-Apartheid Experience*. London: Routledge.
- Harrison, P., Todes, A., & Watson, V. (2023). Urban governance and the legacy of apartheid spatial planning. *Progress in Human Geography*, 47(2):321-340.  
<https://doi.org/10.1177/03091325221109985>
- Harvey, D. (2012). *Rebel Cities: From the Right to the City to the Urban Revolution*. London: Verso Books, p.67-88.
- Jabeen, H. (2020). Gender-responsive urban planning and design of public open spaces for social and economic equity: Challenges and opportunities in Dhaka city, Bangladesh. *Global Journal of Human-Social Science*, 20(E5):19-32.
- Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Random House.
- Kail, E. (2005). Gender-sensitive urban planning: A necessary foundation for sustainable cities. *Journal of Urban Planning and Development*, 131(3):139-145.
- Kail, E. (2013). Safe cities: Enhancing women's safety through urban planning and design. *Urban Studies*, 50(4):861-878.
- Kail, E. (2016). Gender-sensitive urban planning: A necessary element in the development of inclusive cities. *Urban Planning*, 1(10), 1-12.
- Kail, E. (2017). Planning with women: Making cities work for women. In: Sánchez de Madariaga, I., & Roberts, M., (eds). *Engendering Cities: Designing Sustainable Urban Spaces for All*. London: Routledge, p.43-64.
- Kail, E. (2021). Feminist urban planning in Vienna. In: Reinwald, F., & Roberts, M., (eds). *Gender Sensitivity in Urban Development Concepts*. London: Routledge, p.150-170.
- Kern, L. (2020). *Feminist City: Claiming Space in a Man-Made World*. New York: Verso.
- Kitchin, R., Dovey, K., & Shepherd, S. (2023). The gendered city: Challenging neutrality in urban planning. *Environment and Planning D: Society and Space*, 41(1):64-81.  
<https://doi.org/10.1177/02637758221134590>
- Lawton Smith, H. (2023). Public spaces, equality, diversity and inclusion: Connecting disabled entrepreneurs to urban spaces. *Land*, 12(4):873.  
<https://doi.org/10.3390/land12040873>
- Lefebvre, H. (1991). Nicholson-Smith, D., Translator. *The Production of Space*. Oxford: Blackwell.
- Lemanski, C., & Smit, W. (2023). Unequal spatial development and public space in South African cities. *Urban Forum*, 34(1):73-90.  
<https://doi.org/10.1007/s12132-022-09458-z>
- Lombard, M., & Rakodi, C. (2023). Public space and informality in African Cities: Towards a more inclusive urbanism. *Urban Forum*, 34(3):453-473.  
<https://doi.org/10.1007/s12132-023-09488-0>
- Madgin, R. (2020). Urban heritage and urban development. In: *Concepts of Urban-Environmental History*. Germany: Transcript Verlag.  
<https://doi.org/10.1515/9783839443750-016>
- Matsinhe, D., Cilliers, J., & Chidavaenzi, M. (2024). Gender-sensitive urban planning: A South African perspective. *International Journal of Urban Sustainable Development*, 16(1):21-39.  
<https://doi.org/10.1080/19463138.2023.2251231>
- Meth, P. (2010). Unsettling insurgency: Reflections on women's insurgent practices in South Africa. *Planning Theory and Practice*, 11(2):241-263.  
<https://doi.org/10.1080/14649351003759625>
- Nagle, J., & Cloke, P. (2024). Urban belonging and the right to the city: Reclaiming public space through participatory practice. *International Journal of Urban and Regional Research*, 48(1):54-72.  
<https://doi.org/10.1111/1468-2427.13121>
- Naicker, S. (2021). Gender-based violence as a pandemic: Sociocultural and religious factors perpetuating violence

- against women in South Africa. *HTS Teologiese Studies/Theological Studies*, 81:a10358.  
<https://doi.org/10.4102/hts.v81i1.10358>
- National Planning Commission. (2012). *National Development Plan 2030: Our Future - Make it Work*. Pretoria: The Presidency.
- Newman, O. (1972). *Defensible Space: Crime Prevention through Urban Design*. New York: Macmillan.
- Parnell, S., & Pieterse, E. (2024). Rethinking urban futures: Inclusion, equity and justice in South African cities. *Urban Geography*, 45(2):202-220.  
<https://doi.org/10.1080/02723638.2023.2197654>
- Power, K. (2020). The COVID-19 pandemic has increased the care burden of women and families. *Sustainability: Science, Practice and Policy*, 16(1):67-73.  
<https://doi.org/10.1080/15487733.2020.1776561>
- Ralane, H.L. (2023). Amplifying the Voice and Visibility of Genre to Unlock Inclusion in Smart Cities. *Mail and Guardian*. Available from: <https://mg.co.za/thought-leader/2023-10-09-amplifying-the-voice-and-visibility-of-gender-to-unlock-inclusion-in-smart-cities/> [Last accessed on 2023 Oct 12].
- Rampaul, K., & Magidimisha-Chipungu, H. (2022). Gender mainstreaming in the urban space to promote inclusive cities. *The Journal for Transdisciplinary Research in Southern Africa*, 18(1):a1163by.  
<https://doi.org/10.4102/td.v18i1.1163>
- Republic of South Africa. (1996). *The Constitution of the Republic of South Africa*. Pretoria: Government Printer.
- Republic of South Africa (RSA). (1998). *White Paper on the National Policy for Gender Equality*. Pretoria: Office on the Status of Women, the Presidency. Available from: <https://www.gov.za/documents/national-policy-gender-equality-white-paper> [Last accessed on 2023 May 07].
- Rigon, A., & Castán Broto, V., (eds). (2021). *Inclusive Urban Development in the Global South: Intersectionality, Inequalities, and Community*. Milton Park: Routledge.  
<https://doi.org/10.4324/9781003139050>
- Rodríguez, M., Said, T., & Kwena, P. (2025). Spatialising intersectionality in public space design. *Urban Design International*, 30(1).  
<https://doi.org/10.1057/s41289-024-00267-y>
- SACN (South African Cities Network). (2023). *State of Cities Report 2023: Urban Inclusion and Transformation*. Johannesburg: SACN.
- Sánchez de Madariaga, I., & Roberts, M., (eds). (2013). *Fair Shared Cities: The Impact of Gender Planning in Europe*. Farnham: Ashgate.
- Schwanen, T., & Zúñiga-Teran, A.A. (2023). Urban justice and gender in public spaces: An intersectional analysis. *Geoforum*, 145:114-125.  
<https://doi.org/10.1016/j.geoforum.2023.01.008>
- Simone, A.M. (2011). The urbanity of movement. *Journal of Planning Education and Research*, 31(4):402-413.  
<https://doi.org/10.1177/0739456X11416366>
- Soraganvi, T., Blöbaum, B., & Hunecke, M. (2021). Building Safer Public Spaces: Exploring Gender Difference in the Perception of Safety in Public Space through Urban Design Interventions. *Landscape and Urban Planning*, 214.  
<https://doi.org/10.1016/j.landurbplan.2021.05.006>
- Sutherland, C., & Anderson, P.M.L. (2024). Rethinking urban futures through just public space in South Africa. *Environment and Urbanization*, 36(1):33-52.  
<https://doi.org/10.1177/09562478231203876>
- Teffo, M., Earl, A., & Zuidgeest, M.H.P. (2019). Understanding public transport needs in Cape Town's informal settlements: A Best-Worst-Scaling approach. *Journal of the South African Institution of Civil Engineering*, 61(2):1-9.  
<https://doi.org/10.17159/23098775/2019/v61n2a4>
- Turner, C., & Swaine, A. (2023). Law, language, and the power of 'invisible threats' of violence against women. *Journal of Law and Society*, 50(3):392-413.  
<https://doi.org/10.1111/jols.12442>
- Turok, I. (2014). Urban planning in South Africa: Context, principles and approaches. *International Development Planning Review*, 36(4):377-396.
- Turok, I., & Borel-Saladin, J. (2018). The theory and reality of urban slums: Pathways-out-of-poverty or cul-de-sacs? *Urban Studies*, 55(4):767-789.  
<https://doi.org/10.1177/0042098016682536>
- UN-Habitat. (2016). *Global Public Space Toolkit: From Global Principles to Local Policies and Practice*. Nairobi: United Nations Human Settlements Programme. Available from: <https://unhabitat.org/global-public-space-toolkit-from-global-principles-to-local-policies-and-practice> [Last accessed on 2023 Jun 04].
- UN-Habitat. (2020). *Femmedina Programme: Gender-sensitive Urban Planning in Tunis*. Available from: <https://www.citiesalliance.org/newsroom/news/cities-alliance-news/women-friendly-cities-gender-inclusive-urban-planning-tunisia> [Last accessed on 2023 Jun 07].
- UN-Habitat. (2023). *Global Public Space Programme: Annual Report 2023*. Nairobi: UN-Habitat. Available from: <https://unhabitat.org/global-public-space-programme-annual-report-2023> [Last accessed on 2023 Oct 12].
- United Cities and Local Governments (UCLG). (2017). *Annual Report 2016: Co-Creating the Urban Future (Fourth GOLD*

- Report). UCLG. Available from: <https://uclg.org> [Last accessed on 2023 Jun 05].
- Valentine, G. (2007). Theorizing and researching intersectionality: A Challenge for feminist geography. *The Professional Geographer*, 59(1):10-21.  
<https://doi.org/10.1111/j.1467-9272.2007.00587.x>
- Visagie, J., Turok, I., & Scheba, A. (2023). Social inequality and spatial segregation in Cape Town. In: Van Ham, M., Tammaru, T., Ubarevičienė, R., & Janssen, H. (eds.). *Urban socio-Economic Segregation and Income Inequality: A Global Perspective*. New York: Springer, pp.71-90.
- Viswanath, K., & Kamath, L. (2023). Gender, fear and access in urban public spaces: Evidence from Indian cities. *Cities*, 135:103029.  
<https://doi.org/10.1016/j.cities.2022.103029>
- Whitzman, C., Andrew, C., & Viswanath, K. (2014). Partnerships for women's safety in the city: "Four legs for a good table." *Environment and Urbanization*, 26(2):443-456.  
<https://doi.org/10.1177/0956247814537580>
- Wilson, A., & Wanjiku-Kihato, C. (2023). Feminist urban futures and the right to the city in the global south. *Environment and Urbanization*, 35(1):125-144.  
<https://doi.org/10.1177/09562478221149396>
- World Economic Forum. (2023). Global Gender Gap Report 2023. World Economic from: <https://www.weforum.org/reports/global-gender-gap-report-2023> [Last accessed on 2023 May 04].
- Zhang, Y., Cheung, M., & Rao, Y. (2024). Understanding the relationship between urban public space and social cohesion: A systematic review. *International Journal of Community Well-Being*, 7:155-212.  
<https://doi.org/10.1007/s42413-024-00204-5>

## RESEARCH ARTICLE

## Internal migration in Indonesia: Remapping trajectories

Agus Joko Pitoyo<sup>1,2\*</sup> , Sukamdi Sukamdi<sup>1,2</sup> , Muhammad Arif Fahrudin Alfana<sup>1</sup> , and Nanang Widaryoko<sup>3</sup> 

<sup>1</sup>Department of Environmental Geography, Faculty of Geography, Universitas Gadjah Mada, Yogyakarta, Indonesia

<sup>2</sup>Center for Population and Policy Studies, Universitas Gadjah Mada, Yogyakarta, Indonesia

<sup>3</sup>Population Studies, The Graduate School, Universitas Gadjah Mada, Yogyakarta, Indonesia

### Abstract

Most conventional perspectives depict internal migration as a straightforward process, starting in rural areas and culminating in urban centers. This study, utilizing data from the Indonesian Family Life Survey (IFLS), aims to explore alternative migration patterns in Indonesia beyond the traditional rural–urban migration. Analyzing five waves of IFLS data, this research employed sequence analysis and multinomial logistic regression, revealing a nuanced picture of internal migration in Indonesia. The results reveal that, contrary to the one-step rural-urban migration narrative, individuals in Indonesia often undergo multiple rural or urban migrations, influenced by factors such as gender, education, age, and migration motives. These findings underscore the complexity of internal migration patterns in Indonesia, challenging the conventional rural–urban migration model.

**Keywords:** Migration; Trajectory; Rural-urban migration; Contemporary

#### \*Corresponding author:

Agus Joko Pitoyo  
 (agusjpit@ugm.ac.id)

**Citation:** Pitoyo AJ, Sukamdi S, Alfana MAF, Widaryoko N. (2025). Internal migration in Indonesia: Remapping trajectories. *International Journal of Population Studies*. 11(6): 116-129. <https://doi.org/10.36922/IJPS025190084>

**Received:** May 6, 2025

**1st revised:** July 7, 2025

**2nd revised:** July 28, 2025

**Accepted:** August 11, 2025

**Published online:** August 25, 2025

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

### 1. Introduction

Internal migration has long been integral to Indonesia's development (Pitoyo, 2018), reflecting the nation's strong nomadic culture (Tirtosudarmo, 2009). Despite its importance, ironically, internal migration in Indonesia tends to receive less attention (Randolph & Naik, 2017), in contrast to fertility and mortality, which are more widely studied (Muhidin, 2014). This neglect is particularly striking, given Indonesia's vast geographic and demographic complexity, a nation consisting of over 17,500 islands, home to more than 271 million people (BPS, 2023), and characterized by deep ethnic heterogeneity (Ananta *et al.*, 2023).

Spatial inequality further defines this context. Java, occupying only 7% of the land, hosts more than half the population (BPS, 2023) and anchors the growth of Jakarta and other major urban centers. Unsurprisingly, these urban centers have become powerful magnets for internal migrants originating from across the archipelago. This pattern has reinforced a dominant narrative: internal migration in Indonesia is typically conceptualized as a unidirectional movement from peripheral rural regions to urban cores (Randolph & Naik, 2017). Cattaneo and Robinson (2020) did note that internal migration, described as movement that starts in rural areas and ends in urban areas,

is common. However, does this linear portrayal still hold? Do migrants settle permanently after reaching the city?

This study is motivated by the need to revisit this oversimplified narrative. As Indonesia undergoes rapid spatial transformation, emerging empirical evidence suggests that internal migration is far more dynamic (Hugo, 1982; Randolph & Naik, 2017). Migrants often move repeatedly throughout their lives (Widaryoko *et al.*, 2023, 2025), calling into question the adequacy of unidirectional rural-urban migration.

The mobility turn (Sheller & Urry, 2006) urges us to rethink migration not as a single event, but as a recursive, life-course process, an insight echoed in both international (e.g., Bernard [2022a,b]; Takenaka [2007]) and internal migration studies (e.g., Chen *et al.* [2021]; Pardede *et al.* [2016]; Sugiyarto *et al.* [2019]; Widaryoko *et al.* [2023]; Yang *et al.* [2020]). However, within the Indonesian context, especially concerning rural-urban mobility, such dynamic patterns remain underexplored.

The novelty of this study lies in its reconstruction of lifetime internal migration trajectories using five waves of nationally representative longitudinal data from the Indonesian Family Life Survey (IFLS). Departing from static origin-destination classifications, the study employs sequence analysis, a method rarely applied in Indonesian migration research, to identify typologies of migration trajectories. These typologies are then examined through multinomial logistic regression to explore their associations with demographic, spatial, and motivational factors.

This integrated approach offers several key contributions. Empirically, it challenges the dominant linear paradigm by showing the diversity of migration experiences over time. Methodologically, it introduces a life-course perspective and dynamic techniques to study internal mobility in Indonesia. Theoretically, it bridges Indonesian migration scholarship with broader international debates on mobility. By doing so, the study provides a more nuanced understanding of how and why people move throughout their lives. Guided by this framework, the study addresses two central research questions: (i) How prevalent are rural-to-urban migration trajectories in Indonesia? and (ii) To what extent are different migration trajectories shaped by individual, household, and geographic characteristics?

## 1.1. Theoretical framework

The phenomenon of migrants persistently on the move is not entirely new (Wee & Yeoh, 2021). As early as the 19<sup>th</sup> century, Ravenstein (1885) introduced the concept of stepwise migration, wherein individuals relocate incrementally from rural to urban centers. Nevertheless, subsequent migration theories, such as Lewis's (1954)

Dual Economy, E. Lee's (1966) Push–Pull Theory, Todaro's (1969) Neoclassical Framework, and Mabogunje's (1970) Systems Approach, have largely conceptualized migration as a one-time, unidirectional shift from origin to destination. This prevailing orientation reflects both an underlying assumption of permanent settlement and the historical absence of detailed data to trace individual migration histories (Cattaneo & Robinson, 2020; King & Skeldon, 2010; Paul & Yeoh, 2021).

However, since the early 2000s, migration studies have undergone a paradigmatic shift. Driven by growing recognition of dynamic life trajectories and advancements in mobility-enabling technologies, scholars have increasingly examined migration as a recursive, rather than one-way, process (Sheller & Urry, 2006; Zufferey *et al.*, 2021). This shift also corresponds with the emergence of more granular longitudinal datasets and analytical techniques, enabling scholars to trace individual migration histories over time and space. Building on this shift, a reconfiguration of theoretical approaches is necessary to better capture the complexities and temporalities of contemporary migration. In response, the present study adopts an integrative theoretical framework that synthesizes five complementary perspectives: Life Cycle Theory, Livelihood Theory, Institutional Theory, the Mobility Turn, and Translocal Migration.

Institutional Theory (North, 1990) underscored the significance of both formal and informal institutions, including legal frameworks, labor markets, bureaucratic systems, and cultural norms, in shaping mobility. It emphasized how institutions govern who can move, under what conditions, and with what consequences. Around the same time, Chambers and Conway (1991) introduced the livelihoods Framework, which reconceptualized migration as a proactive, strategic response to economic vulnerability and livelihood insecurity. Rather than a singular act of relocation, migration was considered as part of a broader household strategy involving income diversification, risk management, and the use of social capital through circular or seasonal migration.

Extending the analysis temporally, Elder (1998) and Mulder (1993) developed Life Cycle Theory, offering a dynamic understanding of how migration decisions are patterned across the life course. Migration is linked to predictable transitions, education, employment, marriage, and caregiving, revealing that spatial mobility is not random but often follows life-stage contingencies shaped by shifting responsibilities and aspirations.

Meanwhile, the Mobility Turn (Sheller & Urry, 2006) reoriented the analytical lens from migration as a bounded event to mobility as a continuous and multi-layered

condition. It emphasizes spatial fluidity, relational connections across locales, and the ongoing negotiation of belonging. This is extended by Translocal Migration Theory (Brickell & Datta, 2016), which conceptualizes migrants as being embedded in multiple places simultaneously, socially, economically, and symbolically.

Crucially, each of these perspectives addresses different but complementary dimensions of migration. The Mobility Turn and Translocal perspectives illuminate fluid spatial ties but tend to overlook the sequencing of moves over the life course and their economic rationales. Life Cycle and Livelihood theories incorporate timing and strategic considerations but give less attention to structural and institutional constraints. Institutional Theory provides this structural lens but does not fully capture the temporal fluidity of migration.

By integrating these five perspectives, this study conceptualizes migration as recursive (Mobility Turn), multi-sited (Translocal), life-stage dependent (Life Cycle), economically strategic (Livelihood), and institutionally shaped (Institutional Theory). This integrative approach enables the analysis to move beyond binary origin-destination models, toward a framework that captures return, circular, and multi-step migrations as adaptive strategies shaped by shifting life circumstances, structural constraints, and spatial opportunities.

## 2. Data and methods

### 2.1. Data source

This research utilized five waves of data from the IFLS, the largest longitudinal dataset in Indonesia. Ethical clearance was secured through Institutional Review Boards (IRBs) in both the United States and Indonesia. The survey instruments and datasets utilized in this research can be accessed through the following website: <https://www.rand.org/well-being/social-and-behavioral-policy/data/Fls/iFls/access.html>. The data cover the years 1993, 1997, 2000, 2007, and 2014, providing a solid foundation for our analysis.

The extensive reach and detailed data of the IFLS allow us to thoroughly examine migration patterns over time. Migration data were collected retrospectively, with respondents asked about their migration experiences from the age of 12 years to the last survey period. Our analysis is based on the life cycle framework, focusing on individuals aged 12–50. This age range ensures that participants are aware of their initial living locations and provides consistent observation periods across all samples (Bernard, 2022a; Chen *et al.*, 2021). In this study, an individual is considered a migrant if they move across district or city boundaries

and reside in a new district or city for at least 1 year. We focused on rural migrants to explore the prevalence of the rural-urban migration pattern in Indonesia. Based on the sample criterion, we kept 3221 observations.

### 2.2. Variables

The variables used in this study are broadly categorized into two main groups. The first is the key variable: the individual's migration status, which serves as the primary outcome of interest. The second group comprises explanatory variables, which are primarily employed to examine who migrates and how individual characteristics vary across different migration types.

These explanatory variables include a range of sociodemographic attributes, geographic conditions, and migration-related information. The conceptual basis for including these variables is inspired by E. Lee's (1966) migration theory, particularly his emphasis on migrant selectivity. While E. Lee posited that migrants and non-migrants differ systematically in their characteristics, this study extends the notion by investigating whether such selectivity also applies across different types of migrants.

Specifically, the explanatory variables include gender, marital status, level of education, age, household welfare status, island of residence (included as a regional dummy), migration motives, and whether individuals migrated alone or with others. These variables provide a multidimensional perspective on the factors shaping different migration trajectories, thereby allowing a more nuanced understanding of migration selectivity within a dynamic and diversified internal migration context.

### 2.3. Methodology

The analysis method for this study was divided into several stages. First, we defined an individual's migration experience starting from the age of 12 years. To achieve this, we employed sequence analysis, a relatively new approach in migration studies (Kleinepier *et al.*, 2015). Sequence analysis is a data-driven technique for mapping individual life trajectories by encoding each life stage as a string of characters that represent yearly observations (Abbott & Tsay, 2000; Impicciatore & Panichella, 2019). While this method has been widely adopted in life-course research across various domains (Aassve *et al.*, 2007; Billari, 2001; Elzinga & Liefbroer, 2007; Ritschard & Oris, 2005; Vidal *et al.*, 2020), its application in migration studies remains relatively limited (Kleinepier *et al.*, 2015; Pollock, 2007). Sequence analysis allows us to systematically examine the order of migration events, providing a comprehensive understanding of individuals' migration trajectories over time.

Technically, we first defined the migration status for each individual within the age range of 12–50 years. Migration status was classified into three categories: “stay,” “rural migration,” and “urban migration.” Individuals who had not migrated were categorized as “stay.” “Rural migration” referred to those who moved to another rural district, while “urban migration” described those who relocated to an urban district. In addition, we distinguished between the stages of movement (first, second, third, and more) to capture the sequence of migration events (Bernard, 2022b). Using the optimal matching algorithm, we calculated dissimilarities between each migration sequence (Needleman & Wunsch, 1970) and then grouped similar migration sequences into specific clusters using hierarchical cluster analysis (Piccarreta & Billari, 2007), with a ward linkage approach (Brzinsky-Fay *et al.*, 2006).

