Remapping Internal Migration: How Complex Are Indonesian Migration Trajectories?

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Abstract

Most conventional perspectives depict internal migration as a simple one-step process. Indeed, it simplifies complex migration patterns while concealing the diversity of migration dynamics throughout the life course. This study looks into the possibility of other types of migration in Indonesia besides one-way movement. Using sequence analysis on longitudinal data, we identify complex migration trajectories among Indonesians aged 12 to 50. Multinomial regression analysis confirmed that specific migration trajectories are associated with specific sociodemographic characteristics. This finding implies that migration takes a variety of paths and constantly evolves.

Keywords

Introduction

Recently, everyone seems to be on the move (Sheller & Urry, 2006). Migrants no longer stay at their destination once they arrive but can continue their journey (Salamońska, 2017). Migrants can settle in multiple places to fulfill their aspirations (Mas Giralt, 2016). So far, this phenomenon has gotten less attention, even when the concept of migration was developed (Zufferey, 2019). Migrants, on the contrary, were always assumed to have settled in their destination as a "new home" (Salamońska & Czeranowska, 2021). Most previous migration research, as well known, still relied on a conventional perspective in which everyone had only one chance to decide whether to migrate and where they would live (DaVanzo, 1983). Ahrens et al. (2016) questioned the simplified migrant trajectories with only two nodes, one at the origin and one at the destination. It reduced actual migration patterns and obscured the diversity of migration dynamics across the life course (Chen et al., 2021). As a result, the complex interdependence between different stages of migratory trajectories was poorly understood (Castagnone, 2011). When, in fact, people migrate multiple times throughout their lives, the single-origin-single-destination model was inadequate for conceptualizing contemporary migration (Paul & Yeoh, 2021).

In principle, small but growing efforts have been made to fill this above void. Some scholars began researching individual migration histories and discovered that migration was not simply a one-way movement. Takenaka (2007), for example, confirmed that approximately 12.5% of immigrants in the United States had previously lived in multiple countries. Cornish (2014) also found that roughly 40% of Australian immigrants would rather relocate to another country than return home. Nonetheless, the majority of studies on the complexities of migration trajectories were still conducted in developed countries (see Agrawal, 2016; Della Puppa, 2018; Salamońska & Czeranowska, 2021; Zufferey et al., 2021). Most of them, in addition, still rely on small-scale qualitative data (King, 2002). Little is known about the dynamics of migration trajectories in developing countries and based on large-scale quantitative studies, except for some works (e.g., Chen et al., 2021; Pardede et al., 2016; Yang et al., 2020). This paper will complement previous research on the complexities of migration, particularly internal migration in developing countries like Indonesia. As the world's largest archipelagic state, Indonesia is an ideal laboratory for studying internal migration. The diversity of ethnic groups, cultures, and languages makes migration studies in Indonesia more interesting (Alabshar et al., 2020; Astiarani, 2020).

Population movement is a long-standing phenomenon in Indonesia (Pitoyo, 2018). It has been part of development as a cause or a result of social, demographic, and economic structures (Muhidin, 2014). Empirically, much attention has been paid to internal migration in Indonesia. Tirtosudarmo (2009), for example, explored migration's correlation with human development. Sukamdi and Mujahid (2015) provided an overview of internal migration; Wajdi et al. (2017) talked about the gravity model; and Bazzi et al. (2019) focused on migration's role in nation-building. Auwalin (2020) investigated migration and ethnicity; Marta et al. (2020) examined migration motives and impact; and Akhmad et al. (2022) scrutinized entrepreneurial migration. More recently, Ananta et al. (2023) explored issues about internal migration, ethnic diversity, and economic growth. Despite the abundance of research, however, these studies have not offered a comprehensive exploration of the entire migration trajectory experienced by individuals over their lifecycles. The migration discourse within these studies primarily revolves around the origin-destination dichotomy aligned with census and survey data.

To date, as well known, Indonesia's internal migration delineation is mostly still restricted by an official definition of migration by census or survey that only considers recent migration (current place of residence differs from five years ago) and lifetime migration (current place of residence differs from time of birth). Consequently, Indonesians were identified as migrants if their present province/district of residence differed from five years ago. Similarly, they were categorized as lifetime migrants if their current province/district of residence was distinct from their birthplace (Statistics Indonesia, 2016). The limitation of such data was that it failed to capture population movements between birth and the present and those occurring within less than five years (when a census or survey was conducted). And, as is common in many countries, these definitions exclude the other forms of migration. In addition, it often characterizes internal migration as a one-way movement (Cattaneo & Robinson, 2020). As a result, the description of migration dynamics in real terms becomes blurred. Hugo (1982) contended that internal migration in Indonesia is more complicated than a census or survey depicts. Deb and Seck (2009) stated that nearly one of every two Indonesians had migrated at least once across the archipelago. Sukamdi and Mujahid (2015) acknowledged the existence of multiple migration steps across space and time in Indonesia despite the difficulties in studying them.