In the second stage, we employed a multinomial logistic regression model to identify the sociodemographic characteristics associated with each migration cluster. This modeling approach was appropriate because the dependent variable, the migration trajectory cluster identified in the first stage, was categorical and nominal with more than two unordered outcomes. Multinomial logistic regression allowed us to examine the statistical association between multiple independent variables with the probability of belonging to each cluster. The model used in this second stage is shown in Equation (I), and the variables involved in the model are listed in Table 1.

$$Y_{ij} = \beta_0 + \beta_1 \text{gender}_{ij} + \beta_2 \text{mar}_{ij} + \beta_3 \text{edu}_{ij} + u_4 \text{gender.edu}_{ij} + \beta_5 \text{age group}_{ij} + \beta_6 \text{welfare}_{ij} + \beta_7 \text{island}_{ij} + \beta_8 \text{motives}_{ij} + t_9 \text{migrate with}_{ij} \quad (I)$$

Given the observational nature of the IFLS data and the use of a non-experimental design, the analysis identifies

statistical associations rather than causal relationships. Interpretations of the results should therefore be understood as correlational.

### 3. Key findings

#### 3.1. Describing the Indonesian rural-urban migration pattern

Table 2 presents an in-depth examination of internal migration patterns in Indonesia, which commences in rural regions and encompasses various movement sequences between rural and urban destinations. These sequences vary in the number of movements and types of destinations, offering a comprehensive perspective on migration dynamics. Among single movement patterns, migration within rural areas was the most prevalent, comprising 642 cases (19.93%), followed by migration from rural to urban areas, with 620 cases (19.25%). These figures indicate that despite significant urbanization, a substantial portion of the population remains in rural areas, suggesting that pull factors are not exclusive to urban areas and that strong sociocultural ties to rural origins may influence migration decisions (Debray & Ruysen, 2023; He *et al.*, 2023). Internal migration from rural to rural is primarily driven by economic opportunities, improved living conditions, and social networks (Kumar, 2020; Liang *et al.*, 2002; Lucas, 2015; Shen *et al.*, 2024; Sugiyarto *et al.*, 2019). Bazzi *et al.* (2016) revealed that transmigration to obtain access to new land has caused the transmigration of villagers from Java and Bali to other villages outside. This is believed to be one of the causes of the high percentage of migration from rural to rural areas in Indonesia. These patterns resonate with the life-course perspective, which suggests that migration decisions are rarely isolated

**Table 1. The variables involved in the multinomial logistic regression model**

Variables	Definitions and coding
$Y_{ij}$	The likelihood of migrant $i$ being included in migration cluster $j$
$\beta$	$\beta_0$ denotes the constant term, while $\beta_1$ – $\beta_9$ represent the regression coefficients that measure the relationship between the independent (predictor) variables and the dependent (outcome) variable with more than two categories
$\text{gender}_{ij}$	Gender of migrant $i$ in migration cluster $j$ , 0=male, 1=female
$\text{mar}_{ij}$	Marital status of migrant $i$ in migration cluster $j$ , 0=unmarried, 1=married, 2=ever married
$\text{edu}_{ij}$	Level of education of migrant $i$ in migration cluster $j$ , 0=low (elementary school and lower), 1=middle (junior high school or equivalent), 2=high (senior high school and higher)
$\text{gender.edu}_{ij}$	Interaction of gender and education level of migrant $i$ in migration cluster $j$ , 0=others, 1=female with high education level
$\text{age group}_{ij}$	Age group of migrant $i$ in migration cluster $j$ , 0=<20 year, 1=20–30 year, 2=31–44 year, 3=45 year+
$\text{welfare}_{ij}$	Welfare status of migrant households of migrant $i$ in migration cluster $j$ , 0=poor, 1=near poor, 2=not poor
$\text{island}_{ij}$	Island of origin of migrant $i$ in migration cluster $j$ , 0=other, 1=Java, 2=Sumatera
$\text{motives}_{ij}$	The migration motive of migrant $i$ in cluster $j$ , 0=others, 1=work, 2=education, 3=marriage, 4=migration with family, 5=to be closer with family, 6=pregnancy/other family reasons
$\text{migrate with}_{ij}$	With whom migrants $i$ in migration cluster $j$ migrate, 0=alone, 1=others

Table 2. Top 10 sequences of rural-urban migration

Number of movements	Sequence-pattern	Frequency	Percent (%)	Cumulative percentage (%)
1	Rural→rural	642	19.93	19.93
1	Rural→urban	620	19.25	39.18
2	Rural→urban→rural	388	12.05	51.23
2	Rural→rural→rural	285	8.85	60.07
2	Rural→urban→urban	193	5.99	66.07
3	Rural→urban→urban→urban	91	2.83	68.89
3	Rural→rural→rural→rural	78	2.42	71.31
3	Rural→urban→urban→rural	76	2.36	73.67
2	Rural→rural→urban	64	1.99	75.66
3	Rural→urban→rural→rural	52	1.60	77.27
Other sequence patterns		732	22.73	100

Source: Author's calculations based on the Indonesian Family Life Survey data from 1993, 1997, 2000, 2007, and 2014.

events but unfold over time in relation to shifting needs, aspirations, and life transitions. What appears as rural-rural movement at one stage may be part of a longer strategic trajectory shaped by work, marriage, or housing transitions.

For individuals involving two moves, the pattern of migrating from rural to urban areas and then back to rural areas (388 cases, 12.05%) is notably more common than moves from rural areas to other rural destinations (285 cases, 8.85%). This trend highlights a significant tendency for return migration, where individuals initially relocate to urban areas but eventually return to rural areas, possibly for economic, family, or social reasons (Cattaneo & Robinson, 2019; Gillespie *et al.*, 2022; He *et al.*, 2023; Lindstrom, 1996; Stark, 2019). In addition, migrants who continue to move and consistently choose another rural area may do so to find a location similar to their place of origin, easing the adaptation process. This aligns with Liu *et al.*'s (2023) research, which indicated that internal migrants' location choices were influenced by the ease of adapting to the cultural, institutional, and social differences between their origin and destination areas. This also aligns with circular migration theories, which emphasize the fluid and reversible nature of mobility decisions. Return migration does not signify failure, but rather reflects adaptive strategies under changing household or labor conditions. In contrast, continuous rural-to-urban migration accounted for 193 cases (5.99%), indicating that some individuals prefer to remain in urban environments after migrating, likely due to their comfort with urban living.

Sequences involving three movements demonstrated a wide range of patterns. The most frequent was multiple urban migrations, with 91 cases (2.83%), indicating a

strong tendency for sustained urban residence among some individuals. Multiple rural migrations, with 78 cases (2.42%), also demonstrated a strong preference for rural areas among some individuals over multiple moves. The diverse sequence of moves, such as relocating from rural areas to two different urban areas and then returning to rural areas (76 cases, 2.36%), reflects the complex decision-making process of migrants as they transition from one place to another. These multi-step movements illustrate how migration decisions are shaped both by individual agency and structural constraints. Each move can be seen as a negotiated step within the dynamic interaction between personal goals and institutional or geographic opportunities and limitations.

A substantial proportion of migration patterns is classified under the category of "Other Sequence Patterns," which accounts for 732 cases (22.73%). These sequences encompass a multitude of combinations that are not encompassed by the primary categories, thereby underscoring the complexity and diversity of migration behaviors. This category highlights that a considerable number of migrants embark on unique journeys that may not align with more prevalent patterns. These patterns challenge the conventional assumption of linear rural-to-urban migration, instead revealing a highly individualized and stratified migration landscape shaped by intersecting economic, cultural, and familial motivations over time.

Table 2 suggests that internal migration in Indonesia is not a straightforward linear process from rural to urban areas. Instead, it involves multiple steps and various destination sequences. The proportion of one-way rural-to-urban migration trajectories, constituting only about one-fifth of all trajectories, indicates that rural-to-urban migration is not the predominant pattern. This complexity

aligns with the findings of Cattaneo and Robinson (2020) and Chen *et al.* (2021), who argued that internal migration is a multifaceted phenomenon. For example, some sequences involve migrants making two urban moves before returning to rural areas, while others show an initial move to an urban area followed by two rural relocations. These varied patterns reflect the diverse motivations and circumstances that influence migration decisions, such as economic opportunities, social networks, and personal preferences.

### 3.2. Rural-urban migration in the life course perspective

The migration trajectories of individuals across their life course provide insightful perspectives on the complexities of rural-urban migration in Indonesia. By mapping migration events from ages 12 to 50 years and clustering them based on sequence, time, and number of movements, distinct migration patterns emerge, reflecting various socioeconomic and demographic dynamics.

Analysis of these patterns, as visualized in the sequence index plot in Figure 1, reveals six primary migration clusters characterized by differing frequencies and types of

movements. The selection of six major migration clusters was based on a procedure in sequence analysis, where the number of clusters displaying the maximum Calinski–Harabasz pseudo-F statistic indicates the optimal cluster number (Caliński & Harabasz, 1974). We found that the highest Calinski–Harabasz pseudo-F statistic occurred in six clusters (Figures 2-7).

Cluster 1, the largest group, comprises individuals who undertake a single rural migration. These one-step rural migrants move from one rural district to another and then remain settled. This pattern suggests that these migrants may seek opportunities in rural areas with similar characteristics to their original locations, possibly due to limited resources or a preference for staying within a familiar rural environment (He *et al.*, 2023; Kumar, 2020).

Cluster 2 involves a two-step urban-rural migration. Individuals in this cluster initially move to an urban area and then relocate to a rural area. This pattern may indicate a temporary urban stay for certain reasons, such as employment or education, followed by a return to rural roots driven by familial or economic reasons. This is in line with findings from Lee & Sugiura (2018) and He *et al.*

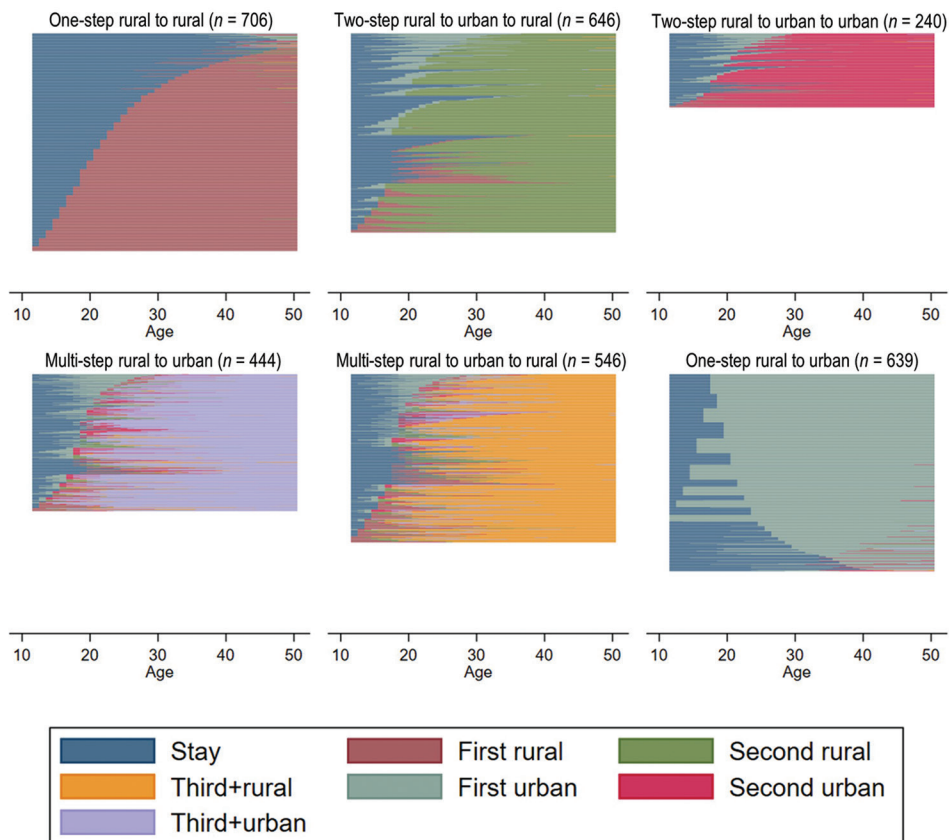


Figure 1. Rural-urban migration trajectories

Source: Author's calculations based on Indonesian Family Life Survey data from 1993, 1997, 2000, 2007, and 2014.

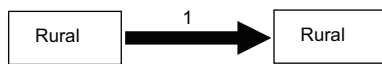


Figure 2. Cluster 1 of the six clusters with the highest Calinski-Harabasz pseudo-F statistic

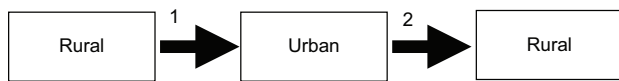


Figure 3. Cluster 2 of the six clusters with the highest Calinski-Harabasz pseudo-F statistic

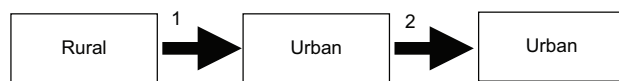


Figure 4. Cluster 3 of the six clusters with the highest Calinski-Harabasz pseudo-F statistic

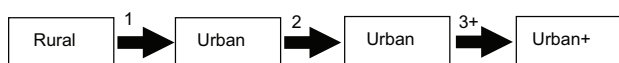


Figure 5. Cluster 4 of the six clusters with the highest Calinski-Harabasz pseudo-F statistic

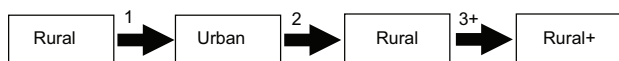


Figure 6. Cluster 5 of the six clusters with the highest Calinski-Harabasz pseudo-F statistic

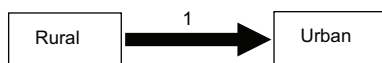


Figure 7. Cluster 6 of the six clusters with the highest Calinski-Harabasz pseudo-F statistic

(2023), which show that attachment to hometown and the work-life balance available are the causes of these migrants choosing to return to rural areas.

Cluster 3, the smallest cluster, comprises individuals who experience two-step urban migration. These migrants move between urban areas, suggesting a search for better opportunities within urban settings. Unlike Cluster 2, these individuals remain within the urban hierarchy, indicating a preference or necessity for staying in urban environments.

Cluster 4, known as multi-step urban migration: urban first, followed by various urban hierarchies, and stopped in urban areas. The + sign suggests that urban destinations may still emerge along the trajectory. This pattern reflects a dynamic urban lifestyle, likely driven by career advancement, better living conditions, or other urban-centric motivations. These migrants exhibit a high degree of mobility and adaptability within urban settings.

Cluster 5, named multi-step urban-rural migration, involves multiple movements that start in urban areas and

eventually settle in rural areas. The + sign suggests that rural destinations may still emerge along the trajectory. This pattern might be indicative of individuals who initially seek urban opportunities but later prefer the tranquility or affordability of rural living. It suggests a lifecycle approach to migration, where early urban experiences pave the way for later rural settlement.

Cluster 6, one-step urban migration, captures individuals who move once to an urban area and remain there. This pattern is common among younger migrants who move to cities for education or early career opportunities. The stable urban settlement reflects the attractiveness of urban areas for long-term residence, driven by various factors, such as better infrastructure, services, and job prospects.

### 3.3. Analysis of migration typologies

The analysis of migration typologies through multinomial regression uncovers a noteworthy correlation between sociodemographic characteristics and migration patterns in Indonesia (Table 3). Males show a marked inclination toward multi-step urban-rural migration, suggesting a propensity for multiple moves. This result aligns with Cattaneo & Robinson's (2019) research, which concluded that males are more likely to undertake multiple migrations. Conversely, females exhibit a preference for one-step rural migration, a pattern that aligns with marriage-related motives. Cindy Fan & Huang (1998) observed that women frequently encounter barriers in accessing urban labor markets and achieving social and economic advancement, prompting many to migrate to and marry into rural areas in more developed regions to overcome these obstacles. This gender disparity highlights the influence of sociocultural factors on migration choices, indicating that females may prioritize the stability and familial bonds found in rural settings. Findings from Devi *et al.* (2009) in India also found that the majority of migration was from one rural area to another due to marriage in the case of females.

These gendered patterns underscore the influence of institutional and socio-cultural structures on migration decisions. Limited access to urban employment, gendered household roles, and prevailing cultural norms collectively shape and often restrict women's spatial and strategic mobility. This aligns with Institutional Theory (North, 1990), which emphasizes how both formal and informal institutions regulate individual behavior. Ultimately, migration outcomes reflect not only individual agency but also the structural conditions that enable or constrain mobility along the intersecting lines of gender, class, and geography.

Marital status shows varied impacts on migration behavior. While married individuals do not display

Table 3. Multinomial logistics model of migrant's typologies

Social demographic characteristics	Migrants' typologies <sup>a</sup> (ref. model: one-step rural)				
	Two-step urban-rural	Two-step urban	Multi-step urban	Multi-step urban-rural	One-step urban
Gender (ref. male)					
Female	0.785**	0.794*	0.812**	0.766***	1.040
Marital status (ref. unmarried)					
Married	1.096	0.782**	0.910	0.932	0.930
Ever married	0.756**	0.849	0.633***	0.567***	0.702***
Level of education (ref. low)					
Middle (junior high school/equivalent)	1.138	1.871***	2.447***	1.181	1.702***
High (senior high school and higher)	1.442**	2.212***	4.453***	1.646***	2.100***
Gender and level of education					
Female with higher education	1.433*	1.335	1.251	1.330	1.205
Age group (ref. <20 years)					
20–30 years	1.713***	2.381***	1.259	2.308***	0.728**
31–44 years	1.665**	2.406***	1.609**	2.649***	0.572***
45+ year	0.939	1.193	0.980	1.521*	0.411***
Welfare status (ref. poor)					
Near poor	1.134	1.651***	1.950***	1.373***	1.728***
Not poor	1.189*	1.528***	2.642***	1.241**	1.930***
Island of origin (ref. others)					
Java	1.876***	1.070	3.112***	1.392***	2.721***
Sumatera	1.396***	0.870	1.443***	1.152	1.323**
Migration motives (ref. other motives)					
Work	0.765**	1.403**	1.651***	1.600***	1.058
Education	1.897***	2.076***	1.572**	3.001***	1.943***
Marriage	0.382***	0.383***	0.259***	0.261***	0.797
Migration with family	0.963	0.878	0.754*	0.627***	0.908
To be closer to family	1.799***	1.153	0.837	1.572***	0.757*
Pregnancy/other family reasons	1.079	0.873	0.676**	0.705**	0.781
Migrate with (ref. alone)					
Others	0.690***	0.820*	1.216**	0.939	0.901
Constant term ( $\beta_0$ )	0.467***	0.193***	0.109***	0.330***	0.466***

Notes: Statistical significance: \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.001$ , <sup>a</sup>starting from rural.

Source: Author's calculations based on Indonesian Family Life Survey data from 1993, 1997, 2000, 2007, and 2014.

Abbreviation: Ref.: Reference.

significant differences across migration clusters, single individuals, both unmarried and ever married, are more likely to migrate. This can be attributed to the fewer social ties and responsibilities that single individuals have compared to their married counterparts (Folger & Rowan, 1953). This is also confirmed when the coefficients in the multi-step cluster are compared between unmarried and ever-married individuals. The large difference between the two indicates that unmarried individuals (single) are more mobile than those who are ever married, supporting

findings from Kleinepier *et al.* (2015) and Pardede *et al.* (2020), but contrasting with Takenaka (2007) and Zufferey (2019), who found that multiple migrants are often married.

Education is strongly associated with variations in migration patterns, with higher levels of education correlating with an increased likelihood of migration, especially toward urban destinations. This result is in line with Gould (1982) and Haapanen & Böckerman (2017), who emphasized the preference of highly educated migrants

for urban areas. The notably high odds ratios for multi-step urban migration among the highly educated suggest a strong association between educational attainment and greater mobility to urban areas. This finding is consistent with Nekby (2006), Takenaka (2007), and Agrawal (2016). Ritsilä & Haapanen (2003) also reported that highly educated migrants tend to relocate to urban areas in Finland. Similarly, Paweenawat & Liao (2023) concluded that higher education increases the likelihood of migration to cities in Thailand. Interestingly, a significant association between gender and education is observed only in the two-step urban-rural cluster, where higher education is correlated with a greater likelihood of migration among females. This suggests that although education is positively associated with mobility for both genders, males tend to exhibit higher overall mobility.

Age is another factor that shapes migration patterns. Migrants in all clusters are predominantly over 20 years old, except in the one-step urban cluster, where younger individuals under 20 are more prevalent. In the case of Indonesia, this finding is consistent with Malamassam's (2016; 2022) studies, which concluded that young migrants typically move to cities. This indicates a trend where younger individuals initially move to urban areas for education or early career opportunities, whereas older individuals, particularly those aged 31–44, are more common in multi-step migration clusters. These mature migrants have likely accumulated diverse migration experiences, reflecting a lifecycle approach to migration (Bernard *et al.*, 2022) where early urban experiences facilitate subsequent relocations.

In terms of welfare status, migrants are, on average, drawn from non-poor households, underscoring the financial capital required for migration. This finding aligns with Kothari's (2003) assertion that migration is a crucial livelihood strategy for many impoverished individuals, but it necessitates certain forms of capital that not all possess. The high odds ratio for the non-poor variable in the multi-step urban cluster suggests that repeated moves between urban areas entail higher costs compared to other clusters. This reinforces the notion that economic resources are crucial for sustaining multiple relocations, aligning with the idea that migration is often accompanied by financial investment. Widaryoko *et al.* (2023) also found that multiple migrants predominantly come from affluent families. The strong association between repeated migration and non-poor status also suggests that migration serves as a livelihood diversification strategy, with migrants leveraging financial and social capital to mitigate risk and access new opportunities. This aligns with the notion of migration as a calculated, resource-intensive endeavor,

rather than a spontaneous act, according to Livelihood Theory (Chambers & Conway, 1991).

From a spatial perspective, Table 3 demonstrates that Java consistently attracts migrants of all typologies, reflecting its status as Indonesia's most populous region, offering abundant economic opportunities and comprehensive facilities. However, this observation should be interpreted with caution, as the analysis is limited to island-level comparisons and does not account for intra-island disparities, urban hierarchies, or physical barriers, such as inter-island seas, that may influence migration costs. This preference for Java underscores its role as both a major origin and destination for migration, drawing people from various regions in search of better livelihoods. This finding somewhat contradicts Pardede *et al.*'s (2020) research, which suggested that while residents of Java are more likely to migrate, they tend to do so only between provinces.

Migration motives further differentiate the clusters. Migrants who engage in repeated migration (multi-step migration), whether moving to urban and then rural or to various urban areas, are primarily driven by employment motives. This is consistent with the concept of migration as spatial interaction, as proposed by Norris (1972), which posits that migrants will always seek out opportunities and relocate to new areas as long as these opportunities are profitable. Haandrikman & Hassanen (2014) also observed that Somali migrants in Sweden, who move onward to the United Kingdom or Australia, are often driven by job-related motives.

Migrants who migrate for education typically follow a multi-step urban-rural trajectory (as indicated by the highest odds ratio value). Meanwhile, marriage, migration with family, and pregnancy/other family reasons are commonly connected with one-step rural migration trajectories. Migrants who relocate for these three reasons prefer rural areas that are geographically closer to their place of origin (rural). Meanwhile, migrants who migrate to be closer to family typically follow a two-step urban-rural trajectory. It is probable that this group of migrants moves to large cities for work and then returns to their hometowns to be with their relatives.

Finally, migration patterns also vary in terms of companionship. Migrants in the two-step urban-rural and two-step urban clusters are more likely to move alone, whereas those in the multi-step urban migration cluster often relocate with family members. This distinction highlights the differing social dynamics within migration clusters, where repeated urban migrants may involve their families in their relocations, while others prefer individual mobility.

## 4. Concluding remarks

This study fundamentally reexamines internal migration in Indonesia, challenging the long-standing narrative that frames it primarily as a linear, rural-to-urban process. By conceptualizing migration as a recursive, life-stage-dependent, and structurally embedded process, this study offers a novel empirical and theoretical lens for understanding population mobility in Southeast Asia. Drawing on longitudinal data from the IFLS and employing sequence analysis alongside multinomial logistic regression, our findings suggest that internal migration is far more complex and dynamic. Rather than a one-time relocation, migration often unfolds as a series of movements, multi-directional, non-linear, and closely intertwined with life-course transitions. The dominance of the rural-urban paradigm, often treated as the norm, is empirically contested: only around 20% of observed trajectories follow this path. In contrast, certain patterns, such as rural to rural, urban to rural, and multi-step urban migrations, are both frequent and significant, illustrating that migration is often a recursive, adaptive strategy shaped by broader socioeconomic and institutional contexts.

These patterns are not random but appear to be associated with key demographic, socioeconomic, and spatial characteristics. Gender, for instance, emerges as a critical axis of differentiation: males are more likely to engage in multi-step, economically oriented migrations, often undertaken independently, whereas females are disproportionately represented in one-step rural migrations, often linked to marriage. These trends reflect persistent gender norms and barriers to women's participation in urban labor markets. Similarly, higher educational attainment is strongly associated with participation in complex, urban-oriented migration trajectories, suggesting that education may expand individuals' capacity to access urban economic opportunities. Economic status also appears to influence migration complexity, with non-poor individuals more frequently involved in cost-intensive, repeated migrations. Spatially, Java functions as a major hub for internal migration across all typologies, underscoring its economic centrality while also highlighting underexplored spatial disparities within and across regions. This finding reinforces the need for future migration research to incorporate spatial analytics that capture not only movement between regions but also across urban hierarchies and economic corridors within islands.

These insights demand a recalibration of policy. First, the prominence of rural-rural and urban-rural migrations points to the economic vitality and social anchorage of rural areas, warranting investments in rural employment,

land access, and infrastructure to offset urban congestion. Second, migration policy must be gender-responsive, expanding women's options beyond marriage-led rural moves by investing in female education, skill-building, and care services. Third, Indonesia needs policies that acknowledge and support circularity in migration, such as portable benefits, multi-location housing rights, and mobility-aware urban planning, to harness migrants' contributions to both sending and receiving regions. Taken together, these recommendations emphasize the importance of designing internal migration policy not only as a demographic response but also as an instrument for achieving inclusive and spatially balanced development.

While this study contributes to our understanding of migration patterns, it is essential to acknowledge its limitations and identify areas for future research. First, the current analysis focuses mainly on general migration trends. Analyzing rural-urban migration behavior based on subsamples of economic backgrounds (such as poor and non-poor) and gender could provide a more comprehensive understanding of migration dynamics. This disaggregation would help reveal intersectional inequalities that shape individuals' capacity and constraints to move.

Second, the study relies on retrospective migration histories drawn from the IFLS, which may be subject to recall bias, particularly among older respondents or those with complex migration experiences. Although the dataset's longitudinal design provides valuable depth, its reliance on self-reported events may limit the accuracy of reconstructed trajectories. Future research would benefit from triangulating such data with administrative records or real-time migration tracking to enhance reliability.

Third, despite the analytical strengths of the IFLS, its quantitative design constrains the exploration of the gendered, emotional, and culturally embedded aspects of migration decision-making, particularly among women. Addressing this gap requires the integration of qualitative methods that can capture how women navigate familial responsibilities, gender norms, and perceived risks in shaping their mobility strategies. Such approaches would provide a more holistic, human-centered understanding of migration, not merely as a structural or economic response, but as a deeply lived and negotiated process.

Moreover, it is important to note that this analysis is based on data collected up to 2014, before significant policy developments, such as the post-2020 capital relocation plan and expansive regional development initiatives. While the study does not capture the impact of these more recent transformations, its primary aim is to reconstruct long-term migration trajectories, particularly rural-urban patterns, based on a rich and representative longitudinal

dataset. As such, it offers a valuable historical baseline for understanding migration dynamics before Indonesia's ongoing spatial restructuring. Future research should build on this foundation using updated data, predictive modeling, or integrating spatial and administrative sources to better capture the evolving complexity of internal migration in Indonesia.

Finally, this study's spatial analysis is limited to island-level comparisons. It does not distinguish between intra-island variations, such as provincial disparities or urban hierarchies, which may mask significant geographic nuances in migration patterns. Future research could benefit from incorporating finer spatial units to better understand the diversity of internal migration trajectories. In addition, substantial geographic barriers between regions, such as the sea separating Java and Sumatra, are likely to impose significant costs and constraints on migration flows. Recognizing and incorporating these physical barriers and their influence on migration decisions would further enrich the analysis in future studies.

## Acknowledgments

We would like to thank the RAND Corporation for providing the IFLS data.

## Funding

This research was funded by Universitas Gadjah Mada through the Academic Excellence Grant Scheme A of 2024, notification number 6513/UN1.P1/PT.01.01/2024, dated May 30, 2024.

## Conflict of interest

The authors declare they have no competing interests.

## Author contributions

*Conceptualization:* All authors

*Investigation:* Agus Joko Pitoyo, Nanang Widaryoko, Muhammad Arif Fahrudin Alfana

*Methodology:* Nanang Widaryoko

*Writing—original draft:* Nanang Widaryoko, Muhammad Arif Fahrudin Alfana

*Writing—review & editing:* All authors

## Ethics approval and consent to participate

The IFLS surveys and their associated procedures underwent rigorous ethical review and received approval from IRBs in both the United States (via RAND) and Indonesia. Specifically, IFLS1 and IFLS2 were approved by the IRB at Universitas Indonesia, IFLS3 and IFLS4 by the IRB at Universitas Gadjah Mada, and IFLS5 by the IRB at Survey Meter. Consequently, all required

protocols for obtaining informed consent from both adult and child participants were fulfilled and formally authorized by the respective authorities before the initiation of fieldwork.

## Consent for publication

Not applicable.

## Availability of data

The data supporting these findings are available at: <https://www.rand.org/well-being/social-and-behavioral-policy/data/FLS/IFLS/access.html>. Alternatively, the data are available from the corresponding author upon request.

## References

- Aassve, A., Billari, F.C., & Piccarreta, R. (2007). Strings of adulthood: A sequence analysis of young british women's work-family trajectories. *European Journal of Population*, 23(3-4), 369-388.  
<https://doi.org/10.1007/s10680-007-9134-6>
- Abbott, A., & Tsay, A. (2000). Sequence analysis and optimal matching methods in sociology: Review and prospect. *Sociological Methods and Research*, 29(1):49-64.  
<https://doi.org/10.1177/0049124100029001001>
- Agrawal, S.K. (2016). Twice migrants in canada: Who are they and how do they perform economically? *Journal of International Migration and Integration*, 17(3):669-686.  
<https://doi.org/10.1007/s12134-015-0428-y>
- Ananta, A., Nurvidya, E., Ari, A., & Paul, P. (2023). Does diversity matter for development? New evidence of ethnic diversity's mediation between internal migration and economic growth across Indonesia's regions. *Journal of Population Research*, 40(13):1-21.  
<https://doi.org/10.1007/s12546-023-09304-z>
- Bazzi, S., Gaduh, A., Rothenberg, A.D., & Wong, M. (2016). Skill transferability, migration, and development: Evidence from population resettlement in Indonesia. *American Economic Review*, 106(9):2658-2698.  
<https://doi.org/10.1257/aer.20141781>
- Bernard, A. (2022a). *Internal Migration as a Life-Course Trajectory: Toward a Research Agenda on Repeat Migration*. Vol. 53. Berlin: Springer, p.171-187.  
[https://doi.org/10.1007/978-3-031-05423-5\\_9](https://doi.org/10.1007/978-3-031-05423-5_9)
- Bernard, A. (2022b). Sequence analysis of lifetime internal migration trajectories: Onward, return, and circular migration. In: Lynch, S.M., editor. *Internal Migration as Life-Course Trajectory: Concepts, Methods and Empirical Applications*. Berlin: Springer, p.133-146.
- Bernard, A., Kalembe, S., & Nguyen, T. (2022). Do internal

- migration experiences facilitate migration intentions and behavior? *Demography*, 59(4):1249-1274.  
<https://doi.org/10.1215/00703370-9986021>
- Billari, F.C. (2001). The analysis of early life courses: Complex descriptions of the transition to adulthood. *Journal of Population Research*, 18(2), 119-142.  
<https://doi.org/10.1007/BF03031885>
- BPS. (2023). *Hasil Long Form Sensus Penduduk 2020*. Jakarta: BPS.
- Brickell, K., & Datta, A, editors. (2016). *Translocal Geographies Spaces, Places, Connections*. Milton Park: Routledge.
- Brzinsky-Fay, C., Kohler, U., & Luniak, M. (2006). Sequence analysis with Stata. *Stata Journal*, 6(4):435-460.  
<https://doi.org/10.1177/1536867x0600600401>
- Caliński, T., & Harabasz, J. (1974). A Dendrite method for cluster analysis. *Communications in Statistics*, 3(1):1-27.  
<https://doi.org/10.1080/03610927408827101>
- Cattaneo, A., & Robinson, S. (2019). Economic Development and the Evolution of Internal Migration Moving in Steps, Returnees, and Gender Differences. In: *FAO Agricultural Development Economics Working Paper Series*.  
<https://doi.org/10.13140/RG.2.2.15222.52809>
- Cattaneo, A., & Robinson, S. (2020). Multiple moves and return migration within developing countries: A comparative analysis. *Population, Space and Place*, 26(7):e2335.  
<https://doi.org/10.1002/psp.2335>
- Chambers, R., & Conway, G.R. (1991). Sustainable Rural Livelihoods: Practical Concepts for the 21<sup>st</sup> Century. In: *To the Hands of the Poor: Water and Trees*. [IDS Discussion Paper 296].
- Chen, Z., Lu, Y., & Treiman, D.J. (2021). Determinants and consequences of rural-to-urban migration patterns in China: Evidence from sequence analysis. *Population, Space and Place*, 28(2):e2493.  
<https://doi.org/10.1002/psp.2493>
- Cindy Fan, C., & Huang, Y. (1998). Waves of rural brides: Female marriage migration in China. *Annals of the Association of American Geographers*, 88(2):227-251.  
<https://doi.org/10.1111/1467-8306.00092>
- Debray, A., & Ruyssen, I. (2023). The aspiration to stay: A global analysis. *International Migration Review*, 59(3):1385-1431.  
<https://doi.org/10.1177/01979183231216087>
- Devi, P.A., Geetha, K.T., & Gomathi, K.R. (2009). Rural out-migration: Two group discriminant analysis. *Social Change*, 39(1):85-101.  
<https://doi.org/10.1177/004908570903900105>
- Elder, G.H. (1998). The life course as developmental theory. *Child Development*, 69(1):1-12.  
<https://doi.org/10.1111/j.1467-8624.1998.tb06128.x>
- Elzinga, C.H., & Liefbroer, A.C. (2007). De-standardization of family-life trajectories of young adults: A cross-national comparison using sequence analysis. *European Journal of Population*, 23(3-4):225-250.  
<https://doi.org/10.1007/s10680-007-9133-7>
- Folger, J., & Rowan, J. (1953). Migration and marital status in ten southeastern cities. *Social Forces*, 32(2):178-185.  
<https://doi.org/10.2307/2573717>
- Gillespie, B.J., Mulder, C.H., & Von Reichert, C. (2022). The role of family and friends in return migration and its labor market outcomes. *Population Research and Policy Review*, 41(1):115-138.  
<https://doi.org/10.1007/s11113-021-09650-x>
- Gould, W.T.S. (1982). Education and internal migration: A review and report. *International Journal of Educational Development*, 1(3):103-111.  
[https://doi.org/10.1016/0738-0593\(82\)90047-5](https://doi.org/10.1016/0738-0593(82)90047-5)
- Haandrikman, K., & Hassanen, S. (2014). Onward Migration of African Europeans: Comparing Attitudes to Migration Motives. In: *Stockholm Research Reports in Demography*, p.15. Available from: <https://doi.org/10.17045/sthlmuni.14438993.v1> [Last accessed on 2024 Apr 22].
- Haapanen, M., & Böckerman, P. (2017). More educated, more mobile?: Evidence from post-secondary education reform. *Spatial Economic Analysis*, 12(1):8-26.  
<https://doi.org/10.1080/17421772.2017.1244610>
- He, L., Mao, Y., & Kinoshita, T. (2023). Place attachment among rural migrants and returnees: Case of Shuangfeng County, China. *Frontiers in Psychology*, 14:1279679.  
<https://doi.org/10.3389/fpsyg.2023.1279679>
- Hugo, G.J. (1982). Circular migration in Indonesia. *Population and Development Review*, 8(1):59-83.  
<https://doi.org/10.2307/1972690>
- Impicciatore, R., & Panichella, N. (2019). Internal migration trajectories, occupational achievement and social mobility in contemporary Italy. A life course perspective. *Population, Space and Place*, 25(6):1-19.  
<https://doi.org/10.1002/psp.2240>
- King, R., & Skeldon, R. (2010). "Mind the Gap!" Integrating approaches to internal and international migration. *Journal of Ethnic and Migration Studies*, 36(10):1619-1646.  
<https://doi.org/10.1080/1369183X.2010.489380>
- Kleinepiper, T., De Valk, H.A.G., & Van Gaalen, R. (2015). Life paths of migrants: A sequence analysis of polish migrants' family life trajectories. *European Journal of Population*, 31(2):155-179.

- <https://doi.org/10.1007/s10680-015-9345-1>
- Kothari, U. (2003). Staying put and staying poor? *Journal of International Development*, 15(5):645-657.
- <https://doi.org/10.1002/jid.1022>
- Kumar, S. (2020). A geographical analysis of rural male out-migration: A Case study of Bhagalpur district. In: Banerjee, A., Jana, N.C., & Mishra, V.K., editors. *Population Dynamics in Contemporary South Asia: Health, Education and Migration*. Singapore: Springer, p.331-355.
- [https://doi.org/10.1007/978-981-15-1668-9\\_14](https://doi.org/10.1007/978-981-15-1668-9_14)
- Lee, E.S. (1966). A theory of migration. *Demography*, 3(1):47-57.
- <https://doi.org/10.2307/2060063>
- Lee, Y.J., & Sugiura, H. (2018). Key Factors in determining internal migration to rural areas and its promoting measures—a case study of hirosaki city, aomori prefecture. *Public Policy Review*, 14(1):153-177.
- Lewis, W.A. (1954). Economic development with unlimited supplies of labour. *The Manchester School*, 22(2).
- <https://doi.org/10.1111/j.1813-6982.1962.tb02428.x>
- Liang, Z., Chen, Y.P., & Gu, Y. (2002). Rural industrialisation and internal migration in China. *Urban Studies*, 39(12):2175-2187.
- <https://doi.org/10.1080/0042098022000033926>
- Lindstrom, D.P. (1996). Economic opportunity in Mexico and return migration from the United States. *Demography*, 33(3):357-374.
- <https://doi.org/10.2307/2061767>
- Liu, T., Shi, Q., & Zhuo, Y. (2023). Are adaptation challenges relevant to the location choices of internal migrants? Evidence from China. *Regional Studies*, 58(9):1674-1686.
- <https://doi.org/10.1080/00343404.2023.2281434>
- Lucas, R.E.B. (2015). Internal Migration in Developing Countries: An Overview. In: *KNOMAD Working Paper*. Vol. 6, p.1-31.
- Mabogunje, A.L. (1970). Systems approach to a theory of rural-urban migration. *Geographical Analysis*, 2(1):1-18.
- <https://doi.org/10.1111/j.1538-4632.1970.tb00140.x>
- Malamassam, M.A. (2016). Youth migration in Indonesia: Decision to move and to choose destination areas. *Indonesian Journal of Geography*, 48(1):62-72.
- <https://doi.org/10.22146/ijg.12469>
- Malamassam, M.A. (2022). Spatial structure of youth migration in Indonesia: Does education matter? *Applied Spatial Analysis and Policy*, 15(4):1045-1074.
- <https://doi.org/10.1007/s12061-022-09434-6>
- Muhidin, S. (2014). Migration patterns: People on the move. In: *Regional Dynamics in a Decentralized Indonesia*. Singapore: ISEAS Publishing, p.309-333.
- <https://doi.org/10.1355/9789814519175-020>
- Mulder, C.H. (1993). *Migration Dynamics: A Life Course Approach*. Missouri: Thesis Publishers.
- <https://doi.org/10.2307/2546807>
- Needleman, S.B., & Wunsch, C.D. (1970). A general method applicable to the search for similarities in the amino acid sequence of two proteins. *Molecular Biology*, 48(3):443-453.
- <https://doi.org/10.1016/b978-0-12-131200-8.50031-9>
- Nekby, L. (2006). The emigration of immigrants, return vs. Onward migration: Evidence from Sweden. *Journal of Population Economics*, 19(2):197-226.
- <https://doi.org/10.1007/s00148-006-0080-0>
- Norris, R.E. (1972). Migration as spatial interaction. *Journal of Geography*, 71(5):294-301.
- <https://doi.org/10.1080/00221347208981672>
- North, D.C. (1990). In: Alt, J., & North, D.C., editors. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Pardede, E.L., Mccann, P., & Venhorst, V. (2016). Step-wise migration : Evidence from Indonesia. *European Population Conference - EPC*, p.1-8. Available from: Available from: <https://epc2016.eaps.nl/papers/160127> [Last accessed on 2024 Apr 22].
- Pardede, E.L., McCann, P., & Venhorst, V.A. (2020). Internal migration in Indonesia: new insights from longitudinal data. *Asian Population Studies*, 16(3):287-309.
- <https://doi.org/10.1080/0032472031000145406>
- Paul, A.M., & Yeoh, B.S.A. (2021). Studying multinational migrations, speaking back to migration theory. *Global Networks*, 21(1):3-17.
- <https://doi.org/10.1111/glob.12282>
- Paweenawat, S.W., & Liao, L. (2023). The role of higher education on migration to cities in Thailand. *Cities*, 137:104309.
- <https://doi.org/10.1016/j.cities.2023.104309>
- Piccarreta, R., & Billari, F.C. (2007). Clustering work and family trajectories by using a divisive algorithm. *Journal of the Royal Statistical Society. Series A: Statistics in Society*, 170(4):1061-1078.
- <https://doi.org/10.1111/j.1467-985X.2007.00495.x>
- Pitoyo, A.J. (2018). Working in the global world: looking for more modern workplace overseas. *Earth and Environmental Science*, 148:1-11.
- <https://doi.org/10.1088/1755-1315/148/1/012011>
- Pollock, G. (2007). Holistic trajectories : A study of combined employment, housing and family careers by using multiple-sequence analysis. *Journal of the Royal Statistical Society Series A*, 170(1):167-183.