Using data from the Indonesian Family Life Survey (IFLS), this paper aims to fill a gap by investigating the potential emergence of other migration types in Indonesia besides one-way movement. Individual migration histories in IFLS data provide valuable information that should be explored further. It may contribute to the flourishing of theories and policies relating to internal migration in developing countries. Essentially, Pardede et al. (2016) conducted analogous research. Employing the same dataset, albeit limited to the four-wave IFLS data, they aimed to determine the extent to which stepwise migration (a variant of multiple migrations) was applicable in Indonesia. However, Pardede et al. defined migration as the movement between villages, particularly on migration trajectories between villages, small towns, and big cities. Thus, Pardede et al. focus more on migration across urban hierarchies.

We differ from Pardede et al.'s (2016) work. First, we used inter-district migration. Second, we investigated the various types of migration that may occur based on their direction (one-way, onward, or return migration). Third, we plotted migration trajectories within the context of a life course. As a result, it can predict the timing of migration based on the migrants' ages. Fourth, to investigate the educational effect on migration propensity, we considered the interaction between gender and educational attainment. Last, we include ethnic groups to capture the difference in migration propensity between them. To do so, we proposed several research questions: (1) To what extent are complex migration trajectories evident in the Indonesian case? (2) How closely are migration types related to the life course? (3) To what extent do migration types correspond to individual, household, and geographical characteristics?

Literature review

Theoretically, migration was characterized by the movement of people from traditional to modern areas, as described by the law of migration (Ravenstein, 1885, 1889), the dual economic theory (Lewis, 1954), or the neoclassical theory (Todaro, 1969, 1976). As a result, the migration trajectory was marked mainly by a dichotomy between origin and destination. According to Castles (2010) and Erdal (2021), migration theory has a "sedentary bias."

Historically, migration studies have tended to disregard the lived experiences of migrants in specific locations. According to Giordano (2010), migration is the study of the movement of people. As a result, the single destination appears insufficiently natural, as it describes less of the dynamic side of "movement." The mobility turn in migration studies began challenging the notion that migration is a one-way movement (Castagnone, 2011; Schapendonk & Steel, 2014). Academics have started investigating the various journeys that define people's lives (Sheller & Urry, 2006).

At first glance, the continuous movement within the migration issue resonates with the idea of short-term mobility, as articulated by Zelinsky (1971) and subsequently elaborated by Skeldon (1990). Short-term mobility refers to displacement within a relatively short time (less than one year), like commuting or circulating. Zelinsky and Skeldon posit that short-term mobility might be considered a reaction to specific conditions. In the initial stages of development, residents were compelled into short-term mobility due to limitations in pursuing long-term mobility, often denoted as migration. With the rapid development of transportation and communication technology, individuals now opt for short-term mobility over long-term migration. Unlike before, this decision was no longer forced but rather a personal choice. Lately, a new type of short-term mobility has arisen, as mentioned by Ananta and Arifin (2014) and Ananta (2021), called "*wira-wiri*," denoting unpredictable, unrestricted short-range shifts that happen randomly and can lead to any destination. Baldwin (2016) stated that technological advancements lead to reduced mobility expenses. Even individuals may not need to move physically. Ananta (2020) added that people could be "nowhere but everywhere."

Nevertheless, the subject at hand in this paper doesn't revolve around short-term mobility; instead, it focuses on migration that resembles mobility (Salamońska, 2017). It will expand how migration becomes "mobile." In this context, however, the mobility concept becomes pivotal to elucidate the increasing complexity of migration. Simultaneously, it addresses the constraints of the migration concept in comprehending the dynamic changes along the migration trajectory (Salamońska, 2017). Empirically, several studies on population movements to various destinations have been conducted. Even so, there was no agreement on the terms because each study had a different label. Some of them used triangular migration, secondary migration, stepwise migration, transit migration, onward migration, double migration, serial migration, and multiple migration (Agrawal, 2016; Ciobanu, 2015; Collyer & De Haas, 2012; Devoretz & Zhang, 2004; Hugo, 2008; Konadu-Agyemang, 1999; Ossman, 2004; Paul, 2011; Takenaka, 2007).