- <https://doi.org/10.1111/j.1467-985X.2006.00450.x>
- Randolph, G.F., & Naik, M. (2017). An analysis of 'migrant-intensity' in India and Indonesia: Seeing internal migration patterns through a place-based lens. *Environment and Urbanization ASIA*, 8(1):40-58.
- <https://doi.org/10.1177/0975425316683861>
- Ravenstein, E. (1885). The laws of migration. *Journal of the Statistical Society of London*, 48(2):167-235.
- <https://doi.org/10.2307/2979181>
- Ritschard, G., & Oris, M. (2005). Life course data in demography and social sciences: Statistical and data-mining approaches. *Advances in Life Course Research*, 10(11):283-314.
- [https://doi.org/10.1016/S1040-2608\(05\)10011-2](https://doi.org/10.1016/S1040-2608(05)10011-2)
- Ritsilä, J., & Haapanen, M. (2003). Where do the highly educated migrate? Micro-level evidence from Finland. *International Review of Applied Economics*, 17(4):437-448.
- <https://doi.org/10.1080/0269217032000118765>
- Sheller, M., & Urry, J. (2006). The new mobilities paradigm. *Environment and Planning A*, 38(2):207-226.
- <https://doi.org/10.1068/a37268>
- Shen, H., Song, Y., & Shan, Z. (2024). Migration choices for farming households in rural areas: Why new countryside locations are important for the inhabitants of traditional agricultural areas in central China. *Growth and Change*, 55(2):1-19.
- <https://doi.org/10.1111/grow.12719>
- Stark, O. (2019). Behavior in reverse: Reasons for return migration. *Behavioural Public Policy*, 3(1):104-126.
- <https://doi.org/10.1017/bpp.2018.27>
- Sugiyarto, E., Deshingkar, P., & McKay, A. (2019). Internal migration and poverty: A lesson based on panel data analysis from Indonesia. In: Jayanthakumaran, K., Verma, R., Wan, G., & Wilson, E., editors. *Internal Migration, Urbanization, and Poverty in Asia: Dynamics and Interrelationships*. England: Springer Open, p.135-162.
- [https://doi.org/10.1007/978-981-13-1537-4\\_6](https://doi.org/10.1007/978-981-13-1537-4_6)
- Takenaka, A. (2007). *Secondary Migration: Who Re-Migrates and why these Migrants Matter*. Migration Policy Institute. Available from: <https://www.migrationpolicy.org/article/secondary-migration-who-re-migrates-and-why-these-migrants-matter> [Last accessed on 2024 Apr 22].
- Tirtosudarmo, R. (2009). Mobility and human development in Indonesia. In: *Human Development Research Paper*. Available from: <https://mpr.ub.uni-muenchen.de/19201>
- Todaro, M.P. (1969). A model of labor migration and urban unemployment in less developed countries. *The American Economic Review*, 59(1):138-148.
- Vidal, S., Lersch, P.M., Jacob, M., & Hank, K. (2020). Interdependencies in mothers' and daughters' work-family life course trajectories: similar but different? *Demography*, 57(4):1483-1511.
- <https://doi.org/10.1007/s13524-020-00899-z>
- Wee, K., & Yeoh, B.S.A. (2021). Serial migration, multiple belongings and orientations toward the future: The perspective of middle-class migrants in Singapore. *Journal of Sociology*, 57(1):94-110.
- <https://doi.org/10.1177/1440783320960521>
- Widaryoko, N., Sukamdi, & Pitoyo, A.J. (2023). Remapping internal migration: How complex are Indonesian migration trajectories? *Journal of Population and Social Studies*, 32:56-77.
- <https://doi.org/10.25133/JPSv322024.004>
- Widaryoko, N., Sukamdi, S., & Pitoyo, A.J. (2025). The economic and poverty impact of migration: Is repeated migration better than one-way migration? *Cogent Social Sciences*, 11(1):1-25.
- <https://doi.org/10.1080/23311886.2025.2495858>
- Yang, M., Dijst, M., & Helbich, M. (2020). Migration trajectories and their relationship to mental health among internal migrants in urban China: A sequence alignment approach. *Population, Space and Place*, 26(5):1-11.
- <https://doi.org/10.1002/psp.2304>
- Zufferey, J. (2019). Who are the serial movers? Sociodemographic profiles and reasons to migrate to Switzerland among multiple international migrants. In: *IMISCOE Research Series*. Germany: Springer Science and Business Media, p.83-100.
- [https://doi.org/10.1007/978-3-030-05671-1\\_4](https://doi.org/10.1007/978-3-030-05671-1_4)
- Zufferey, J., Steiner, I., & Ruedin, D. (2021). The many forms of multiple migrations: Evidence from a sequence analysis in Switzerland, 1998 to 2008. *International Migration Review*, 55(1):254-279.
- <https://doi.org/10.1177/0197918320914239>

## RESEARCH ARTICLE

Refugee integration through social support:  
A clustering approach in host countriesValeriia Shcherbak<sup>1\*</sup>, Svitlana Tereshchenko<sup>1</sup>, Tetiana Kostyshyna<sup>2</sup>,  
Viktorii Riashchenko<sup>3</sup>, and Valentyna Yatsenko<sup>4</sup><sup>1</sup>Department of Economics and Entrepreneurship, Economics and Management Faculty, Sumy National Agrarian University, Sumy, Sumy Oblast, Ukraine<sup>2</sup>Department of Human Resources Management, Labor Economics and Economic Theory, Educational and Scientific Institute of Social and Labor Relations, Poltava University of Economics and Trade, Poltava, Poltava Oblast, Ukraine<sup>3</sup>Department of Business Administration, ISMA University of Applied Sciences, Riga, Latvia<sup>4</sup>Department of History and Socio-Economic Disciplines, Faculty of Preschool and Special Education and History, Municipal Establishment "Kharkiv Humanitarian-Pedagogical Academy" of the Kharkiv Regional Council, Kharkiv, Kharkiv Oblast, Ukraine**\*Corresponding author:**Valeriia Shcherbak  
(admin@snau.edu.ua)

**Citation:** Shcherbak, V., Tereshchenko, S., Kostyshyna, T., Riashchenko, V. & Yatsenko, V. (2025). Refugee integration through social support: A clustering approach in host countries. *International Journal of Population Studies*. 11(6): 130-143. <https://doi.org/10.36922/ijps.4502>

**Received:** August 12, 2024**1st revised:** October 3, 2024**2nd revised:** November 25, 2024**3rd revised:** December 17, 2024**4th revised:** January 14, 2025**Accepted:** April 30, 2025**Published online:** May 16, 2025

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**Abstract**

In the context of mass displacement caused by war and other crises, the integration of refugees has become a critical task for host countries. This study examines nine recipient countries, with a detailed focus on Poland, Germany, and the Czech Republic, chosen for their geographical proximity to Ukraine and their differing levels of social support and integration programs. Effective social support measures are essential for fostering an inclusive society and achieving sustainable socioeconomic development. The study aims to classify host countries based on their integration efforts and identify key indicators influencing refugee integration, such as access to social services, employment rate, language proficiency, and participation in integration programs. Using hierarchical clustering (Joining Tree method) and K-means cluster analysis, the study groups countries based on similarities in their integration policies and outcomes. Statistical data collected over 3 years (2022 – 2024) were analyzed to highlight patterns and relationships among integration indicators. Germany, characterized by advanced social support – €357 in social assistance on average per person per month and 85% access to integration programs – formed a distinct cluster with Great Britain, reflecting a high level of integration effort. Poland and the Czech Republic, grouped in a separate cluster, demonstrated moderate but improving integration policies. The findings highlight the multifaceted nature of refugee integration, where access to services and employment opportunities play foundational roles, while language proficiency and social participation ensure long-term inclusion. This study confirms the importance of well-developed social support systems in facilitating refugee integration and offers evidence-based insights for improving integration policies. The findings contribute to ongoing migration policy debates, providing practical recommendations for fostering inclusive and sustainable societies.

**Keywords:** Migrant integration; Social support; Refugees; Inclusive society

## 1. Introduction

Migration is a complex, multifaceted process that significantly influences the economy, society, and cultural dynamics of both origin and destination countries. Modern migration flows are characterized by great diversity, encompassing economic migrants seeking better opportunities, as well as refugees fleeing conflicts and persecution. Migration – the movement of people from one place of residence to another – can be voluntary or forced, temporary or permanent, and occur within a country or across its borders. The reasons for migration include economic advancement, family reunification, or access to education. In contrast, refuge involves the forced displacement of people who left their country due to well-founded fears of persecution based on race, nationality, religion, citizenship, membership in a particular social group, or political opinion. Refugees often leave their country to escape threats to their lives and safety. Striking examples include the mass displacement of people from Syria, Afghanistan, Yemen, Venezuela, and other regions affected by war, political instability, or economic crises. The displacement of Ukrainian refugees represents the displacement of the largest group of individuals within the European Union (EU) in recent years. A larger number of people were displaced during the Second World War. It is estimated that the number of Ukrainian refugees has exceeded 7,000,000 since the start of military operations in February 2022 (Internal Displacement Monitoring Centre, 2024; International Organization for Migration [IOM], 2023). This mass displacement has created significant social and economic challenges not only for host countries but for Europe as a whole. This study focuses on three European countries – Poland, Germany, and the Czech Republic – chosen for their geographical proximity to Ukraine and the presence of their large Ukrainian refugee populations. Notably, as the war enters its 3<sup>rd</sup> year, local communities are increasingly experiencing so-called “refugee fatigue” due to the presence of a large number of displaced persons (Wesolowsky, 2024). The novelty of this study lies in the development of an innovative integration model. Based on a comprehensive analysis of existing social support and integration systems from 2022 to 2024, the study identifies the most effective mechanisms for the integration of Ukrainian refugees.

## 2. Literature review and analytical framework for refugee integration

### 2.1. The impact of social support on the integration of refugees

The integration of refugees into host countries is a complex process significantly influenced by the level and quality

of available social support. Numerous studies highlight the crucial role of social support in ensuring successful integration, emphasizing the need for coordinated policies that address the specific needs of these groups. While the integration of refugees into host societies offers numerous benefits, it also carries the potential risk of “refugee fatigue.” A recent study on the Ukrainian refugee crisis highlights that the absence of long-term strategies and the burden on cities hosting large refugee populations may contribute to a growing sense of fatigue, both among refugees and local communities (Hierro and Maza, 2024). This phenomenon can undermine the effectiveness of integration policies and weaken the social cohesion of host communities. Addressing this issue requires a multi-level approach involving long-term planning, city-led relocation initiatives, and targeted support measures to strengthen the resilience of both refugees and host communities. Existing research underscores the importance of well-defined and coordinated integration policies. A study by De Coninck (2022) highlights the need for equitable policies, pointing out disparities in integration approaches for different refugee groups. In its *Rights and Support for Ukrainian Refugees in Receiving Countries* report, the Organization for Economic Co-operation and Development (OECD, 2022) highlights the effectiveness of coordinated EU measures in providing essential services to refugees. The OECD (2022) emphasizes labor market integration as a key component of inclusion, where successful integration often depends on the active involvement of local communities. A study by Jelínková *et al.* (2023) highlights the crucial role of local municipalities in supporting refugee integration, while Panizzon and Riemsdijk (2019) advocate for a multi-level migration management approach that ensures coordination among international, national, and local levels.

Discrimination and bias can significantly hinder refugee integration. Sow (2022) discusses the impact of racial biases in international law on refugee integration, while Bajaj and Stanford (2022) highlight the negative effects of racism and discrimination on the mental and physical health of refugees. Economic integration is also crucial for successful refugee settlement. Kolodiziev *et al.* (2024) and Uzoma *et al.* (2020) underscore the importance of providing refugees with opportunities to participate in the labor market and become self-sufficient.

Cultural adaptation and social inclusion are essential for the well-being of refugees. Several studies explore various aspects of cultural and social integration, including the role of language, social networks, and community participation (Burliai *et al.*, 2023; Dotsey, 2024; Kuppenko *et al.*, 2023; Trung, 2023; Zanin and De Freitas, 2023).

Access to education is vital for refugees to acquire new skills and effectively integrate into host societies. A number of studies highlight the importance of education in the integration process and the challenges faced by refugee students (Artyukhov *et al.*, 2023; Fiialka, 2022; Kozmenko *et al.*, 2023; Nestulya *et al.*, 2023). Furthermore, the health and well-being of refugees are significantly impacted by their integration experiences. In addition, Lee *et al.* (2023) emphasize the necessity for accessible healthcare services for refugees.

The level of social support provided to refugees is crucial for their successful integration. Addressing various dimensions of integration – such as policy frameworks, community engagement, discrimination, economic opportunities, cultural adaptation, education, and health – enables host countries to foster more inclusive and welcoming environments for refugees. The reviewed studies collectively underscore the need for a comprehensive integration approach that incorporates cultural, social, and economic aspects, grounded in principles of equality and justice. By addressing the specific needs of refugees through well-designed social support systems, host countries can foster more inclusive societies where all individuals have the opportunity to thrive.

The integration of refugees can significantly influence the socioeconomic development of host countries. While large-scale migration presents challenges, evidence from several studies highlights the economic contributions of refugees to host countries and the pull factors influencing their migration decisions. For instance, Mulska *et al.* (2021) discuss the migration vector from Ukraine, highlighting the importance of socioeconomic opportunities in EU countries as key drivers of migration. Kolodiziev *et al.* (2024) demonstrate that migrants contribute significantly to economic growth, particularly in small and medium-sized enterprises, where their entrepreneurial spirit and innovative ideas can revitalize local economies. The OECD (2022) underscores the importance of policies that facilitate labor market integration, highlighting the potential of refugees to fill labor shortages and stimulate economic development.

Beyond economic contributions, migrants can significantly influence the demographics and social fabric of host countries. Shcherbak *et al.* (2020) examined the role of migration in rural areas, focusing on its potential for social revitalization and community development. Kozlovskiy *et al.* (2024) explored how migration fosters innovation and entrepreneurship, further contributing to social dynamics. A study by Zanin and De Freitas (2023) highlights the importance of inclusive policies for integrating marginalized groups, such as LGBTQ+

refugees, which help strengthen the cultural and social cohesion of host societies.

While the potential benefits of migration are evident, successful integration requires careful policy design and effective implementation. In response to the Ukrainian crisis, several key documents were developed to manage the mass influx of refugees. Notably, Council Decision (EU) 2022/382 established temporary protection measures for Ukrainian refugees in the EU, forming the foundation for their integration (EUR-Lex, 2022). Goodwin *et al.* (2023) highlight the importance of integrating both internal and external refugees to enhance Ukraine's national resilience. De Oliveira (2023) examined refugees' experiences in Brazilian cities, offering insights into the challenges of integration in new environments. In addition, Saadi *et al.* (2023) conducted a bibliometric analysis of project management related to humanitarian crises, highlighting the need for a sustainable approach to effective refugee integration. Zhao *et al.* (2023) investigated migrant transport integration in Hong Kong, demonstrating that access to public transportation is crucial for fostering social inclusion. Brücker *et al.* (2023) identified key barriers to integration, such as language barriers and discrimination, emphasizing the need for targeted support policies. Uygun *et al.* (2023) highlight the need for favorable working conditions to enhance migrants' job satisfaction and maximize their economic contributions. Sow (2022) further emphasizes the need for non-discriminatory policies to ensure the full inclusion of refugees.

The socioeconomic impacts of refugee and migrant integration are multifaceted, yielding both positive and negative outcomes. When managed effectively, migration can enhance economic growth, social cohesion, and cultural enrichment. Key factors influencing successful integration include: a comprehensive and inclusive policy framework that addresses the specific needs of refugees; adequate social support services to facilitate integration into new communities; access to employment and entrepreneurship opportunities; opportunities for education and training; and fostering positive interactions between refugees and host communities. By addressing these interconnected factors, policymakers can maximize the benefits of migration, creating more inclusive and resilient societies.

## 2.2. Research hypothesis

The hypothesis of this study posits that countries with well-developed social support systems for refugees – including access to housing, employment assistance, healthcare, education, legal aid, and financial benefits – demonstrate higher levels of refugee integration. This integration,

in turn, fosters the creation of an inclusive society and positively contributes to the socioeconomic development of host countries.

The successful integration of refugees requires a comprehensive approach, encompassing access to education, healthcare, the labor market, and social services. Inclusive societies are characterized not only by the availability of these resources but also by the dynamic interaction between social cohesion and stability. Social cohesion helps reduce tension and conflict, while the absence of conflict further promotes cohesion, creating a reinforcing cycle of stability (Bajaj and Stanford, 2022; Lee *et al.*, 2023). Furthermore, research demonstrates that migrants can significantly contribute to the economies of host countries, particularly in small and medium-sized enterprises, provided they have access to financial resources and legal support (Kolodiziev *et al.*, 2024). Social support measures – such as combating discrimination and promoting access to services – are essential to prevent marginalization and ensure successful integration (Trung, 2023; Zanin and De Freitas, 2023). Therefore, this study hypothesizes that effective social support and integration measures form the foundation for an inclusive society, which, in turn, positively impacts the socioeconomic development of host countries. Integration, as used in this study, refers to the process through which refugees achieve economic, social, and cultural participation within the host country. This encompasses access to employment, education, language acquisition, participation in local social networks, and inclusion in societal structures, enabling mutual adaptation between refugees and host communities.

This study aims to investigate the relationship between social support systems and the integration of refugees within host countries, exploring the role of social support systems in facilitating the integration of refugees into host societies. Furthermore, the study evaluates how different dimensions of social support contribute to the development of an inclusive society. Finally, the research proposes actionable recommendations to strengthen social support systems and enhance both the integration process and societal inclusion.

This research was conducted from 2023 to the first half of 2024, utilizing data from reports on the integration of Ukrainian refugees by the United Nations (UN) and other public organizations, as well as government reports from host countries during this period.

### 2.3. The Ukrainian migration crisis: An overview

The outbreak of war in Ukraine in February 2022 triggered the largest migration crisis in Europe since World War II. The

ongoing conflict has forced millions of people to flee their homes, resulting in large-scale displacement both within Ukraine and across its borders. By early 2024, over 7,000,000 Ukrainian refugees had been registered across Europe (Global Report on Internal Displacement, 2024). This crisis has displaced nearly one-third of Ukraine's population, with most refugees seeking asylum in neighboring European countries (Data Friendly Space, 2024) (Figure 1).

Figure 1 illustrates the distribution of Ukrainian refugees across European countries as of January 2024. Poland, Germany, and the Czech Republic have hosted the largest number of refugees. Table 1 presents detailed statistics on the number of refugees in these countries, as well as in other European countries.

Most Ukrainian refugees have sought safety in neighboring countries such as Poland, Romania, Hungary, and Slovakia. These countries have provided immediate assistance and opened their borders to all refugees, enabling millions to find temporary shelter. Poland has received the highest number of refugees, hosting approximately 1.64 million people (OECD, 2022). Romania has also played a significant role, with nearly one million individuals crossing its borders, though many continued their journey to other European countries. This war-induced crisis has led to a sharp increase in the refugee population across Europe, posing significant challenges to host countries.

As shown in Table 2, the majority of refugees are women and children (up to 90%), necessitating the development of specialized social support and integration programs. In addition, there have been reports of forced relocation of Ukrainian citizens to Russia, further contributing to the total number of displaced individuals.

In summary, the war in Ukraine has resulted in massive population displacement, with over seven million people

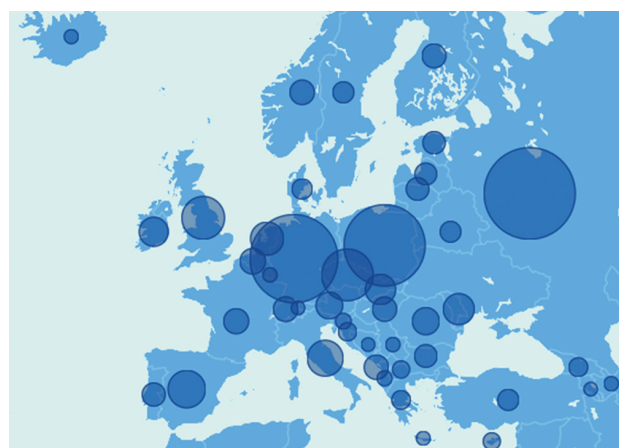


Figure 1. The distribution of Ukrainian refugees across European countries as of January 22, 2024. Retrieved from People in Need (2024).

becoming refugees. Most of these refugees have fled to neighboring countries, creating significant challenges for social integration. It is essential to note that host countries are making efforts to provide necessary assistance and support for the successful adaptation of refugees in their new environments.

### 3. Data and methods

#### 3.1. Data

The selection of indicators to assess refugee integration was based on secondary data sources, highlighting the need for an in-depth analysis tailored to the context of the present migration crisis. Instead of collecting primary data through direct surveys and interviews, this study relied on secondary data from official reports and databases, employing an integrated approach using quantitative methods. The datasets, which included a representative sample of refugees segmented by factors – such as age, gender, education level, and employment status – were gathered from well-established sources such as EUR-Lex, IOM, and the OECD. These sources provided detailed information on social support measures and integration processes for Ukrainian refugees in various European countries. This integrated approach ensures a comprehensive understanding of the migration situation across multiple countries and demographic groups.

**Table 1. Number of Ukrainian refugees in various European countries (as of January 2024)**

Country	Number of refugees
Poland	1,640,510
Russia	1,212,585
Germany	1,125,950
The Czech Republic	547,670
Great Britain	210,800
Spain	186,045
Bulgaria	168,570
Italy	163,570
Moldova	116,615
Romania	106,786

Source: Ukrainian Refugee Crisis (2024).

**Table 2. Main demographic characteristics of Ukrainian refugees**

Category	Percentage of total refugees
Women and children	90%
Men (18 – 60 years old)	10%
Returnees	4 – 5 million people

Source: Ukrainian Refugee Crisis (2024).

The analysis was conducted using two models designed to assess the impact of social support systems on refugee integration. These models explored the relationships between various indicators of integration, such as access to employment, social services, and participation in integration programs, based on the data from the cited reports. Statistical methods, including K-means cluster analysis and dendrogram, were used to assess these relationships. Detailed results of the analysis are presented in the subsequent sections.

Table 3 provides a description of the main indicators of integration and social support for refugees, while Table 4 presents the statistical sources of information.

#### 3.2. Methods

The proposed methodology consists of the following steps:

- i. Step 1: Identifying the key integration indicators using hierarchical clustering (Joining Tree Clustering)

Hierarchical clustering using the Joining Tree method was employed to identify the most significant indicators influencing refugee integration. This approach organizes the indicators into clusters based on their similarities, allowing the determination of their relative importance in shaping integration outcomes (Toronen, 2004). The initial set of indicators used to identify the most influential factors for refugee integration is presented in Table 3.

Normalization of indicators was carried out using the Z-score method to ensure comparability across different scales (Glänzel *et al.*, 2008):

$$Z = \frac{X - \mu}{\sigma} \tag{I}$$

where  $X$  is the raw score,  $\mu$  is the mean, and  $\sigma$  is the standard deviation of the dataset.

The Ward hierarchical clustering algorithm was employed to construct dendrograms, representing the grouping of indicators based on their similarities (Murtagh and Legendre, 2014). This method minimizes within-cluster variance while maximizing between-cluster variance. The formula for calculating distances is as follows:

$$D_{ij} = |X_i - X_j|^2 \tag{II}$$

Where  $D_{ij}$  is the distance between indicators  $X_i$  and  $X_j$ , while  $|X_i - X_j|$  is the Euclidean distance (Silbergleit *et al.*, 2015).

- ii. Step 2: Classification of host countries using K-means Clustering

Based on the significant indicators identified in the dendrogram, the K-means clustering algorithm – an unsupervised machine learning method – was employed

Table 3. The description of the main indicators of integration and social support for refugees

Factor	Explanation	Indicator	Symbol
Level of social support	Access to social services (%)	Percentage of refugees with access to social services (housing, medical care, and social benefits)	X <sub>1</sub>
	Amount of social assistance (€)	Average amount of benefits or social assistance received by refugees	X <sub>2</sub>
	Access to integration programs (%)	Percentage of refugees participating in language courses and adaptation programs	X <sub>3</sub>
Demographic characteristics	Distribution by age groups (%)	Youth: 15 – 35 years old	X <sub>4</sub>
		Middle-aged and elderly: 36 years and older	X <sub>5</sub>
	Gender (%)	Women or men (choose one)	X <sub>6</sub>
	Education (%)	Primary and secondary education	X <sub>7</sub>
Higher education		X <sub>8</sub>	
Length of stay	Average duration of residence (years)	Average length of stay of refugees in the country	X <sub>9</sub>
Host country policy	Composite index assessing migration policy (units)	Migration policy index	X <sub>10</sub>
	Legislation and regulations	Number of laws to support migrant integration (e.g., access to citizenship and employment)	X <sub>11</sub>
Employment rate of refugees	Employment rate (%)	Percentage of refugees officially employed in the host country	X <sub>12</sub>
	Employment stability (%)	Percentage of employed refugees working on permanent contracts	X <sub>13</sub>
Level of language proficiency in the host country	Language test (%)	Percentage of refugees who have successfully passed language proficiency tests	X <sub>14</sub>
	Participation in language courses (%)	Percentage of refugees who have completed language courses	X <sub>15</sub>
Level of involvement in social activities	Participation in social organizations (%)	Percentage of refugees participating in community and volunteer organizations	X <sub>16</sub>
	Social ties (%)	Percentage of refugees with local social ties (e.g., participation in local events)	X <sub>17</sub>

Table 4. Data sources of information

Data source	Information used
EUR-Lex: Council Implementing Decision (European Union) 2022/382	Scope and nature of assistance provided to Ukrainian refugees
United Nations International Organization for Migration: Displacement Tracking Matrix	Internal displacement data and demographic characteristics of refugees
Organization for Economic Co-operation and Development: The potential contribution of Ukrainian refugees to the labor force in European host countries	Employment data and employment potential of refugees
Rights and support for Ukrainian refugees in receiving countries	Refugee reception policies in different countries
Ukrainian Crisis Situational Analysis	Humanitarian aid data and demographic characteristics

to classify the host countries into distinct groups (Fusco and Perez, 2019). This algorithm is widely used for its simplicity, computational efficiency, and ability to handle large datasets. K-means clustering works by minimizing within-cluster variance while maximizing between-cluster variance, making it an effective tool for grouping similar data points.

K-means objective function:

$$\text{Minimize} \sum_{k=1}^K \sum_{i \in C_k} \|x_i - \mu_k\|^2 \quad \text{(III)}$$

Where  $K$  is the number of clusters,  $x_i$  is the data point for each country (vector of indicators),  $C_k$  is the set of countries in cluster  $k$ , and  $\mu_k$  is the centroid of cluster  $C_k$ .

The advantages of the algorithm include its speed and ease of implementation, particularly for partitioning large datasets into distinct groups. In addition, its iterative approach ensures the optimization of cluster centroids, facilitating meaningful classifications.

The elbow method was employed to determine the optimal number of clusters, balancing explained variance

and interpretability (Park and Kim, 2022). Z-score normalization (Equation I) was applied to the data for K-means clustering to ensure consistency with the hierarchical clustering approach.

The resulting clusters represent distinct profiles of integration policies and outcomes, with each cluster containing countries that exhibit similar patterns in social support, employment, and language proficiency. The cluster composition and interpretation are detailed in the results section. Both the dendrogram and the K-means analyses were conducted using STATISTICA 13 software (StatSoft, now part of TIBCO Software Inc., United States) (Batinca and Treleaven, 2014), providing robust insights into the determinants of refugee integration and enabling detailed comparisons of host countries based on their integration policies.

#### 4. Results

This section presents the findings of the study, focusing on the identification of key integration indicators and the classification of host countries based on their integration policies and outcomes. The methodologies applied, including hierarchical clustering and K-means clustering were used to analyze the relationships among the indicators and to group countries into meaningful clusters.

##### 4.1. Step 1: Identifying key integration indicators using hierarchical clustering (Joining Tree clustering)

Figure 2 presents a dendrogram generated through hierarchical cluster analysis using the Joining Tree method to identify the most significant indicators influencing the integration of Ukrainian refugees in host countries. The dendrogram visually organizes the relationships among key integration indicators, showing their clustering based on similarity and relative contribution to the integration

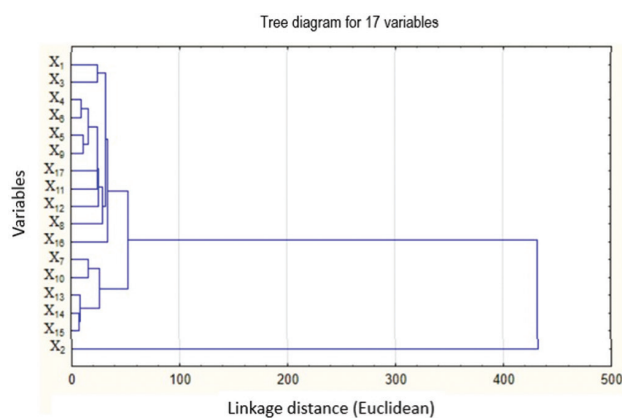


Figure 2. Dendrogram illustrating the hierarchical grouping of integration indicators into clusters (cluster analysis using STATISTICA 13)

process. This method allows for the identification of the most impactful indicators, enabling a focused analysis of refugee integration efforts across host countries. The dendrogram highlights the hierarchical grouping of integration indicators into clusters, emphasizing their relative importance. The selected indicators that represent key dimensions of integration are shown in Table 5.

The dendrogram provides a hierarchical grouping of integration indicators, revealing their relationships and relative importance:

- i. Primary indicators: Employment rate ( $X_{12}$ ) and language proficiency ( $X_{14}$ ) formed the closest cluster, indicating a strong interdependence. Employment often depends on refugees' ability to communicate effectively in the host country's language, making these indicators crucial for socioeconomic integration. Together, they reflect the direct impact of integration policies and serve as key measures of success.
- ii. Secondary indicators: Access to social services ( $X_1$ ) and integration programs ( $X_3$ ) clustered together, highlighting the foundational role of support systems in facilitating refugees' access to basic needs and integration pathways. Social ties ( $X_{17}$ ) and participation in social organizations ( $X_{16}$ ) formed a separate cluster, emphasizing their interconnected yet distinct roles in fostering community participation and long-term social cohesion.
- iii. Tertiary indicators: Indicators such as youth age group distribution ( $X_4$ ) and higher education attainment ( $X_8$ ) were positioned further down the hierarchy. These factors influence integration indirectly by shaping opportunities and access to services, but are less critical than primary and secondary indicators.

The dendrogram suggests that employment rate ( $X_{12}$ ) and language proficiency ( $X_{14}$ ) are the most significant indicators, forming the basis for evaluating the success of integration efforts. Access to social services ( $X_1$ ) and integration programs ( $X_3$ ) is crucial for the initial stages of integration, while social participation ( $X_{16} - X_{17}$ ) contributes to long-term inclusion and community cohesion.

##### 4.2. Step 2: Classification of host countries through K-means Clustering

The analysis confirms that employment rate ( $X_{12}$ ) and language proficiency ( $X_{14}$ ) are the most significant indicators, forming the basis for evaluating the success of integration efforts. Access to social services and integration programs provides critical support in the initial stages of integration, while social participation contributes to long-term inclusion and community

Table 5. Integration factors and indicators

Factors	Explanation	Indicator	Symbol
Level of social support	Percentage of refugees with access to social services (e.g., housing and medical care)	Access to social services (%)	$X_1$
	Average amount of benefits or social assistance received by refugees	Amount of social assistance (€)	$X_2$
	Percentage of refugees participating in language courses and adaptation programs	Access to integration programs (%)	$X_3$
Employment rate of refugees	Percentage of refugees officially employed in the host country	Employment rate (%)	$X_{13}$
Level of language proficiency	Percentage of refugees who passed language proficiency tests	Language test (%)	$X_{14}$

cohesion. The hierarchical structure of the dendrogram highlights the multifaceted nature of refugee integration, where foundational support facilitates socioeconomic and cultural adaptation. By identifying the most impactful indicators, the dendrogram offers valuable guidance to policymakers and researchers in prioritizing areas for intervention, ensuring that integration efforts are targeted and effective.

The K-means cluster analysis categorized the nine host countries into three distinct clusters based on their integration indicators. The results, shown in Figure 3, present the average values of key integration indicators for each cluster. These clusters reveal patterns of similarity in social, economic, and policy-related aspects of refugee integration across the host countries.

Figure 3 presents the graphical distribution of average values for key integration indicators across the three clusters. It highlights the significant disparities between clusters, particularly in access to services, employment stability, and social participation. Cluster 3 shows the highest values across integration indicators, while Cluster 2 exhibits the lowest. The data used to determine the composition of each cluster are provided in Tables 6-8.

Cluster 1 – which includes Poland, the Czech Republic, and Spain – can be characterized as offering “moderate support for integration.” This cluster represents countries with moderately effective integration policies. The average distances to the cluster center are 0.39 for Poland, 0.10 for the Czech Republic, and 0.44 for Spain. Key characteristics include balanced access to social services and integration programs, moderate employment rates, and participation in language testing. Poland and the Czech Republic demonstrate similar approaches to refugee integration, supported by practical social policies. Spain shares several of these characteristics but shows slightly lower performance in employment stability and social participation.

Cluster 2 – which includes Bulgaria, Italy, Moldova, and Romania – can be characterized as providing “limited

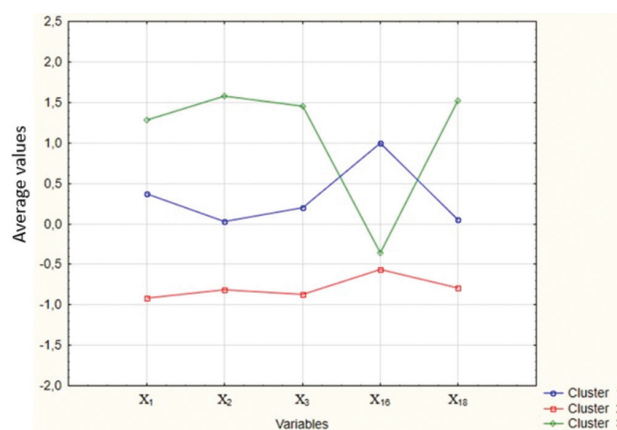


Figure 3. Plot of mean values for each cluster, illustrating the average levels of key integration indicators used to assess the integration of Ukrainian refugees in host countries (cluster analysis performed using STATISTICA 13)

support for integration.” The average distances to the cluster center are 0.08 for Bulgaria, 0.09 for Romania, 0.41 for Moldova, and 0.43 for Italy. This cluster includes countries with limited integration policies and infrastructure. Key characteristics include limited access to social services and integration programs, low employment rates, and minimal participation in language courses. These countries face economic constraints and institutional challenges that hinder their capacity to support large-scale refugee integration.

Cluster 3 – which includes Germany and Great Britain – can be characterized as providing “advanced integration support.” Both countries show an average distance of 0.51 from the cluster center. This cluster represents countries with advanced integration support. Key characteristics include extensive social assistance, comprehensive integration programs, strong language proficiency among refugees, and active participation in community organizations. Integration policies in these countries prioritize long-term socioeconomic integration of refugees.

Countries from Cluster 1 – such as Germany, Poland, and the Czech Republic – were selected for detailed

**Table 6. Composition of the first cluster**

Members of Cluster 1	Average distance to the cluster center
Poland	0.393973
Czech Republic	0.103242
Spain	0.435879

**Table 7. Composition of the second cluster**

Members of Cluster 2	Average distance from the cluster center
Bulgaria	0.08187732
Italy	0.4254286
Moldova	0.4137162
Romania	0.09214597

**Table 8. Composition of the third cluster**

Members of Cluster 3	Average distance from the cluster center
Germany	0.507379
Great Britain	0.507379

analysis due to their representativeness and strategic relevance. These countries play a key role in responding to refugee flows from Ukraine and exhibit moderate yet improving integration policies, offering valuable insights into practical solutions within resource-limited settings. As a leader in advanced integration policies, Germany – from Cluster 3 – serves as a benchmark for best practices. Its approach to long-term refugee integration offers a valuable example for other host countries. By focusing on these selected countries, the analysis captures a range of integration policy levels, providing a comprehensive perspective on the challenges and opportunities of refugee integration across Europe.

### 4.3. Comparative analysis of social integration factors and refugee integration levels

Table 9 presents a comparative analysis of key factors influencing refugee integration in Poland, Germany, and the Czech Republic. By evaluating indicators such as access to social services, social assistance, integration programs, demographic characteristics, language proficiency, and social cohesion, the analysis provides insights into the relationship between social support systems and refugee integration outcomes.

The data presented in Table 9 support the hypothesis that countries with a well-developed social support system for refugees demonstrate higher levels of refugee integration. Germany, with consistently higher scores across most indicators, exemplifies this trend. In contrast, Poland and the Czech Republic, while making efforts to

**Table 9. Comparative analysis of social integration factors and refugee integration levels in Poland, Germany, and the Czech Republic**

Indicator	Poland	Germany	Czech Republic
Access to social services (%)	85	92	80
Social assistance amount (€)	300	350	250
Access to integration programs (%)	75	85	70
Average age of refugees (years)	38	35	40
Youth share (15 – 35 years old) (%)	45	50	40
Higher education level (%)	30	40	25
Length of stay (years)	2	3	1.5
Language proficiency level (scale 1 – 5)	3	4	3
Employment rate (%)	60	70	55
Participation in community life (%)	65	75	55
Language proficiency (%)	70	80	65
Social cohesion (index)	0.6	0.8	0.5
Integration level (index)	0.7	0.85	0.65

support integration, show room for improvement in their social support systems.

Key findings from the analysis highlight significant disparities in refugee integration across host countries. Germany demonstrates strong performance, with higher integration levels attributed to its well-developed social support system, including comprehensive social services, integration programs, and initiatives that foster social cohesion. In contrast, Poland and the Czech Republic show room for improvement, particularly in enhancing social assistance and expanding language programs, which are crucial for successful integration.

Demographic factors also play a significant role, as the average age of refugees and the proportion of youth influence integration outcomes, necessitating tailored approaches to address specific demographic needs. In addition, fostering social cohesion is crucial for creating inclusive societies and ensuring long-term integration. These findings highlight the importance of robust social support systems in facilitating refugee integration and contributing to the socioeconomic development of host countries.

**4.4. Recommendations for improving social support systems for the integration of Ukrainian refugees**

Table 10 presents recommendations aimed at improving the social support systems for the integration of Ukrainian refugees in Poland, Germany, and the Czech Republic. These recommendations are derived from an analysis of key data sources, including EUR-Lex, IOM, OECD, and reports on the Ukrainian refugee crisis.

The analysis was based on official reports and studies, such as the EU Council Implementing Decision (2022), the IOM’s internal displacement report (2024), and the OECD’s assessment of the labor force potential of Ukrainian refugees (2022). These sources provided a comprehensive overview of the refugee situation in the three countries, focusing on key indicators such as access to social services, employment, and integration programs. The analysis identified both the strengths and weaknesses of each country’s integration systems, enabling the development of tailored, data-driven recommendations.

To enhance the integration of Ukrainian refugees, country-specific recommendations highlight tailored approaches for different host nations. In Poland, efforts should focus on expanding the availability of social services up to 90%, particularly in rural areas where access is currently limited. This includes improving healthcare services, childcare facilities, housing support, and language training programs to address basic needs and promote adaptation. It is also recommended to raise social assistance to €320, with particular emphasis on targeted support for families and elderly refugees to ensure they meet essential living standards. In addition, fostering entrepreneurship among refugees can be supported through small business grants, mentorship programs, and training tailored to their specific needs.

In Germany, efforts should focus on maintaining its high level of social services (90%) while enhancing mental health support by increasing access to multilingual counselors and integrating mental health services within

existing refugee support centers. The present social assistance amount of €357 should be regularly adjusted for inflation to ensure continued adequacy. To improve employment outcomes for low-skilled refugees, Germany could expand vocational training programs and strengthen partnerships with employers to facilitate workforce entry. Tailored programs for young refugees and their families, such as professional development courses and childcare support, are essential for successful integration.

The Czech Republic should aim to increase access to social services to 85%, with a focus on improving access to housing and medical services. This could involve the implementation of subsidized housing projects and fostering stronger partnerships with healthcare providers to ensure timely and adequate care. Social assistance should be increased to €250, with a particular focus on families and vulnerable groups. Expanding access to integration programs to at least 75% is essential, particularly through enhanced language and cultural courses. Vocational training and educational initiatives should focus on middle-aged refugees, with an average age of 40, while programs for older adults should offer skill-building workshops and community engagement activities.

These recommendations highlight the need for tailored approaches that address country-specific challenges and demographic needs. Collaboration between governments, non-governmental organizations, and local stakeholders, along with ongoing evaluation and adjustments, is crucial for ensuring effective integration policies and support systems.

**5. Discussion**

The findings of this study confirm that the effectiveness of refugee integration is strongly influenced by the availability and quality of social support systems in host countries. Countries with well-developed social support mechanisms provide refugees with better access to essential services, employment opportunities, and social participation,

**Table 10. Recommendations for improving social support systems for Ukrainian refugee integration in Poland, Germany, and the Czech Republic**

Indicator	Poland	Germany	Czech Republic
Access to social services (%)	Increase to 90%, with a particular focus on rural areas	Maintain at 90%, with an emphasis on strengthening mental health support	Increase to 85%, improving access to housing and medical services
Amount of social assistance (€)	Increase to €320, balancing the allocation for different groups	Maintain at €357, with adjustments for inflation	Increase to €250, with a focus on families and vulnerable groups
Access to integration programs (%)	Increase to 80%, expanding language and adaptation programs	Maintain at 85%, while adding professional and cultural programs	Increase to 75%, with a focus on enhancing language and cultural courses
Average age of refugees (years)	Focus on vocational training for the average age group (38)	Support youth (35), with a focus on young families	Support middle-aged individuals (40), and develop programs for older adults

thereby fostering inclusive societies and contributing to socioeconomic development. Social support not only facilitates access to essential resources but also plays a crucial role in reducing social tensions and promoting stability in host societies. Previous research has shown that structured support frameworks, including language training, vocational programs, and housing assistance, significantly enhance refugees' ability to integrate into their new environments (OECD, 2022; Jelínková *et al.*, 2023). Our findings align with the findings of previous studies, highlighting that host countries with robust integration policies experience fewer social conflicts and higher levels of social cohesion. Germany, which offers structured and comprehensive support programs, demonstrates higher refugee integration rates compared to Poland and the Czech Republic, where policies are still evolving and require further refinement.

Lower rates of higher education attainment among refugees in Poland (30%) and the Czech Republic (25%), compared to Germany (40%), may reflect systemic barriers, such as limited access to universities or language training. While this study did not directly assess disruptions in the Ukrainian education systems, a previous study by Artyukhov *et al.* (2023) suggests that these disruptions can delay skill acquisition and hinder employment opportunities.

Germany's well-established educational programs, including language courses and vocational training, facilitate smoother transitions for refugees into the labor market. In contrast, Poland and the Czech Republic need to expand their educational initiatives to improve access to higher education and skill-building opportunities for refugees. Future policies should focus on improving educational support, particularly for young refugees, to foster their long-term economic contributions to host countries.

Employment is one of the most significant factors in refugee integration. This study confirms that refugees with stable employment are more likely to achieve social and economic inclusion. Germany's advanced labor market integration programs lead to higher employment rates among refugees compared to Poland and the Czech Republic, where challenges, such as language barriers and labor market segmentation persist.

A previous study suggests that refugee entrepreneurship plays a key role in economic adaptation, fostering innovation, and addressing labor shortages (Kolodiziev *et al.*, 2024). However, for lower-skilled refugees, barriers to employment remain a significant challenge. Studies indicate that these challenges can be overcome through targeted vocational training and structured job placement

programs, which can improve labor market participation rates (Brücker *et al.*, 2023; Dotsey, 2024). Our findings support these views, highlighting the need for tailored labor policies that address the specific needs of displaced individuals.

Several studies indicate that strong support networks enhance mental health outcomes and foster a sense of belonging among refugees (Burliai *et al.*, 2023; Kuppenko *et al.*, 2023). However, disparities in the treatment of Ukrainian refugees compared to other groups raise concerns regarding the equity of present integration policies.

Ensuring non-discriminatory practices and equitable access to social services is essential for fostering inclusive societies. Interaction between refugees and local communities – through cultural exchange programs, volunteer initiatives, and community-building activities – has been shown to significantly enhance integration outcomes and reduce the risk of social fragmentation. Countries that foster such social bonds tend to experience smoother refugee integration processes.

## 5.1. Limitations

Despite the valuable insights provided, several limitations remain, including a reliance on secondary data sources. This analysis was exclusively based on the secondary data obtained from reports by international organizations, such as OECD, IOM, and Data Friendly Space. Although these sources are reliable, the absence of primary data – such as interviews or surveys – may limit the depth of context-specific insights. Another limitation of this study involves temporal constraints, as the data reflect conditions during the early stages of the Ukrainian refugee crisis. As integration processes evolve over time, certain findings may become outdated or require reevaluation in future studies. In addition, the study's geographical focus on Germany, Poland, and the Czech Republic limits the generalizability of the findings to other host countries with different policy frameworks and socioeconomic conditions. Finally, while the study addresses social support and education, it does not extensively examine psychological resilience, trauma recovery, or cultural identity – factors that are also essential to long-term integration.

## 5.2. Policy recommendations and future considerations

The findings of this study provide clear policy implications for host countries. Poland and the Czech Republic should prioritize expanding language training programs, enhancing employment support services, and improving access to housing to enhance integration outcomes. Germany, while demonstrating strong

integration policies, can further refine its approaches to address emerging challenges, including promoting long-term employment stability and expanding psychological support for refugees.

A holistic integration strategy should not only focus on immediate support measures but also on long-term policies that promote refugee self-sufficiency. Future research should examine the long-term impacts of integration policies, assessing how sustained support influences refugee adaptation over time. In addition, comparative studies across different refugee groups could provide valuable insights into best practices for fostering inclusive and resilient societies.

## 6. Conclusions

This study evaluates the role of social support systems in refugee integration across Poland, Germany, and the Czech Republic, demonstrating that well-established support structures – such as access to social services, employment opportunities, language training, and community participation – play a crucial role in enhancing integration outcomes. Germany's well-funded, structured approach fosters high levels of social cohesion, while Poland and the Czech Republic, with moderate yet evolving frameworks, require targeted improvements in service accessibility and economic opportunities. Language proficiency emerges as a key factor in refugee integration, directly influencing employment opportunities and societal engagement. Social participation and the development of local networks further enhance inclusion, emphasizing the need for initiatives that bridge the gap between refugees and host communities. The study also highlights the importance of addressing challenges such as discrimination, housing, and job stability through targeted policies. It recommends that policymakers prioritize expanding language education, employment programs, and inclusive community engagement to optimize integration outcomes. This research provides an evidence-based framework for migration policy discussions, highlighting the need for further exploration of long-term impacts, including generational inclusion, economic self-sufficiency, and demographic shifts in host countries.

## Acknowledgments

None.

## Funding

None.

## Conflict of interest

The authors declare no conflicts of interest.

## Author contributions

*Conceptualization:* All authors

*Formal analysis:* Svitlana Tereshchenko

*Investigation:* Tetiana Kostyshyna

*Methodology:* Valeriia Shcherbak

*Writing – original draft:* Valentyna Yatsenko

*Writing – review & editing:* Valeriia Shcherbak, Viktoriia Riashchenko

## Ethics approval and consent to participate

Not applicable.

## Consent for publication

Not applicable.

## Availability of data

Data are available from the corresponding author upon reasonable request.