Devoretz and Zhang (2004) used triangular migration to describe relocating migrants from Hong Kong. Triangular migration occurred in three types of countries: sending countries, intermediary countries (also known as "entrepots"), and final destination countries. The returned Hong Kong's triangular migrants tend to have high salaries, titles, and social status. Takenaka (2007) coined secondary migration to describe the two-stage movement of migrant populations in the United States. Takenaka claimed that most secondary migrants were from developing countries such as China, India, and the Philippines. Before coming to the United States, these Asian migrants lived in wealthy countries such as Japan, the United Kingdom, and Canada. Most of them had higher skills and education. The findings of Devoretz and Zhang (2004) and Takenaka (2007) could be incorporated into a strategy for migrants to continue migrating despite limited resources. Konadu-Agyemang (1999) described it as stepwise migration. According to Konadu-Agyemang, when migrants faced visa issues and lacked the necessary materials to migrate directly, they would choose to migrate in stages.

Similar to stepwise migration, the concept of transit migration presented by Collyer (2007), Kastner (2010), and Schapendonk (2012) also occurred as a result of limited resources. Transit migrants frequently stop to rest and work while gathering information for their next journey. Nekby (2006) discovered that immigrants tend to move again when studying the migration behavior of natives and immigrants in Sweden between 1991 and 2000. This migration was also known as onward migration. The onward migrants, according to Nekby, were highly educated, young (between the ages of 26 and 35), male, and single. The concept of onward migration was also used by Toma and Castagnone (2015), Della Puppa (2018), Ramos (2018), and Della Puppa and King (2019). Agrawal (2016) coined the phrase twice migration to describe the movement of South Asian, Filipino, and Chinese immigrants to Canada. A migrant was referred to as a twice migrant if their journey was complicated. The twice-migrants were typically older, more educated, well-trained, and fluent in the Canadian language. Serial migration was used by Ossman (2004) to delineate migration behavior in Morocco. Serial migration was defined as a population movement from one location to another. After a certain period, these residents relocated to new areas. Ciobanu (2015) used the term multiple migration to describe the experiences of Romanian migrants who lived in numerous countries before arriving in Portugal. Men were more likely to migrate multiple times than women. Educated women, on the other hand, migrate frequently. Family networks played an essential role in the process of multiple migrations. Zufferey et al. (2021) discovered that people who migrate multiple times were male, single, and relatively young (19–24 years old).

These empirical studies can provide us with some insights. First, multiple migration is a movement that includes at least two different countries or destinations, regardless of the labels or terms used. Second, multiple migrations can be classified into two broad categories. The existence of a desired destination is prioritized in triangular migration (Devoretz & Zhang, 2004), stepwise migration (Konadu-Agyemang, 1999; Paul, 2011, 2015), secondary migration (Takenaka, 2007), and transit migration (Collyer, 2007; Kastner, 2010; Schapendonk, 2012). At the same time, onward migration (Della Puppa, 2018; Della Puppa & King, 2019; Nekby, 2006; Ramos, 2018; Toma & Castagnone, 2015) does not imply any destination's plans for where to go. The subsequent movement just happens. Migrants may relocate if new opportunities arise elsewhere. Third, multiple migrants, on average, had higher education and skills, male and single (Agrawal, 2016; Salamońska & Czeranowska, 2021; Silvestre & Reher, 2014; Takenaka, 2007; Zufferey et al., 2021). In terms of age, the researchers came to different conclusions. According to Takenaka (2007), Agrawal (2016), and Salamońska & Czeranowska 2021), multiple migrants are older than one-way migrants. Nekby (2006), Silvestre & Reher (2014), and Zufferey et al. (2021) reported that migrants who continue to move are typically young.