## References

- Artyukhov, A., Barvinok, V., Rehak, R., Matvieieva, Y., & Lyeonov, S. (2023). Dynamics of interest in higher education before and during ongoing war: Google Trends analysis. *Knowledge and Performance Management*, 7(1):47-63.  
[https://doi.org/10.21511/kpm.07\(1\).2023.04](https://doi.org/10.21511/kpm.07(1).2023.04)
- Bajaj, S.S., & Stanford, F.C. (2022). The Ukrainian refugee crisis and the pathology of racism. *BMJ*, 376:o661.  
<https://doi.org/10.1136/bmj.o661>
- Batrinca, B., & Treleaven, P.C. (2014). Social media analytics: A survey of techniques, tools and platforms. *AI and Society*, 30(1):89-116.  
<https://doi.org/10.1007/s00146-014-0549-4>
- Brücker, H., Ette, A., Grabka, M.M., Kosyakova, Y., Niehues, W., Rother, N., et al. (2023). Ukrainian refugees in Germany: Evidence from a large representative survey. *Comparative Population Studies*, 48.  
<https://doi.org/10.12765/cpos-2023-16>
- Burliai, A., Demianchuk, M., & Burliai, O. (2023). Unintended transnationalism of Ukrainian military migrants in Poland: Socio-cultural aspect. *Problems and Perspectives in Management*, 21(2):426-438.  
[https://doi.org/10.21511/ppm.21\(2\).2023.40](https://doi.org/10.21511/ppm.21(2).2023.40)
- Data Friendly Space. (2024). Refugee Integration Data Dashboard: Ukraine Crisis. Available from: <https://datafriendlyspace.org/projects/ukraine-crisis-dashboard> [Last accessed on 2024 Jan 25].
- De Coninck, D. (2022). The refugee paradox during wartime in Europe: How Ukrainian and Afghan refugees are (not) alike. *International Migration Review*, 57(2):578-586.

- <https://doi.org/10.1177/01979183221116874>
- De Oliveira, L.G. (2023). Refugees and refugee applicants' voices in Brazilian cities. *International Journal of Population Studies*, 9(3):84.
- <https://doi.org/10.36922/ijps.438>
- Dotsey, S. (2024). COVID-19 and the precarious low-skilled workforce in the European Union: Time to call the shots? *International Journal of Population Studies*, 10(3):114.
- <https://doi.org/10.36922/ijps.2165>
- Fiiialka, S. (2022). Assessment of war effects on the publishing activity and scientific interests of Ukrainian scholars. *Knowledge and Performance Management*, 6(1):27-37.
- [https://doi.org/10.21511/kpm.06\(1\).2022.03](https://doi.org/10.21511/kpm.06(1).2022.03)
- Fusco, G., & Perez, J. (2019). Bayesian network clustering and self-organizing maps under the test of Indian districts: A comparison. *Cybergeo: European Journal of Geography*. Article 891.
- <https://doi.org/10.4000/cybergeo.31909>
- Glänzel, W., Thijs, B., Schubert, A., & Debackere, K. (2008). Subfield-specific normalized relative indicators and a new generation of relational charts: Methodological foundations illustrated on the assessment of institutional research performance. *Scientometrics*, 78(1):165-188.
- <https://doi.org/10.1007/s11192-008-2109-5>
- Goodwin, R., Hamama-Raz, Y., Leshem, E., & Ben-Ezra, M. (2023). National resilience in Ukraine following the 2022 Russian invasion. *International Journal of Disaster Risk Reduction*, 85:103487.
- <https://doi.org/10.1016/j.ijdrr.2022.103487>
- Hierro, M., & Maza, A. (2025). Temporary protection, refugee fatigue and political discontent in European Union cities of refuge. *European Urban and Regional Studies*, 32(1):10-14.
- <https://doi.org/10.1177/09697764241289808>
- Internal Displacement Monitoring Centre (IDMC). (2024). Global Report on Internal Displacement 2024. Available from: <https://www.internal-displacement.org/global-report/grid2024>
- IOM. (2023). Ukraine - Returns Report - General Population Survey Round 15 (November-December 2023). Available from: <https://dtm.iom.int/reports> [Last accessed on 2024 Jan 25].
- Jelínková, M., Ochraňa, F., & Plaček, M. (2023). The admission of Ukrainian refugees from the perspective of municipalities in Czechia. *Geografie*, 128(3):271-299.
- <https://doi.org/10.37040/geografie.2023.014>
- Kolodiziev, O., Gukaliuk, A., Shcherbak, V., Riabovolyk, T., Androshchuk, I., & Pas, Y. (2024). The impact of refugee startups on host country economies: Business models and economic adaptation. *Economic Studies Journal (BAS - Economic Research Institute)*, 2:175-201. <https://ideas.repec.org/a/bas/econst/y2024i2p175-201.html>
- Kozlovskiy, S., Kulinich, T., Vechirko, I., Lavrov, R., Zayukov, I., & Mazur, H. (2024). Relationship between net migration and economic development of European countries: Empirical conclusions. *Problems and Perspectives in Management*, 22(1):605-618.
- [https://doi.org/10.21511/ppm.22\(1\).2024.48](https://doi.org/10.21511/ppm.22(1).2024.48)
- Kozmenko, S., Danko, Y., & Kozlovskiy, S. (2023). Academic management in war conditions: Chronicles of aggression and resistance experience of Ukrainian universities. *Problems and Perspectives in Management*, 21(2-SI):1-3.
- [https://doi.org/10.21511/ppm.21\(2-si\).2023.01](https://doi.org/10.21511/ppm.21(2-si).2023.01)
- Kupenko, O., Kostenko, A., Kalchenko, L., Pehota, O., & Kubatko, O. (2023). Resilience and vulnerability of a person in a community in the context of military events. *Problems and Perspectives in Management*, 21(1):154-168.
- [https://doi.org/10.21511/ppm.21\(1\).2023.14](https://doi.org/10.21511/ppm.21(1).2023.14)
- Lee, A.C., Khaw, F.M., Lindman, A.E., & Juszczyk, G. (2023). Ukraine refugee crisis: Evolving needs and challenges. *Public Health*, 217:41-45.
- <https://doi.org/10.1016/j.puhe.2023.01.016>
- Mulská, O., Levytska, O., Zaychenko, V., Vasylytsiv, T., & Ilyash, O. (2021). Pull environment of migration in the EU countries: Migration vector from Ukraine. *Problems and Perspectives in Management*, 19(4):283-300.
- [https://doi.org/10.21511/ppm.19\(4\).2021.23](https://doi.org/10.21511/ppm.19(4).2021.23)
- Murtagh, F., & Legendre, P. (2014). Ward's hierarchical agglomerative clustering method: Which algorithms implement Ward's criterion? *Journal of Classification*, 31(3):274-295.
- <https://doi.org/10.1007/s00357-014-9161-z>
- Nestulya, O., Pedchenko, N., Karpenko, N., Nestulya, S., & Ivannikova, M. (2023). Policy of managing the educational activities of the university in the context of the Russian-Ukrainian war. *Problems and Perspectives in Management*, 21(2):61-66.
- [https://doi.org/10.21511/ppm.21\(2-si\).2023.08](https://doi.org/10.21511/ppm.21(2-si).2023.08)
- OECD. (2022). Rights and Support for Ukrainian Refugees in Receiving Countries. France: OECD.
- <https://doi.org/10.1787/09beb886-en>
- Panizzon, M., & Riemsdijk, M. (2019). Introduction to special issue: Migration governance in an era of large movements: A multi-level approach. *Journal of Ethnic and Migration Studies*, 45(8):1225-1241.
- <https://doi.org/10.1080/1369183X.2018.1441600>
- Park, S., & Kim, Y. (2022). A metaverse: Taxonomy, components,

- applications, and open challenges. *IEEE Access*, 10:4209-4251.  
<https://doi.org/10.1109/access.2021.3140175>
- People in Need. (2024). Ukrainian Refugee Crisis: The Current Situation. Available from: <https://www.peopleinneed.net/the-ukrainian-refugee-crisis-current-situation-9539gp> [Last accessed on 2024 Jan 25].
- Saadi, S.A., Gokce, U., & Dunay, A. (2023). Sustainable project management for humanitarian disasters and refugee crisis management: Bibliometric analysis. *Problems and Perspectives in Management*, 21(3):543-557.  
[https://doi.org/10.21511/ppm.21\(3\).2023.43](https://doi.org/10.21511/ppm.21(3).2023.43)
- Shcherbak, V., Brizgan, I., Chevhanova, V., Svistun, L., & Hryhoryeva, O. (2020). Impact of forced migration on the sustainable development of rural territories. *Global Journal of Environmental Science and Management*, 6(4):481-496.  
<https://doi.org/10.22034/gjesm.2020.04.05>
- Silbergleit, A.S., Keiser, G.M., Turneaure, J.P., Conklin, C.W.F., Everitt, M.I., Heifetz, M.I., et al. (2015). Gravity probe B data analysis: I. Coordinate frames and analysis models. *Classical and Quantum Gravity*, 32(22):224018.  
<https://doi.org/10.1088/0264-9381/32/22/224018>
- Sow, M.J. (2022). Ukrainian refugees, race, and international law's choice between order and justice. *American Journal of International Law*, 116(4):698-709.  
<https://doi.org/10.1017/ajil.2022.56>
- Toronen, P. (2004). Selection of informative clusters from hierarchical cluster tree with gene classes. *BMC Bioinformatics*, 5(1):32.  
<https://doi.org/10.1186/1471-2105-5-32>
- Trung, N.X. (2023). Incubating factors in the home country and job satisfaction in a host nation: An analysis on cross-border labor. *Problems and Perspectives in Management*, 21(3):267-279.  
[https://doi.org/10.21511/ppm.21\(3\).2023.21](https://doi.org/10.21511/ppm.21(3).2023.21)
- Uygur, G., Gunaltay, A., & Rudnak, I. (2023). Job satisfaction and organizational commitment in Syrian refugee textile enterprises: A case study from Turkey. *Problems and Perspectives in Management*, 21(4):13-24.  
[https://doi.org/10.21511/ppm.21\(4\).2023.02](https://doi.org/10.21511/ppm.21(4).2023.02)
- Uzoma, A.B., Adetiloye, K.A., Esther, A.O., Eke, P.O., & Osuma, G.O. (2020). Social integration and financial inclusion of forcibly displaced persons in Sub-Saharan African countries. *Problems and Perspectives in Management*, 18(3):170-181.  
[https://doi.org/10.21511/ppm.18\(3\).2020.15](https://doi.org/10.21511/ppm.18(3).2020.15)
- Wesolowsky, T. (2024). The European Union's 'Ukraine Fatigue' is not all it Seems. Radio Free Europe/Radio Liberty. Available from: <https://www.rferl.org/a/ukraine-eu-refugees-fatigue/32730367.html> [Last accessed on 2024 Jan 25].
- Zanin, H., & De Freitas, A.R. (2023). LGBTQI+ asylum seekers and refugees: Recognition and public policies for protection. *International Journal of Population Studies*, 10(2):103.  
<https://doi.org/10.36922/ijps.0871>
- Zhao, X., Sun, S.B., & Zhang, G. (2023). Shouting "chin min yau lok" (stop at the front) in a minibus: Transportation assimilation among immigrants in Hong Kong. *International Journal of Population Studies*, 9(1):0386.  
<https://doi.org/10.36922/ijps.0386>

## REPORT

# A quantitative analysis framework for reducing urban poverty among the B40 group in Malaysia: A case study in People's Housing Project in Kerinchi, Kuala Lumpur

Nik Norliati Fitri Md Nor<sup>1</sup>, Nur Amani Amalina Basri<sup>1</sup>, Azimah Abdul Rahman<sup>2</sup>, and Siti Masayu Rosliah Abdul Rashid<sup>1\*</sup>

<sup>1</sup>Department of Geography and Environmental Studies, School of Distance Education, Universiti Sains Malaysia, Pulau Pinang, Malaysia

<sup>2</sup>Department of Geography, School of Humanities, Universiti Sains Malaysia, Pulau Pinang, Malaysia

## Abstract

Urban poverty in Malaysia remains a critical challenge that demands comprehensive and inclusive solutions. This study proposes a responsive urban poverty framework, classifying individuals into two main groups: the working age group (20 – 59 years) and the post-working age group (60 years and above). Drawing on data from 334 heads of households (HoHs) in the B40 income group residing in the people's housing project in Kerinchi, Kuala Lumpur, the study evaluates strategies to enhance the well-being and competitiveness of the urban poor. A quantitative approach was employed, with data collected through structured questionnaires and analyzed using the Statistical Package for the Social Sciences software. Findings indicate an average monthly income of RM 2,589 among B40 HoHs, with marked improvements in well-being for those adopting targeted intervention strategies. The proposed framework incorporates targeted and actionable measures to increase household income and resilience in both short and long-term scenarios. This study underscores the importance of understanding the multifaceted dimensions of urban poverty, implementing effective strategies, and developing practical frameworks to improve economic stability and quality of life of urban B40 households. The findings provide valuable guidance for policymakers, urban planners, and social development stakeholders in formulating strategies that address the economic challenges faced by B40 households in urban Malaysia.

**Keywords:** Urban poverty; Responsive urban poverty framework; Heads of households; Income; Economic well-being

---

**\*Corresponding author:**

Siti Masayu Rosliah Abdul Rashid  
(masayurashid@usm.my)

**Citation:** Md Nor, N.N.F., Basri, N.A.A., Rahman, A.A., & Rashid, S.M.R.A. (2025). A quantitative analysis framework for reducing urban poverty among the B40 group in Malaysia: A case study in People's Housing Project in Kerinchi, Kuala Lumpur. *International Journal of Population Studies*. 11(6): 144-157.  
<https://doi.org/10.36922/ijps.6558>

**Received:** November 25, 2024

**Revised:** May 9, 2025

**Accepted:** May 23, 2025

**Published online:** July 1, 2025

**Copyright:** © 2025 Author(s). This is an Open-Access article distributed under the terms of the Creative Commons Attribution License, permitting distribution, and reproduction in any medium, provided the original work is properly cited.

**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

## 1. Introduction

Urban poverty is a growing concern in many cities globally, including Malaysia, where the B40 group faces challenges such as job instability, limited education, inadequate housing, and restricted access to healthcare. Nearly half of this group resides in urban areas, making urban poverty a critical and complex issue to address (Mayan & Nor, 2020).

Despite various policy initiatives, Malaysia's B40 population, comprising predominantly *Bumiputera*, continues to experience significant socioeconomic and health disparities due to rapid urbanization and rising living costs (Zolkifly *et al.*, 2023). This reality highlights the need for a more integrated and targeted approach to support low-income urban households.

This study proposes a responsive urban poverty framework grounded in empirical data and designed to guide policymakers in developing holistic interventions. The framework focuses on identifying specific vulnerabilities and providing practical strategies to improve the well-being of urban poor households.

Through this study, we focus on two main age-based groups in urban society: the working age group (typically adults aged 20 – 59 years) and the post-working age group (typically those aged 60 and above, including individuals who may require additional social and health support). Segmenting the population in this way enables more effective and tailored interventions.

Previous research has focused primarily on microfinance, training, and community empowerment (Mayan & Nor, 2020; Samat *et al.*, 2021). However, these efforts have often lacked a broader, multidimensional lens. This study aims to fill that gap by proposing a framework that integrates social capital development, access to education and employment, and sustainable support mechanisms to enhance the resilience of B40 communities in urban Malaysia (Juhari & Zulyadi, 2021).

## 1.1. Background of study

Urbanization in Malaysia has increased significantly, with over 75% of the population now residing in urban areas. Among this population, the B40 group constitutes a large portion of those experiencing economic challenges (World Bank, 2021). The high concentration of low-income households in cities such as Kuala Lumpur highlights the urgency of addressing urban poverty to maintain national social and economic stability. Rising living costs, particularly in housing, education, and healthcare, place additional financial strain on these communities.

The Department of Statistics Malaysia reports that the median monthly income of urban B40 households is approximately RM 3,000, which is slightly above the urban poverty line income (PLI) of RM 2,208 (BERNAMA, 2020). However, many still rely on government assistance to survive, indicating that income levels remain insufficient to meet basic urban needs. Despite signs of economic recovery, poverty persists among vulnerable groups such as women, children, and persons with disabilities, as shown

in a recent United Nations Children's Fund Malaysia report (Abdullah, 2024).

Urban poverty in Malaysia is not solely rooted in income deficiency but also limited access to essential services. Households face challenges such as inadequate housing, unstable employment, and restricted access to skills training or affordable healthcare. A study by the Ministry of Housing and Local Government in 2021 reported that many B40 families live in overcrowded and unsafe public housing units, especially in People's Housing Project (*Projek Perumahan Rakyat* [PPR]) areas, leading to long-term negative impacts on health and overall quality of life (Razak, 2023).

Although various government initiatives such as financial aid, low-cost housing schemes, and education programs have been implemented, many B40 households remain trapped in the cycle of poverty (Mohd Khan *et al.*, 2018). These findings suggest that current interventions are not sufficiently integrated or sustainable.

This study responds to that gap by proposing a responsive urban poverty framework that emphasizes a holistic, inclusive approach tailored to the complex needs of the B40 group. The framework advocates for improved access to income-generating opportunities, affordable housing, quality education, and basic services, while also strengthening social participation and human capital development (Mayan & Nor, 2020; Samat *et al.*, 2021).

Designed as both a short- and long-term solution, the framework aims to break the poverty cycle through skills enhancement, entrepreneurial support, and improved economic resilience. In doing so, it encourages B40 households to become more self-sufficient and actively engaged in urban development.

## 1.2. Measurement of poverty

As of February 2024, Malaysia's PLI defines poor households as those earning below RM 2,589 monthly, while the threshold for extreme poverty is set at RM 1,198. These thresholds vary by location due to differences in living costs. National data indicate a total of 249,485 poor households in urban areas and 239,396 in rural areas (Implementation Coordination Unit [Unit Penyelarasan Pelaksanaan], 2024), reflecting persistent socioeconomic disparities.

In high-cost cities such as Kuala Lumpur, the urban poor face greater financial strain, which underscores the need for targeted support that goes beyond financial aid. Effective poverty reduction strategies should include skills training, housing assistance, access to quality healthcare, and opportunities for stable employment.

A multidimensional approach that integrates income, education, health, employment, access to services, and empowerment is essential for enhancing the resilience and well-being of low-income urban communities (Zolkifly *et al.*, 2023; Zulkifli & Abidin, 2023).

### 1.3. Literature review

The study of urban poverty has emerged as a critical topic of global discourse, driven by the increasing rate of urbanization and the varying effects of the global economy on major cities. This section examines urban poverty through multiple perspectives: global, regional (Asia), national (Malaysia), local, and the specific context of the PPR. These perspectives aim to provide a comprehensive overview of the challenges, strategies, and interventions explored in addressing urban poverty across different levels.

#### 1.3.1. Urban poverty in global and Asian contexts

Urban poverty remains a pressing issue globally, particularly in developing regions where rapid urbanization outpaces the availability of affordable housing and infrastructure. According to the UN-Habitat (2020), over 1.6 billion people live in informal settlements, often lacking access to clean water and sanitation. Studies emphasize the importance of urban infrastructure, social services, and affordable housing in breaking the poverty cycle (Muhtar & Riswanda, 2023; Ismiyanti *et al.*, 2019).

Similar patterns persist in Asia. The Asian Development Bank (2022) estimates that 40% of urban residents live in substandard conditions. Urban poverty in countries such as India and Indonesia is characterized by slums, overcrowding, and limited access to education and healthcare. Despite various housing programs, income disparities and high Gini indices remain challenges.

These global and regional insights highlight the importance of integrating economic development with spatial planning to address urban poverty lessons, which are highly relevant to the Malaysian context.

#### 1.3.2. Urban poverty in Malaysia

Urban poverty has become an increasingly pressing issue in Malaysia, particularly among the low-income B40 group. The Mid-Term Review of the Twelfth Malaysia Plan (Implementation Coordination Unit, 2023) reported that the incidence of urban poverty rose to 4.5% in 2022, with Kuala Lumpur among the most affected areas due to high living and housing costs (Implementation Coordination Unit, 2023). This situation calls for effective interventions such as affordable housing, stable employment opportunities, and improved access to basic

services to enhance the well-being of urban communities, particularly the B40 group (Implementation Coordination Unit [Unit Penyelarasan Pelaksanaan], 2023).

Recent findings from the (Khazanah Research Institute (2023b) Khazanah Research Institute (2023) show that more than 30% of Malaysia's urban population belongs to the B40 category. This group continues to struggle with rising living expenses and limited access to sustainable employment. These challenges are often more severe than those faced by rural communities, indicating that urban poverty demands a targeted and comprehensive response. Government initiatives, including financial assistance schemes and housing programs such as the Federal Territories Affordable Housing, have helped to a certain extent. However, there remains a critical need to improve access to quality vocational training and skills development to ensure the competitiveness of the B40 population in the labor market.

In Kuala Lumpur, the situation is further exacerbated by the high number of residents living in informal housing. According to the Khazanah Research Institute (2023a), more than 15% of the city's population resides in areas such as the PPR. Rising costs, particularly in housing and healthcare, continue to affect the urban poor despite existing support programs. Research by Kamaruddin *et al.* (2021) highlighted that access to education and job opportunities are among the key determinants of well-being for urban B40 households. Yet, many residents of PPR housing, especially in areas such as Kerinchi, remain caught in a cycle of poverty due to low income and dependence on precarious informal employment (Abdullah, 2024). Furthermore, limited access to skills training prevents meaningful socioeconomic mobility.

While numerous studies have contributed to the discourse on urban poverty in Malaysia, few have examined it using a comprehensive framework that integrates structural and individual-level perspectives.

Therefore, PPR Kerinchi is selected in this study as a representative location to understand the dynamics of urban poverty. The concentration of low-income households in this area provides critical insight into structural weaknesses and policy gaps. By synthesizing the findings of prior studies, this research highlights the urgent need for integrated and inclusive strategies involving both government and private-sector collaboration.

Although existing studies have discussed various urban poverty alleviation approaches such as cash transfer programs, housing subsidies, and community-based assistance, few have proposed a multidimensional framework that integrates both structural and individual-

level factors. In particular, there is limited research in the Malaysian or Southeast Asian context that examines urban poverty through the combined lens of socio-demographic profiling, livelihood resilience, and rural-urban migration drivers. The framework presented in this study addresses this gap by offering a responsive model that not only identifies key vulnerabilities among the B40 group but also proposes differentiated strategies based on life stages and resource accessibility. This contribution seeks to expand the existing discourse by aligning empirical findings with practical, scalable interventions that reflect the complexities of urban poverty in emerging economies.