Research method

Unlike previous migration trajectory studies like Paul (2011), Schapendonk and Steel (2014), or Ciobanu (2015) that relied on in-depth interviews or qualitative approaches, this study took a quantitative method based on longitudinal data from the Indonesia Family Life Survey (IFLS). We used the IFLS data sets from 1993, 1997, 2000, 2007, and 2014. The IFLS surveys and procedures were adequately evaluated and authorized by IRBs (Institutional Review Boards) in the United States (RAND) and Indonesia at the Gadjah Mada University (UGM) for IFLS3, IFLS4, and IFLS5, and earlier at the University of Indonesia (UI) for IFLS1 and IFLS2. The analysis focused on individuals' migration histories from the age of 12 until the end of the

survey period. Migration histories were retrospectively compiled for each IFLS wave, investigating whether participants had relocated since age 12. It also recorded how many they relocated, when and where, and their primary reasons. The longitudinal structure of IFLS led to respondents from specific waves having prior survey participation. For these respondents, movement details were confined to the interval between the current and preceding surveys. Consequently, migration histories from successive waves for long-standing participants will be amalgamated. Conversely, new respondents' migration history was initiated at age 12 and persisted until the time of the survey.

Individuals were considered to have migrated in this study if they moved across district or city boundaries and spent at least one year in a different district or city. Among individuals who migrated between districts from IFLS 1 to IFLS 5, we initially identified 7,615 observations. Further investigation revealed that 1,342 respondents had passed away before the last survey, and 725 had incomplete information. Accordingly, we retained 5,548 observations until the final survey period. It includes people who had moved between the ages of 12 and 50. The age of 12 was chosen, assuming the respondent knew their location. While the age of 50 was based on the fact that migration intensity mainly occurs before this age (Bernard et al., 2014), it also ensured consistency in observation length across samples (Chen et al., 2021). Thus, the final sample comprises individuals with migration experiences from age 12 to IFLS5 (2014). Nonetheless, this doesn't necessarily imply continuous movement until IFLS5; those who relocated earlier might have settled during IFLS3 or IFLS4 and persisted as respondents in IFLS5.

Our research method was divided into three stages. In the first stage, we described migration trajectories based on distinct migration histories between 12 and 50. To accomplish this, we employed a method known as sequence analysis for social sciences (Abbott & Tsay, 2000; Brzinsky-Fay et al., 2006). Sequence analysis is a data-driven method for tracing trajectories (Abbott & Tsay, 2000; Billari, 2001). It has widely been used in life-course research (Aassve et al., 2007; Elzinga & Liefbroer, 2007; Vidal et al., 2020), except for migration studies (Kleinepier et al., 2015; Pollock, 2007). In the sequence analysis, each stage of life was represented by a string character. As a result, each trajectory contained the value corresponding to the number of observation years for each individual (Impicciatore & Panichella, 2019). To do so, we had to first define migration status for each age group, ranging from 12 to 50 years old. We classified it as "stay," "one-way migration," "onward migration," and "return migration." Individuals who had not yet migrated were considered to be "stay." The term "one-way migration" refers to people who migrate only once during a given observation period. Individuals who moved to another district at least once were considered to have migrated onward, regardless of whether their subsequent movement was onward or return. Meanwhile, "return migration" describes people returning to their original district. We also distinguished between onward and return migration based on the stage of movement (first, second, third, and more) (Bernard, 2022).

Second, using the optimal matching algorithm, we computed dissimilarities between each sequence (Needleman & Wunsch, 1970). This algorithm assigns scores to match, mismatch, and gap points to discover the best feasible alignment between two sequences. This technique assists researchers in evaluating sequence similarity and evolutionary relationships by arranging the sequences to maximize their similarity according to specific scoring standards (Needleman & Wunsch, 1970). After constructing a matrix of dissimilarities, similar sequences can be grouped into several patterns using hierarchical cluster analysis (Piccarreta & Billari, 2007). This is the last step of the first method used in this study. For this purpose, we utilized the ward linkage. Ward Linkage is a method employed in cluster analysis, calculating the

proximity or likeness between two data sets within a hierarchical clustering context. This approach aims to combine two data groups with minimal alteration in variability post-merging. The intention is to mitigate the rise in variance within the merged group. The objective involves establishing clusters with substantial homogeneity while preserving meaningful distinctions among them (Brzinsky-Fay et al., 2006).

The second stage of this method focused on social demographic selectivity over migration clusters. It used multinomial logistic regression to estimate the likelihood of being included in each migration cluster. The dependent variable was the cluster of migrants derived by sequence analysis. Hence, the dependent variable comprises several categories covering the entire migration cluster. However, the number of migration clusters depends on identifying optimal cluster numbers through cluster analysis.

Independent variables included individual characteristics, household characteristics, regional factors, and ethnic characteristics. We used gender, marital status, level of education, age group, and employment position as individual characteristics. We employed these variables from the five-wave IFLS, omitting gender, to examine the influence of these sociodemographic dynamics on the dependent variable. We also examined the interaction between gender and education level to determine how much education influences men's and women's mobility. The variable presence of the dependent was used to describe the household's features. Furthermore, migrant households' welfare status was included to characterize their financial circumstances. We examined the status of islands and areas of origin and their relationships to evaluate the extent to which geography drives migration. Finally, we looked at whether there were differences in migratory behavior among the existing ethnic groupings using the ethnic variable.

Indonesia is a large country with 1,340 unique ethnic communities. Some Indonesian ethnicities lean towards migration (Borualogo & Van de Vijver, 2016). Notable among them are the Batak, Minangkabau (Hugo, 2015; Pardede & Mulder, 2022; Salazar, 2016), Buginese (Lineton, 1975), Makassarese, Madurese (Tirtosudarmo, 2009; Wekke et al., 2019), and Banjarese (Wardani, 2007). Conversely, the Sundanese, Betawi, Cirebonese, and Bantenese (Pardede & Mulder, 2022) move less. Within these groups, Hugo (1982) emphasized the preference of the Javanese, the largest ethnic contingent in Indonesia, to remain rooted in their homeland. Nonetheless, scholars like Salazar (2016) and Akhmad et al. (2022) posit that Javanese society embraces a migratory culture equally. To ascertain the extent of these ethnic groups' inclination towards migration, including them within the model is imperative. Based on their adventurous cultural similarities, we split ethnic groups into four categories: the more migratory ethnic group (Batak, Buginese, Makassarese, Madurese, Minangkabau, Banjarese), the less migratory ethnic group (Sundanese, Betawi, Cirebonese, Bantenese), the most ethnic group (Javanese), and the other ethnic group.

So, the model used in this second stage is as follows:

$$Y_{ij} = \beta_0 + \beta_1 gender_{ij} + \beta_2 RtoHH_{ij} + \beta_3 mar_{ij} + \beta_4 edu_{ij} + \beta_5 gender.edu_{ij} + \beta_6 agegroup_{ij} + \beta_7 working_{ij} + \beta_8 dependants_{ij} + \beta_9 welfare_{ij} + \beta_{10} area_{ij} + \beta_{11} island_{ij} + \beta_{12} island.area_{ij} + \beta_{13} ethnicgroup_{ij}$$

Where:

Y_{ij} : The likelihood of migrant i being included in migration cluster j

$gender_{ij}$: Gender of migrant i in migration cluster j, 0 = male, 1 = female

$RtoHH_{ij}$: Relation to household head of migrant i in migration cluster j, 0 = household head, 1 = spouse/child, 2 = other

mar_{ij} : Marital status of migrant i in migration cluster j, 0 = unmarried, 1 = married, 2 = separated/divorced/widowed

edu_{ij} : Level of education of migrant i in migration cluster j, 0 = low (elementary school & lower), 1 = middle (junior high school/equivalent), 2 = high (senior high school & higher)

$gender.edu_{ij}$: Interaction of gender and education level, 0 = others 1 = female.higher education level

$agegroup_{ij}$: Age group of migrant i in migration cluster j, 0 = < 15 year, 1 = 15–24 year, 2 = 25–44 year, 3 = 45 year+

$working_{ij}$: Working status of migrant i in migration cluster j, 0 = not working, 1 = working at informal sector, 2 = working at formal sector

$dependants_{ij}$: Presence of dependents in migrant households, 0 = no child, no elderly, 1 = with child, no elderly, 2 = no child, with elderly, 3 = with child and elderly

$welfare_{ij}$: Welfare status of migrant households, 0 = poor, 1 = near poor, 2 = not poor

$area_{ij}$: Area of origin of migrant i in migration cluster j, 0 = rural, 1 = urban

$island_{ij}$: Island of origin of migrant i in migration cluster j, 0 = other 1 = java, 2 = sumatera

$island.area_{ij}$: Interaction of area and island of origin, 0 = others, 1 = java urban, 2 = sumatera urban

$ethnicgroup_{ij}$: The ethnic group of migrant i in migration cluster j, 0 = others, 1 = javanese, 2 = batak, buginese, makassarese, madurese, minangkabau, banjarese, 3 = sundanese, betawi, cirebonese, bantenese

Results and discussion

Describing the Indonesian migration pattern

Table 1 shows the number of Indonesians who moved between 12 and 50. There are 13,076 movements out of 5,548 people, indicating that each person could move at least once. The number of one-way movements (representing the number of migrants) was only 2,225 (40.1% of total observations or 17.02% of total movements), which confirmed this. The remaining people (59.9% of the total sample) migrated more than once, either onward or in a combination of onward and return migration. It accounts for 82.98% of total movements.