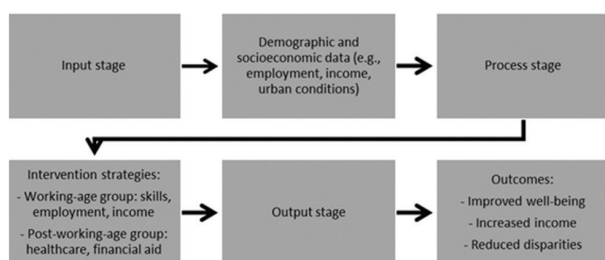
#### 1.4. Conceptual framework

The conceptual framework adopted in this study, as illustrated in Figure 1, presents a structured and integrative approach to addressing urban poverty among Malaysia's B40 group. It consists of three main stages: input stage, process stage, and output stage.

The input stage focuses on the collection of demographic and socioeconomic data, such as employment status, household income, and urban living conditions. These data points inform the design of targeted intervention strategies that reflect the actual conditions of the urban poor.

In the process stage, intervention strategies are developed and categorized according to two primary demographic groups. For the working age group (20 – 59 years), the focus is on skills enhancement, employment access, and income generation through vocational training and partnerships with the private sector. For the post-working age group (60 years and above), the emphasis shifts to healthcare, financial assistance, and broader social support systems.

The output stage outlines the anticipated outcomes, which include improved well-being, increased income, and reduced socioeconomic disparities among urban communities. This framework enables data-driven, stage-based planning and evaluation, offering policymakers a practical tool to implement inclusive and sustainable poverty alleviation strategies.



**Figure 1.** A responsive urban poverty framework for the B40 group in Malaysia

By integrating data into actionable strategies, the framework highlights a responsive mechanism for addressing multidimensional poverty. It also underlines the importance of tailored interventions that align with life stages and household vulnerabilities. The next section discusses the methodology used to operationalize this framework, including the research design, data collection, and analysis techniques applied.

## 2. Data and methods

### 2.1. Study area

We conducted this study at the PPR Kerinchi, Kuala Lumpur. PPR Kerinchi is one of the housing areas developed for low-income groups, with the objective of providing affordable and comfortable housing for the B40 community. This area, situated in Kerinchi, Kuala Lumpur, is one of the low-income housing locations within the metropolitan city. Based on official records, there are 1,895 residential units in PPR Kerinchi, whose residents belong to the target group of this study.

### 2.2. Research instrument

This study utilizes a specially designed questionnaire tailored to measure various aspects of the well-being of the B40 heads of households (HoHs) in PPR Kerinchi, Kuala Lumpur. While the questionnaire does not have a formal name, it serves as a comprehensive tool to gather data on key areas, including demographic information, employment status, income level, and urban living experiences.

The questionnaire consists of five sections: section A (respondent profile), which includes age, gender, marital status, and the number of dependents; section B (socioeconomic profile), covering employment status, type of job, household income, and sources of financial support; section C (perceptions regarding the pandemic's implications), such as changes in income and job stability; section D (information on received assistance and programs), which identifies aid types (e.g., cash transfers, food aid, and training programs) received during or after the pandemic; and Section E (strategies and planning during the pandemic), exploring respondents' coping strategies, long-term livelihood planning, and savings behavior.

The estimated time to complete the questionnaire was approximately 10 – 15 min. Each question was carefully designed using a 5-point Likert scale to capture nuanced responses and ensure data accuracy. The scaling options were as follows: 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree*, and 5 = *Strongly agree*. For example, one item asked, "I feel that my current income is sufficient

to meet my household needs,” while another stated, “I have access to stable and reliable job opportunities in my area.”

In addition, experts in the socio-economic field were consulted during the development process to validate the instrument, ensuring its reliability and usability. The validation involved expert reviews to assess content alignment with the study’s objectives, followed by a pilot test with 10 participants from the target population to evaluate clarity and relevance. Feedback obtained from both the experts and the pilot test was incorporated into the final design through iterative revisions. The tailored nature of this questionnaire allowed it to capture the unique challenges and circumstances of the B40 community in urban settings.

### 2.3. Data collection procedure

A total of 334 respondents were surveyed in this study. Data collection was conducted using a face-to-face method involving five trained enumerators to administer questionnaires to each randomly selected HoH. The data collection took place over 6 weeks, from June 1, 2023, to July 15, 2023, ensuring comprehensive coverage of the study population. Each enumerator was responsible for approximately 67 respondents, completing an average of 5 – 6 interviews/day.

Before the commencement of the questionnaire session, respondents were briefed on the purpose and content of the study, including the nature of the questions. Special emphasis was placed on ensuring respondents understood the voluntary nature of their participation.

Respondents were provided with a clear explanation of the study’s objectives and given the opportunity to ask questions before proceeding. If they agreed to participate, they were asked to provide informed consent. The process ensured that respondents could opt out at any time without any penalties. In addition, respondents were assured of the confidentiality and anonymity of their responses, with all data securely stored and used solely for research purposes.

All respondents received a token of appreciation for their time and effort, regardless of whether they completed the entire questionnaire. Enumerators also emphasized that respondents were not obligated to answer any questions they found uncomfortable.

The face-to-face method was chosen for its ability to reduce response errors, particularly given the study’s focus on a vulnerable population. This approach allowed enumerators to clarify questions in real-time and build trust with respondents, especially when discussing sensitive topics related to urban poverty. It also minimized

accessibility challenges often encountered in digital or self-administered surveys.

The questionnaire took approximately 10 – 15 min to complete. This method ensured the accuracy of the data obtained and allowed the enumerator to provide clarification if respondents encountered confusion during the session. Researchers used the Statistical Package for the Social Sciences software (SPSS; version 27.0, IBM, United States) to analyze the data, identifying significant patterns and relationships among the studied variables through descriptive analysis. This approach enabled the study to provide a detailed description of the urban poverty situation among the B40 group, particularly in PPR Kerinchi, Kuala Lumpur.

Data collected through the questionnaire were analyzed using SPSS. Descriptive statistics were utilized to examine the demographic and socioeconomic characteristics of the B40 HoHs in PPR Kerinchi. This approach enabled the identification of key patterns and relationships essential for developing the responsive urban poverty framework. For instance, frequencies and percentages were used to summarize employment status, income levels, and other critical variables, providing a comprehensive profile of the study population.

The choice of descriptive statistics aligns with the study’s primary objective: to develop a practical and responsive urban poverty framework for addressing urban poverty. Inferential statistical techniques, such as regression analysis or analysis of variance, were not incorporated as the research did not aim to test specific hypotheses or establish causal relationships. Instead, the focus was on exploring and categorizing the dimensions of urban poverty to inform policy and intervention strategies effectively.

Future research could incorporate inferential statistical methods to validate the framework further and examine causal linkages among variables, ensuring a broader application of the findings.

## 3. Results

### 3.1. Actions taken by vulnerable groups to address urban poverty

This section evaluates the demographic characteristics of respondents, including age, gender, education level, income, and marital status, to provide deeper insights into the factors influencing the B40 group in PPR Kerinchi, Kuala Lumpur. By analyzing this demographic data, the study identifies the key actions and strategies respondents use to confront the multifaceted challenges of urban poverty.

### 3.2. Socioeconomic profile of the B40 group in urban areas

The study's findings reveal the socioeconomic profile of respondents in PPR Kerinchi, as summarized in Table 1. By analyzing data from 334 respondents with diverse demographic backgrounds, the study provides a detailed understanding of the key challenges confronting the B40 group in urban areas.

Table 1 shows that 57.2% of the respondents are in the productive age group of 40 – 59 years, which is the primary workforce in the family and also a group that requires special attention. This is due to the fact that this group is set to transition into the senior phase in the coming years, underscoring the importance of developing an early preparation strategy. In addition to supporting their families on limited income, they also need to plan financially for retirement and the future (Halim, 2023). Emphasis on this age group is crucial to ensure that they are able to increase their income during their productive period and have sufficient savings and the necessary support when they enter old age (Sabri *et al.*, 2023).

**Table 1. Demographic profile of heads of households in Projek Perumahan Rakyat Kerinchi, Kuala Lumpur**

Profile	Frequency (n)	Percentage
Age		
20 – 39 years	55	16.5
40 – 59 years	191	57.2
60 – 79 years	86	25.7
80 years and above	2	0.6
Gender		
Male	167	50.0
Female	167	50.0
Marital status		
Married	233	66.8
Single	18	5.4
Widower	8	2.4
Divorcee	67	20.1
Others (single parents/widowed)	18	5.4
Ethnicity		
Malay	257	76.9
Chinese	4	1.2
Indian	72	21.6
Others (e.g., Sikh)	1	0.3
Total	334	100.0

Source: Field study, 2023.

In addition, another 25.7% of respondents were between 60 and 79 years old, which shows that strong social and financial support is important for this group. This also shows the need for a long-term strategy that includes educational support and vocational training for the productive, as well as financial support and preparatory programs for their non-productive phase.

In terms of gender, this study found an equal balance between men and women, with 167 respondents each (50.0%). This balance suggests that economic challenges in the city affect both genders equally.

Marital status also provides an important insight into household composition, of which 66.8% of respondents are married individuals. This shows that most of the households in PPR Kerinchi are families, who face significant challenges in supporting their dependents.

From the ethnic aspect, the study shows that urban poverty involves various races, with 76.9% of respondents consisting of Malay ethnicity, followed by 21.6% of Indian ethnicity and 1.2% of Chinese ethnicity. These data illustrate that the issue of urban poverty transcends ethnic boundaries and requires an inclusive approach.

In addition to the demographic profile, further analysis was conducted to examine the employment and income stability patterns among different groups. Table 2 highlights the cross-tabulation of employment status by age group, providing insights into the economic activities of the respondents.

The data in Table 2 show that the 40 – 59-year age group has the highest employment rate (60.5%), reflecting their role as the primary workforce within households. In contrast, the 60+ years group exhibits the lowest employment rate (4.5%), emphasizing the need for financial and social support as this group transitions into retirement. Unemployment is notably high among the 20 – 39-year group (40%), highlighting challenges faced by younger individuals in securing stable employment. These findings underscore the importance of targeted interventions, such as skills training for younger groups and financial planning support for older groups, as outlined in the responsive urban poverty framework. To further examine the association between employment status and age group, a Chi-square test was conducted (Table 3).

Table 3 shows a statistically significant relationship ( $\chi^2 = 15.93$ , degree of freedom = 4,  $p=0.0031$ ), indicating that employment patterns vary meaningfully across different age categories. Younger respondents (20 – 39 years) were more likely to be unemployed or part-time employed, reflecting precarious job opportunities. In contrast, the older group (60+ years) showed a higher

**Table 2. Cross-tabulation of employment status by age group**

Employment status	20 – 39 years (%)	40 – 59 years (%)	60+years (%)	Total (%)
Employed	35.0	60.5	4.5	100.0
Unemployed	40.0	50.0	10.0	100.0
Part-time employed	25.0	55.0	20.0	100.0

Source: Field study, 2023.

**Table 3. Chi-square test results regarding the association between age group and employment status**

Age group (years)	Employed	Unemployed	Part-time	Total
20 – 39	39	45	28	112
40 – 59	67	56	61	184
60 +	5	11	22	38
Total	111	112	111	334

proportion of part-time employment, likely due to limited full-time opportunities or reduced capacity to work. This statistical validation provides empirical support for the responsive framework’s strategy to segment interventions based on age group vulnerabilities.

The study reveals a significant association between marital status and income stability among B40 HOHs in PPR Kerinchi. Married respondents were more likely to experience unstable or no income compared to other groups. This reflects the heavier financial burden typically borne by married individuals, who often have more dependents to support.

In contrast, single respondents tended to have more stable income, possibly due to having fewer dependents and lower financial commitments. Widowed or divorced respondents showed more varied economic conditions, with a more balanced distribution across income stability categories. These patterns highlight the need for tailored policies and financial assistance that consider household composition as a key factor in determining economic well-being.

Taken together, these findings highlight the complex and interconnected challenges faced by the B40 community in PPR Kerinchi. Addressing these issues calls for a comprehensive policy response that integrates skill development, financial assistance, and targeted social support, as outlined in the proposed conceptual framework.

The next discussion is about financial savings. Financial savings play a crucial role in evaluating the economic

stability of a household, particularly for the B40 group residing in urban areas. Access to sufficient savings provides financial security in the face of emergencies and the rising cost of living challenges (Zolkifly *et al.*, 2023). For the B40 group, sufficient savings can help reduce financial burdens in the short and long term (Mohd Khan *et al.*, 2018; Suhaimie *et al.*, 2020).

The findings reveal a critical vulnerability among respondents, as 62.6% reported having no savings in either a current or savings account. Only 37.4% indicated that they had some form of savings. Among the groups with savings, the majority had minimal reserves – 17.1% of respondents could sustain household expenses for only 3 – 4 months, 14.4% for 1 – 2 months, and only a mere 6.0% could manage for up to 6 months. These statistics reflect the low level of financial preparedness within this urban low-income group and indicate that most B40 households are ill-equipped to face unexpected economic disruptions.

This low level of savings highlights the urgent need for financial education and the implementation of accessible micro-savings programs tailored to low-income urban populations. It also reinforces the rationale behind the responsive urban poverty framework, which emphasizes long-term economic resilience through increased financial literacy, better income security, and stronger social support systems.

These findings clearly underscore the financial vulnerability of the B40 urban group, highlighting the urgent need for targeted interventions that enhance financial resilience and social protection systems tailored to the realities of low-income urban households.

The study findings reveal widespread employment-related vulnerabilities among B40 HoHs in PPR Kerinchi. A total of 78.4% of respondents reported that their income was negatively affected due to urban employment challenges, while 76.6% of respondents were unemployed at the time of the survey. In addition, among specific employment instability events such as the pandemic, 48.2% of respondents experienced job loss, 27.2% had their working hours reduced, and 24.6% transitioned to working from home. These overlapping disruptions reflect the fragile employment landscape for low-income urban residents and underline the multifaceted nature of urban poverty.

These results also align with the report published by Khazanah Research Institute (2024), which highlights the growing need for structural employment reforms and emphasizes the importance of combining financial aid with long-term strategies such as skills training and inclusive job creation. This reinforces the rationale for the

responsive urban poverty framework, which advocates integrated approaches to economic resilience. Specifically, the framework emphasizes not just temporary relief but also long-term empowerment through targeted policy measures that address employment insecurity among both working age and post-working age groups in urban settings.

Building on the employment instability findings, the following section introduces strategies to address these challenges comprehensively. To address these challenges, this study recommends a holistic framework that prioritizes skills training, economic opportunities, and social support to improve job security and economic stability for the B40 community. Further refinements ensure logical flow and clarity across sections, aligning the discussion with academic and policy-focused objectives.

Table 4 presents the changes in household income among B40 respondents in urban areas over the 1 year from January to December 2023. A significant 65.0% reported a decline in income, while only 5.1% experienced an increase. These figures underscore the persistent economic vulnerability of low-income urban households, further justifying the need for targeted interventions outlined in the proposed responsive urban poverty framework.

The following section examines the financial pressures faced by B40 households in urban areas, particularly in PPR Kerinchi. Two key indicators were assessed: changes in monthly household expenditure and the contributing factors to increased expenses. The findings provide valuable insights into how inflation and cost-of-living increases impact low-income communities, reinforcing the importance of strategic interventions within the responsive urban poverty framework.

Table 5 shows that 79.0% of B40 respondents reported an increase in monthly household expenditure, reflecting the broader impact of rising living costs in urban Malaysia. Only 2.7% reported a decrease, highlighting the rare occurrence of reduced household expenses among low-income groups. The most contributing factor to increased spending was food prices (85.3%), followed by utility bills (76.1%) and transportation costs (62.4%). These findings suggest that inflation in basic necessities plays a central role in exacerbating the financial burden on B40 households. The inclusion of education and healthcare as notable factors further supports the need for multi-sectoral support strategies aimed at improving access and affordability for essential services. This underscores the urgency of implementing a responsive urban poverty framework that can adapt to the changing economic landscape and strengthen household resilience.

**Table 4. Changes in household income among the B40 in urban areas (January – December 2023)**

Status	Frequency	Percentage
Increased	17	5.1
Remained the same	100	29.9
Decreased	217	65.0
Total	334	100

Source: Field study, 2023.

**Table 5. Changes in monthly expenditure and contributing factors among B40 households**

Category	Response	Percentage
Change in monthly expenditure	Increased	79.0
	Remained the same	18.3
	Decreased	2.7
Main contributing factors	Food prices	85.3
	Utility bills	76.1
	Transportation	62.4
	Education expenses	41.6
	Healthcare	35.0

Source: Field study, 2023.

The following section discusses how vulnerable groups respond to urban poverty and manage financial hardship.

## 4. Discussion

### 4.1. The Malaysian context as a framework for addressing urban poverty

This study identifies the multidimensional challenges faced by the B40 community in PPR Kerinchi, Kuala Lumpur, including income instability, rising living costs, and limited access to secure employment. In response, the proposed responsive urban poverty framework categorizes the population into two age-based groups: the working age group (20 – 59 years) and the post-working age group (60 years and above). The framework tailors interventions such as skills training and employment support for the working age group while emphasizing healthcare and financial assistance for the older group.

The framework also considers broader socio-economic dynamics, particularly rural-urban migration. Migration is often driven by diminishing rural employment opportunities and the attraction of urban facilities such as public housing and education. However, this trend exacerbates urban poverty by increasing competition for low-skilled jobs and dependence on public assistance. The framework advocates for balanced development through rural investment in education, agriculture, and

local job creation to reduce urban migration pressures. At the same time, urban policies should expand low-skilled employment opportunities and strengthen social protection for vulnerable populations.

A key strength of the framework lies in its integrated structure, which combines economic empowerment with social and health support mechanisms. Beyond short-term measures such as cash assistance, it promotes long-term resilience through capacity-building initiatives like vocational training. The inclusion of public-private partnerships enhances sustainability, while support for social entrepreneurship and digital innovation introduces novel pathways to tackle urban poverty.

Nonetheless, the framework's success depends on consistent government commitment and meaningful collaboration with the private sector. In resource-constrained environments, the scale-up of programs such as entrepreneurship training may face logistical and financial limitations. Moreover, alignment with private sector goals may not always be guaranteed, highlighting the need for institutional coordination and adaptive implementation strategies.

## 4.2. Theoretical contribution

This study contributes to the literature on urban poverty by proposing a responsive framework that integrates both structural conditions and individual-level factors. Departing from conventional state-centric models, the framework emphasizes collaborative partnerships, rural-urban linkages, and a holistic understanding of poverty. It synthesizes employment trends, migration drivers, and the role of safety nets to inform a more contextually grounded theory of urban poverty.

The framework advances previous models by incorporating migration-related push-and-pull dynamics that influence urban poverty patterns. It also integrates emerging approaches, such as social entrepreneurship programs and digital health interventions, which are not commonly addressed in traditional poverty alleviation models. These elements enrich the theoretical discourse by highlighting practical, scalable strategies that reflect the real-world complexities of urban poverty in Malaysia.

Focusing on the working age B40 population, the next section examines the framework's application to this economically active group. This segment holds the potential to drive socioeconomic progress if provided with adequate training, employment access, and entrepreneurial support. By investing in long-term capacity-building and reducing dependency, the framework aligns with the overarching objectives of inclusive growth and sustainable poverty reduction.

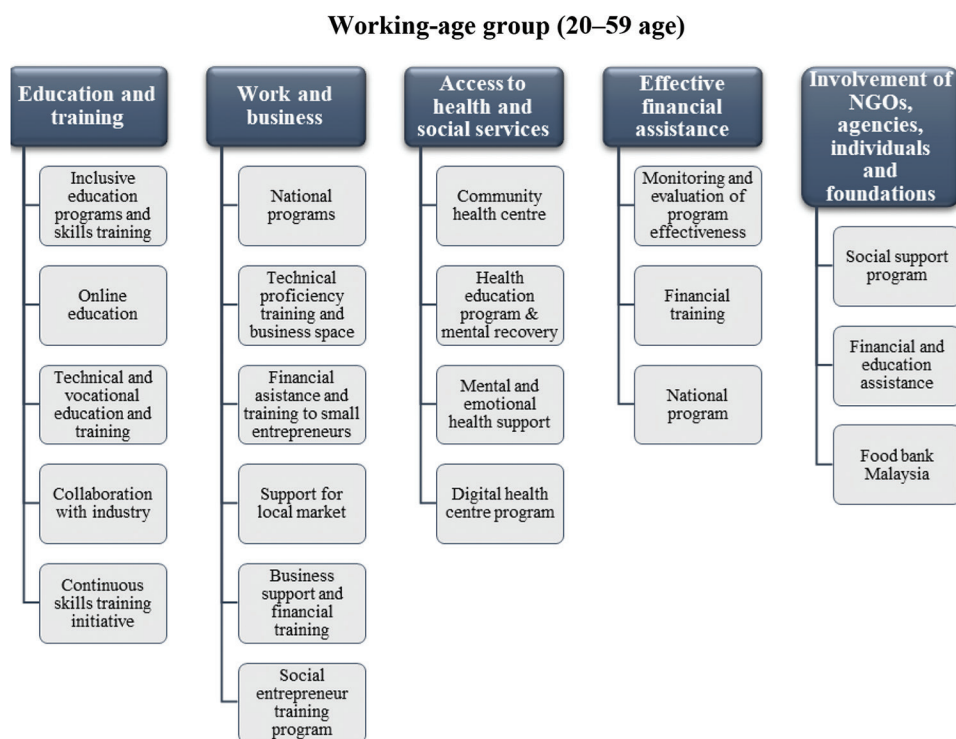
## 4.3. Working age group (20 – 59 years)

The responsive urban poverty framework takes a comprehensive approach by integrating government initiatives with collaborative partnerships involving private sectors, non-governmental organizations (NGOs), and community-based efforts. While government financial assistance provides immediate relief, sustainable development depends on the active involvement of the private sector, especially in vocational training and entrepreneurship support. NGOs, in turn, contribute significantly through the provision of social services such as healthcare, education, and food aid, thereby strengthening the overall support ecosystem for the urban B40 community.

To address the risk of rural-urban migration that may result from an expansion of urban social services, the framework promotes rural economic development to reduce migration push factors. This includes initiatives such as rural job creation, improved access to education, and infrastructure development, which help balance opportunities across regions. A dual emphasis on urban resilience and rural empowerment ensures that efforts to reduce urban poverty are not undermined by excessive migration into cities.

The majority of respondents in this study, specifically those aged 20 – 59 and categorized in the working age group, constitute a significant portion of the urban B40 population in PPR Kerinchi. [Figure 2](#) presents the framework tailored to this group, organized into five main components: education and training, employment and business, access to health and social services, effective financial assistance, and the involvement of NGOs, agencies, individuals, and foundations.

In terms of education and training, the framework supports inclusive education programs and skills development that include online learning, vocational education, and lifelong learning opportunities. It also encourages collaboration with industries to ensure that the training provided matches current market needs. Government initiatives such as the RM 6.7 billion technical and vocational education and training allocation under Budget 2023, the MySTEP employment program, and MyDigitalMaker, a partnership with technology companies like Microsoft, play an important role in equipping B40 youth with digital and industry-relevant skills. Future expansions may focus on advanced technologies such as artificial intelligence, big data, and automation through the continuous skills training initiative, enabling the B40 group to remain competitive in a rapidly changing job market.