Onward migration was more popular than return migration, as expected. This finding agrees with Bernard (2022). Using data from the Survey of Health, Aging, and Retirement in Europe (SHARE) spanning 2004 to 2017, Bernard (2022) identified a tendency among European residents to migrate onward internally. They would rather migrate to another region than return to their origin. Close to 40.55% of total movement was twice or more onward migration. It gave preliminary evidence that Indonesians tended to move. Meanwhile, the remaining onward migration (25.41%) was the first-onward migration. It could be followed by a second onward migration, a second and third onward migration, the first return migration, or another combination.

Table 1: The Number of Indonesian Migrations from age 12 to 50

Migration Type	Freq.	Percent
(1)	(2)	(3)
One-way	**2,225**	**17.02**
Onward	**8,626**	**65.96**
1	3,323	25.41
2	2,422	18.52
3+	2,881	22.03
Return	**2,225**	**17.02**
1	1,883	14.4
2	284	2.17
3+	58	0.45
Total of Migrations	**13,076**	**100.00**

Note: Author's calculations from 1993, 1997, 2000, 2007, and 2014 IFLS data. n=5,548

The IFLS migration data trends shown in Figure 1 demonstrate that the Indonesian population's propensity for onward mobility persisted throughout political eras. As is well known, Indonesia has experienced several political phases. During the colonial period, migration was used for economic and political control, and forced migration was dominant (Hugo, 2006). After independence, voluntary migration emerged for welfare improvement, and transmigration continued (Pohan & Izharivan, 2017). Since the mid-1980s, employment opportunities in several locations, such as Batam Island, Riau, East Kalimantan, and Irian Jaya, have been enhanced due to economic reforms to attract foreign investment. Concurrently, the labor movement from low-paying agricultural to higher-productivity non-agricultural jobs and the adoption of transmigration have significantly increased migration (Tirtosudarmo, 2018). In the 1991–1997 period, the transmigration program in Indonesia began to receive criticism and challenges (Tirtosudarmo, 2018), and the economic crisis of 1997–1998 resulted in a decrease in internal migration due to decreased employment and people's purchasing power.

Figure 1: Internal Migration Trend Across Political Regimes in Indonesia
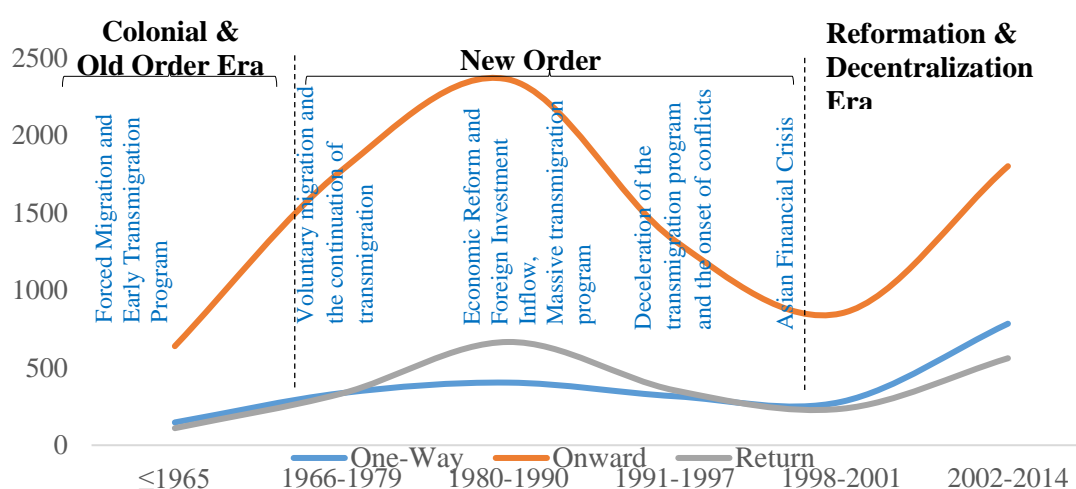
Note: IFLS 1993, 1997, 2000, 2007, 2014; Pohan & Izharivan (2017); Tirtosudarmo (2009, 2018); van Lottum & Marks (2012), processed

During reform and the start of decentralization in Indonesia, migration, demographic changes, and infrastructure growth became increasingly diverse. The government has a more limited role in regulating migration, while the market and employment agencies have an essential role in encouraging migration (Tirtosudarmo, 2009, 2018). Recently, migration has been driven by economic factors and social and infrastructure changes that facilitate population mobility (Muhidin, 2014). The persistence of onward migration during the entire political stage lends credence to van Lottum and Marks's (2012) assertion that Indonesia is an adventurous country.

A migration sequence across individual events must be constructed to understand how each type of migration corresponds with another throughout the migration experience (Bernard, 2022). The top ten internal migration sequences in Indonesia are depicted in Table 2. It revealed that less than half of respondents migrated only once, which was relevant to the previous descriptive finding. The remaining respondents, on the other hand, migrated in severe combination sequences several times. The most common type of migration was onward migration, followed by return migration (18.02%). The third and fourth sequences contain two and three onward migrations, respectively.

Table 2: Top Ten Sequences of Internal Migration in Indonesia

Sequence Pattern (1)	Freq. (2)	Percent (3)	Cum. (4)
One-way	2,225	44.55	44.55
Onward->Return	900	18.02	62.58
Onward->Onward	672	13.46	76.03
Onward->Onward->Onward	335	6.71	82.74
Onward->Return->Onward	225	4.51	87.24
Onward->Onward->Onward->Onward	196	3.92	91.17
Onward->Onward->Return	154	3.08	94.25
Onward->Return->Onward-Return	119	2.38	96.64
Onward->Onward->Onward->Onward->Onward	109	2.18	98.82
Onward->Onward->Onward->Onward->Onward->Onward	59	1.18	100
Total	4,994	100	

Note: Author's calculations from 1993, 1997, 2000, 2007, and 2014 IFLS data (n = 5,548)

At first glance, it is possible to conclude from Table 2 that Indonesian migration trajectories were not simply one-way movements. They vary regarding the relative order of migration type (onward migration or return migration) and number of movements. Sequences 5 and 7, for example, contain two onward migrations and one return migration. Their relative order, however, differs. Individuals from Sequence 5 returned before migrating to another location. Individuals in Sequence 7 choose to return home after migrating to two different locations.

Migration trajectories across the life course

To better understand the extent to which the complexities of internal migration occur in Indonesia, it is necessary to identify individuals' migration histories throughout their lives. Thus, migration events are plotted and clustered based on time, sequence, and number of movements. We defined it using a sequence indexplot graph presented in Figure 2. The horizontal line depicts the migration patterns of people aged 12 to 50. The colors represent

seven types of migration: stay, one-way migration, first onward migration, second onward migration, third or more onward migration, first return migration, second return migration, and third or more return migration. The Calinski-Harabasz pseudo-F of cluster analysis confirmed that seven clusters were an ideal number in this case, and the profiles of each cluster are shown in Table 3.

Figure 2: Typology of Migration Trajectories
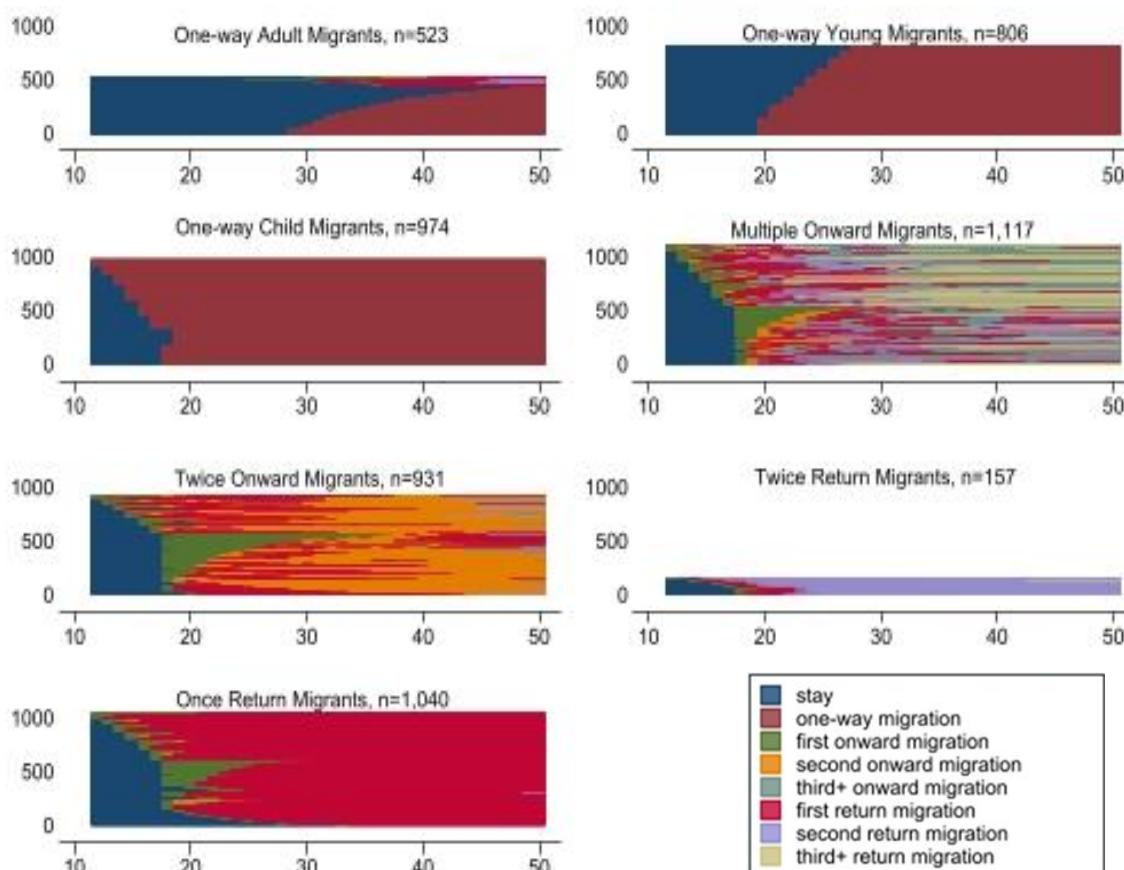
Note: Author's calculations from 1993, 1997, 2000, 2007, and 2014 IFLS data