**Figure 2.** A framework of programs supporting the socioeconomic and health needs of the B40 working age group  
Abbreviation: NGOs: Non-government organizations.

Under the employment and business component, several national programs support urban B40 microentrepreneurs. *Tabung Ekonomi Kumpulan Usaha Niaga* (TEKUN Nasional) provides microfinancing for business expansion, while GiatMARA incubators offer technical training and business premises. The e-entrepreneur program under the Malaysia Digital Economy Corporation empowers urban entrepreneurs to leverage digital platforms for income generation. Looking ahead, a social entrepreneurship training program can encourage individuals to develop enterprises that address social problems while generating income. This includes initiatives in urban agriculture, childcare services, or community recycling programs, with support from start-up grants and structured mentorship.

Health and social service access is another key pillar. The framework supports the availability of basic health services through mobile clinics and urban transformation centers, which offer affordable treatment, including dental services. Mental and emotional support services such as psychosocial assistance through *Talian Kasih* help alleviate emotional stress among vulnerable groups. The digital health center program introduces telemedicine solutions to improve access, especially for those who face difficulties obtaining direct medical care. Expanding digital health insurance and remote consultation services will help

safeguard urban B40 households from healthcare-related financial shocks.

With regard to financial assistance, the framework emphasizes financial education, systematic monitoring, and continuous program evaluation. Government initiatives such as direct cash assistance and financial literacy programs aim to empower B40 households to better manage their income, control spending, and build resilience. These interventions not only relieve financial burdens temporarily but also build long-term financial capability.

Finally, the involvement of NGOs, agencies, individuals, and foundations enhances the reach and impact of support systems. Organizations such as *Yayasan Hasanah* and Malaysian Medical Relief Society contribute through food, education, and healthcare programs, while zakat institutions offer structured financial aid. Private sector initiatives like Food Bank Malaysia ensure household food security. To improve coordination, the framework proposes the establishment of a digital social assistance collaborative platform that brings together efforts from NGOs, corporations, individuals, and foundations in a unified system. This ensures that resources are optimally distributed to the right recipients.

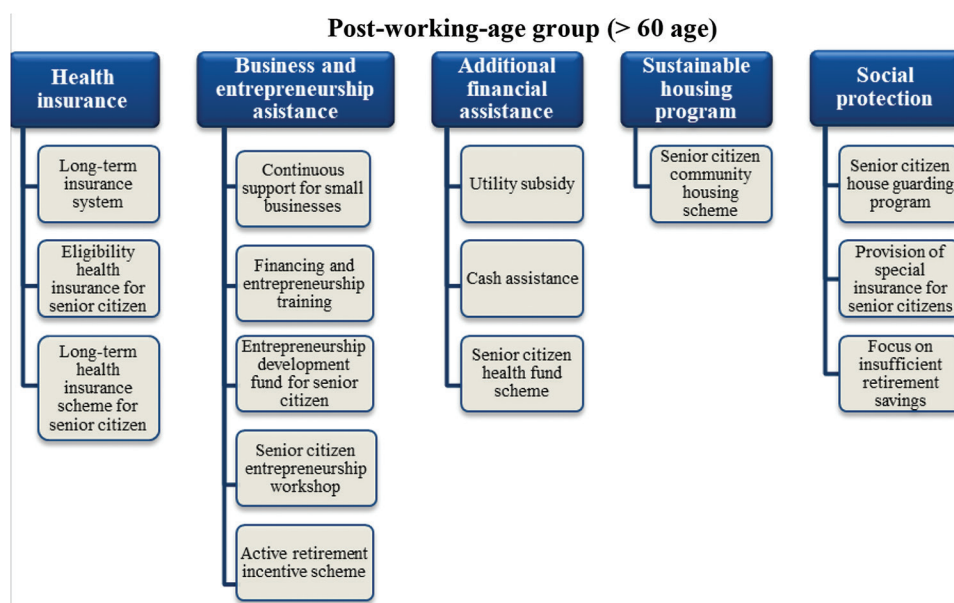


Figure 3. The responsive urban poverty framework for the post-working age group (60+ years)

#### 4.4. Post-working age group (60+ years)

In addition to addressing the needs of the urban poor, this framework recognizes the importance of proactive rural development. By strengthening rural economies and expanding access to education and social services, the framework aims to alleviate the rural push factors that contribute to urban poverty. These strategies include fostering rural entrepreneurship, improving educational quality, and generating local employment opportunities. Such interventions not only enhance rural living conditions but also reduce urban congestion by minimizing economically driven migration.

This responsive urban poverty framework not only focuses on the working age group but also addresses the challenges faced by the post-working age group, specifically those aged 60 and over (Figure 3). In this study, 57.2% of the respondents were from the working age group (40 – 59 years old), who will transition into the elderly category within a few years, emphasizing the need to develop sustainable solutions for the post-working age group.

As illustrated in Figure 3, the framework for the post-working age group is designed to enhance quality of life through five key components: health insurance, business and entrepreneurship assistance, additional financial support, sustainable housing programs, and social protection.

Health insurance coverage plays a vital role in safeguarding the well-being of senior citizens. Schemes such as long-term health insurance plans, coupled with

defined eligibility criteria, can offer consistent healthcare access to this age group. Government support for medical subsidies can be expanded to include outpatient care and specialist treatment, reducing reliance on out-of-pocket expenses.

Business and entrepreneurship support is another pillar of the framework. While seniors are often classified as non-productive, many remain capable of contributing to the economy through small-scale enterprises. Programs such as TEKUN Nasional are providing microloans to this group. Future initiatives may include entrepreneurship training programs focusing on digital skills, financial literacy, and business model innovation. Establishing a senior citizen entrepreneurship fund and incentive schemes for active retirees would further empower older adults to engage in economic activities and reduce financial dependence.

Additional financial assistance programs, such as utility bill subsidies and cash transfers, remain crucial in supporting daily living costs for the elderly. Initiatives by the social welfare department provide a foundation, but expanded coverage and targeted utility subsidies such as those for electricity, water, and gas would help alleviate the burden on low-income seniors. The introduction of a senior citizen health fund scheme, involving collaboration among the government, employers, and NGOs, could ensure access to long-term healthcare and essential medicines.

Access to affordable and inclusive housing is another major concern for the elderly. The establishment of a senior

citizen community housing scheme in urban areas would not only provide affordable housing but also integrate healthcare facilities, recreational areas, and community-based support services. Such arrangements are essential to ensure that older adults remain active, healthy, and socially connected.

Finally, social protection for the elderly must address issues of inadequate retirement savings and insecurity. Programs such as the senior citizen house guarding scheme and the provision of insurance tailored to seniors' needs can help enhance safety and financial resilience. Coordination with foundations, NGOs, and public agencies ensures that these services reach the intended population. Developing a centralized digital platform to manage and distribute these services could streamline delivery and increase accessibility.

#### 4.5. Strengths and limitations of the study

This study offers several strengths, notably its systematic and focused design to assess urban poverty within the specific context of PPR Kerinchi, Kuala Lumpur. The use of Slovin's formula for sampling allowed adequate representation with a 5% margin of error. In addition, the structured and validated questionnaire enhanced the reliability of the data, capturing a wide range of indicators related to urban poverty, such as socioeconomic status, employment conditions, and access to services.

The strength of the study also lies in its robust data collection method. Face-to-face interviews conducted by trained enumerators ensured accuracy and minimized misunderstandings. The data were analyzed using SPSS software, enabling the identification of statistically significant patterns and relationships across key variables.

Despite these strengths, the study also presents several limitations. First, Slovin's formula does not incorporate statistical power considerations, which may affect the precision and generalizability of the findings. Future studies may consider using statistical software such as G\*Power to enhance sampling rigor. Second, reliance on self-reported data may result in biases such as overreporting or underreporting due to social desirability. Third, the cross-sectional design limits the ability to infer causal relationships or track changes over time. A longitudinal study would be more effective in understanding the evolving nature of urban poverty.

Finally, although the responsive urban poverty framework introduced in this study presents useful strategies, its implementation may require adaptation to suit different urban settings. Therefore, future research should test the scalability and relevance of the framework in varied urban environments.

## 5. Conclusion

This study contributes to the existing discourse on urban poverty by introducing a responsive framework that addresses the socioeconomic vulnerabilities of the B40 group in Malaysia. Unlike conventional approaches, this framework integrates both immediate relief and long-term structural strategies to promote sustainable well-being among urban poor households.

The framework distinguishes between the needs of the working age group and the post-working age group. For the working age population, interventions emphasize vocational training, entrepreneurship support, and employment access facilitated through public-private collaborations. For the post-working age population, the framework prioritizes healthcare, social safety nets, and financial assistance schemes to ensure dignified living conditions.

Empirical findings from this study highlight the urgent need to address employment instability, insufficient savings, and low-income levels. Initiatives such as the continuous skills training program and the digital health center program serve as forward-looking recommendations that equip the B40 group to navigate the evolving urban economy.

At the theoretical level, this study bridges the gap between structural and individual-level perspectives by proposing a holistic, adaptable, and inclusive urban poverty response model. It expands the literature by proposing scalable, targeted interventions that align with national development goals while remaining sensitive to the diverse needs of urban communities.

Moving forward, policy interventions must focus on expanding access to inclusive education, upskilling initiatives, and balanced regional development to reduce migration pressures. Collaborative efforts involving government, private sector, and community-based organizations are essential to ensure that urban poverty is addressed not only through aid but also through empowerment, resilience, and sustainable livelihoods.

## Acknowledgments

The authors would like to thank the Ministry of Higher Education Malaysia for supporting this research under the Fundamental Research Grant Scheme (FRGS) [Grant number: FRGS/1/2022/SS0/USM/02/25].

## Funding

This research is supported by the Ministry of Higher Education Malaysia through the FRGS, project title "Pembinaan Kerangka Asas Baharu Kemiskinan Bandar Kumpulan B40 di Pulau Pinang dan Kuala Lumpur," [Grant number: FRGS/1/2022/SS0/USM/02/25].

## Conflict of interest

The authors declare that they have no competing interests.

## Author contributions

*Conceptualization:* Nik Norliati Fitri Md Nor

*Data curation:* Nik Norliati Fitri Md Nor, Nur Amani Amalina Basri

*Formal analysis:* Nik Norliati Fitri Md Nor

*Investigation:* Siti Masayu Rosliah Abdul Rashid, Nur Amani Amalina Basri

*Methodology:* Nik Norliati Fitri Md Nor

*Validation:* Azimah Abdul Rahman

*Writing – original draft:* Siti Masayu Rosliah Abdul Rashid

*Writing – review & editing:* Azimah Abdul Rahman, Siti Masayu Rosliah Abdul Rashid

## Ethics approval and consent to participate

This study was reviewed and approved by the Human Research Ethics Committee, Universiti Sains Malaysia (JEPeM), with Approval ID: USM/JEPeM/22110694. Informed consent was obtained from all individual participants included in the study.

## Consent for publication

All participants provided informed consent for the publication of the findings derived from this study. No identifiable personal data or images were collected or published. The authors affirm that all relevant consent forms have been obtained and are available upon request.

## Availability of data

The datasets generated and analyzed during the current study are available through the corresponding author on reasonable request.

## References

- Abdullah, M. (2024). Kajian UNICEF: Pendapatan isi rumah melonjak, kemiskinan masih ketara (UNICEF study: Household incomes soar, poverty still significant). Kuala Lumpur: Astro Awani. [Article in Malay]. Available from: <https://www.astroawani.com/berita-malaysia/kajian-unicef-pendapatan-isi-rumah-melonjak-kemiskinan-masih-ketara-469667> [Last accessed on 2025 Jun 26].
- Abdullah, R. (2024). Urban poverty frameworks in Southeast Asia: Addressing the socio-economic divide. *Journal of Regional Development Studies*, 35(2):45-60.
- Asian Development Bank. (2022). ADB Annual Report 2022. Institutional Document. Available from: <https://www.adb.org/sites/default/files/institutional-document/872636/adb-annual-report-2022.pdf> [Last accessed on 2025 Jun 17].
- BERNAMA. (2020). National Poverty Line Income

Revised to RM2,208 - DOSM. Available from: <https://themalaysianreserve.com/2020/07/10/national-poverty-line-income-revised-to-rm2208-dosm/> [Last accessed on 2025 Jun 16].

Halim, M. (2023). The strategic training and development: Integration and contingency for high quality. *Jurnal Lentera Bisnis Manajemen*, 1(1):40-51.

<https://doi.org/10.59422/lbm.v1i01.54>

Implementation Coordination Unit (Unit Penyelarasan Pelaksanaan). (2023). Membangunkan Masyarakat Inklusif dan Lebih Berdaya Tahan: Kajian Separuh Penggal Rancangan Malaysia Kedua Belas (Developing an Inclusive and More Resilient Society: Mid-Term Review of the Twelfth Malaysia Plan (2021-2025). Putrajaya: Department of Statistics Malaysia. [Article in Malay].

Implementation Coordination Unit (Unit Penyelarasan Pelaksanaan). (2024). Statistik Status Kemiskinan Sehingga Februari 2024 (Poverty Status Statistics as of February 2024). Putrajaya: Prime Minister's Department. [Article in Malay].

Implementation Coordination Unit. (2023). Mid-Term Review of the Twelfth Malaysia Plan (2021–2025) Malaysia MADANI: Sustainable, Prosperous, High-Income. Prime Minister's Department, Malaysia. Available from: [https://rmke12.ekonomi.gov.my/ksp/storage/fileUpload/2023/09/2023091129\\_executive\\_summary\\_ksp\\_rmke\\_12.pdf](https://rmke12.ekonomi.gov.my/ksp/storage/fileUpload/2023/09/2023091129_executive_summary_ksp_rmke_12.pdf) [Last accessed on 2025 Jun 16].

Ismiyanti, D., Asteriani, F., & Astuti, P. (2019). Priority study of infrastructure development at suburban pekanbaru (case study: Tambang District). *IOP Conference Series: Earth and Environmental Science*, 340:012014.

<https://doi.org/10.1088/1755-1315/340/1/012014>

Juhari, H., & Zulyadi, T. (2021). Bentuk-bentuk pemberdayaan masyarakat miskin oleh Baitul Mall di Kota Banda Aceh. *Jurnal Agama dan Sosial Humaniora*, 9(2):119-134.

<https://doi.org/10.47574/kalam.v9i2.116>

Kamaruddin, M.I.H., Ahmad, A., Husain, M.A., & Abd Hamid, S.N. (2021). Graduate employability post-COVID-19: The case of a Malaysian public university. *Higher Education Skills and Work-Based Learning*, 11(3):710-724.

<https://doi.org/10.1108/HESWBL-05-2020-0114>

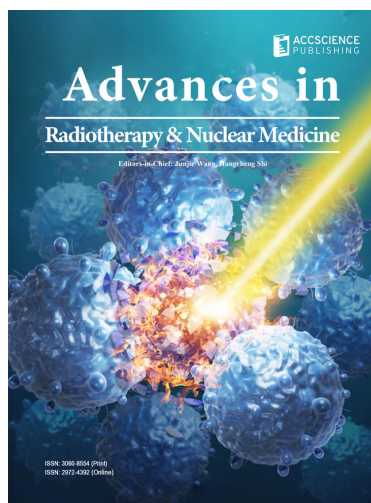
Khazanah Research Institute. (2023a). Kesejahteraan Kediaman Golongan Miskin Bandar: Kajian Program Perumahan Rakyat (PPR). Kuala Lumpur: Khazanah Research Institute. Available from: [https://www.krinstitute.org/assets/contentms/img/template/editor/laporan%20kri\\_kesejahteraan%20kediaman%20golongan%20miskin%20bandar.pdf](https://www.krinstitute.org/assets/contentms/img/template/editor/laporan%20kri_kesejahteraan%20kediaman%20golongan%20miskin%20bandar.pdf) [Last accessed on 2025 Jun 10].

Khazanah Research Institute. (2023b). Decent Shelter for the Urban Poor: A Study of Program Perumahan Rakyat (PPR). Kuala Lumpur: Khazanah Research Institute. Available from: <https://www.krinstitute.org/assets/contentms/img/>

- template/editor/kri%20report\_decent%20shelter%20for%20the%20urban%20poor.pdf [Last accessed on 2025 Jun 04].
- Khazanah Research Institute. (2024). Shifting Tides: Charting Career Progression of Malaysia's Skilled Talents. Available from: [https://www.krinstitute.org/assets/contentMS/img/template/editor/KRI%20Report%20-%20Shifting%20Tides%20\(1\).pdf](https://www.krinstitute.org/assets/contentMS/img/template/editor/KRI%20Report%20-%20Shifting%20Tides%20(1).pdf) [Last accessed on 2025 Jun 16].
- Mayan, S.N.A., & Mohd Nor, R. (2020). The resistance of the urban poor in Selangor, Malaysia to get out of the shackles of poverty. *International Journal of Academic Research in Business and Social Sciences*, 10(8):601-611.  
<https://doi.org/10.6007/IJARBSS/v10-i9/7637>
- Mohd Khan, S.J., Abdullah, N., Che Mat, S.H., Abu Bakar, A.S., Ali, J., & Abdullah, H. (2018). The effectiveness of 1 Malaysia people's aid program to the B40 group in the rising cost of living: An exploratory case study in rural district of Kedah. *The Journal of Social Sciences Research*, Special Issue: 958-964.  
<https://doi.org/10.32861/jssr.spi6.958.964>
- Muhtar, E.A., & Riswanda, R. (2023). Policy network on village development in bandung regency (study on community-based housing and settlement development). *Journal of Governance*, 8(2):247-262.  
<https://doi.org/10.31506/jog.v8i2.19107>
- Razak, A. (2023). Dasar perumahan awam 'jerat' penduduk – Kajian (Public housing policy 'traps' residents - Study). Malaysiakini. [Article in Malay]. Available from: <https://www.malaysiakini.com/news/658795> [Last accessed on 2025 Jun 16].
- Sabri, M.F., Anthony, M., Law, S.H., Abdul Rahim, H., Burhan, N.A.S., & Ithnin, M. (2023). Impact of financial behaviour on financial well-being: Evidence among young adults in Malaysia. *Journal of Financial Services Marketing*, 29(3):788-807.  
<https://doi.org/10.1057/s41264-023-00234-8>
- Samat, M.F., Annual, N.B., Yusoff, M.N.H., & Yaacob, M.R. (2021). Developing a new urban poor family business model using cognitive approach. *International Journal of Academic Research in Business and Social Sciences*, 11(6):1622-1632.  
<https://doi.org/10.6007/IJARBSS/v11-i8/10600>
- Suhaimee, S., Zaidi, M.A.S., Ismail, M.A., & Sulaiman, N. (2020). Social innovation and social entrepreneurship as mediators of the relationship between social capital and income level of B40 household. *International Journal of Business and Society* 21(2):837-856.  
<https://doi.org/10.33736/ijbs.3297.2020>
- UN-Habitat. (2020). The State of Global Urban Poverty: Inclusive Solutions for Equitable Cities. Nairobi: UN-Habitat.
- United Nations Human Settlements Programme. (2020). World Cities Report 2020: In The Value of Sustainable Urbanization. United Nations: United Nations Human Settlements Programme, p.414.
- World Bank. (2021). The Vulnerability of Jobs to COVID-19: The Case of Malaysia (English). Washington, D.C: World Bank Group. Available from: [https://drive.google.com/file/d/1rxWt1-ewskKA5oZHY3ybIiSCRqJt5\\_Be/view](https://drive.google.com/file/d/1rxWt1-ewskKA5oZHY3ybIiSCRqJt5_Be/view) [Last accessed on 2025 Jun 16].
- Zolkifly, N.H., Habidin, N.F., & Baharom, S.N. (2023). Using household living aid for entrepreneurship: What does the B40 think? *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 13(2):869-886.  
<https://doi.org/10.6007/IJARAFMS/v13-i2/18031>
- Zulkifli, F., & Zainal Abidin, R. (2023). The multi-dimensional nature of poverty: A review of contemporary research. *International Journal of Academic Research in Economics and Management Sciences*, 12(2):272-288.  
<https://doi.org/10.6007/IJAREMS/v12-i2/17260>



## OUR JOURNALS



*Advances in Radiotherapy & Nuclear Medicine (ARNM)* is a peer-reviewed and open-access journal that aims to publish and disseminate novel research in the breadth of neurology and neuroscience.

*ARNM* covers subject areas, including but not limited to the following:

- Conventional Radiotherapy (CR)
- Stereotactic Body Radiation Therapy (SBRT)
- Brachytherapy (BT)
- Boron Neutron Capture Therapy (BNCT)
- Particle Therapy (proton and heavy ions) (PT)
- Targeted and Immunotherapy (TI)
- Combined Modality Therapy (Heat therapy, electric field therapy, nursing, technology) (CMT)
- Radiation Biology (RB)
- Radiation Physics (RP)
- Innovative Radiation Technology (IRT)
- Positron Emission Tomography (PET)
- Radiopharmaceuticals and Radio-tracer (RR)
- Molecular Imaging and Radionuclide Therapy (MI & RT)
- Single-photon Emission Computed Tomography (SPETCT)

*Brain & Heart* focuses on neurocardiology, a neurology and cardiology-based interdisciplinary subject that studies the circulatory mechanism of the human body, as well as the mechanisms of the interplay between the cardiovascular system and the nervous system. The journal's scope includes:

Clinical and basic research on diseases related to the circulatory and nervous systems, such as: orthostatic dizziness, orthostatic hypotension, autonomic dysfunction, and the relationship between the autonomic nervous system and the circulatory function in cerebral degeneration;

Heart-brain research on patients with syncope, autonomic dysfunction, cryptogenic stroke, and stroke with atrial fibrillation; research on the relationship between structural heart diseases and nervous system diseases, the correlation between cardiac electrophysiology and abnormal organizational structures and the pathogenesis of stroke, as well as new ways of diagnosis, treatment and prevention of unexplained stroke.

### Brain & Heart



ISSN: 2072-4139 (Online)

### Start a new journal

Write to us via email if you are interested to start a new journal with AccScience Publishing. Please attach your CV, professional profile page and a brief pitch proposal in your email. We shall inform you of our decision whether we are interested to collaborate in starting a new journal.

**Contact:** [info@accscience.com](mailto:info@accscience.com)

<https://accscience.com/journal/IJPS>



**Contact**

[www.accscience.com](http://www.accscience.com)

9 Raffles Place, Republic Plaza 1 #06-00 Singapore 048619

Email: [editorial@accscience.com](mailto:editorial@accscience.com)

Phone: +65 8182 1586