Cluster 1 was characterized by one-way adult migration. They typically moved when they mature, with males considering moving at age 36 and females one year later. Most males migrated to other 'village' districts in search of work, while females relocated for other reasons such as wanting to be independent, preferring the place, political disturbance, and others. Male migrants in this group prefer to move alone, whereas female migrants tend to go with their spouses and children.

Cluster 2 comprised migrants who migrated once when they were young, i.e., 24 years old for males and 23 years old for females. Commonly, males migrated due to employment opportunities, while females relocated primarily for marriage reasons. The village area was still favorable for this kind of migration.

Cluster 3 was dominated by migrants who have moved since they were children. They started their journey at age 16. Males often move for educational reasons, while females relocate with their families. That is why migrants in this cluster choose to migrate alone or with other families. Males found villages or large cities appropriate for them. Females, on the other hand, preferred small towns as their destinations. These three clusters described one-way migration as well. Their migration timing, however, varies. Migrants in Cluster 1 tend to delay their journey. Migrants in Cluster 3, on the other hand, decide to move earlier.

Cluster 4 was the largest. It accounts for about one-fifth of the sample. Migrants who migrated to different districts multiple times (in combination with return migration) characterized this cluster. In their first move, males migrated for work or education, while women tended to migrate with their families or for studies. In terms of overall movement, however, males migrated continuously in search of work, whereas women migrated for other reasons. Education was no longer a primary motivating factor. It suggested that the first migration for education was a kind of capital accumulation process that may support the subsequent movement. The large city was the best choice for their first destination. Meanwhile, villages began to look attractive at the final destination, though large cities remained the most desirable.

Cluster 5 consisted of twice-onward migrants. They were migrants who had already returned to their place of origin once and currently reside in a new location. A large city was the most popular destination for their first migration, while villages and large cities were favorable for their final destination. Initially, males migrated for work, whereas females moved to follow their families. The majority of migrations, however, were for other reasons. Migrants in this group prefer to travel alone or with core family members.

Cluster 6 was the smallest. It encompasses twice-return migrants, those who return to their place of origin after returning. They may have lived in several districts before returning home for the second time. Large cities were preferable for their first trip, but villages were the best option for returning home. Migration for work or education was very popular during the first movement for both males and females. In terms of overall movements, however, migration for other reasons was more common for females, while moving for work remained a favorite for males. The twice-return migrants tend to move alone.

Cluster 7 was distinguished by once-return migration. Most migrants in this cluster move to other districts, stay for some time, and then return to their places of origin. They, like migrants in Cluster 6, prefer large cities as their first choice for work or education, while villages were still desired as their final destination. Migrants return home to be closer to their families, although work reasons remain a consideration, especially for males. For once-return migrants, moving alone was favorable.

Table 3: Characteristics of Different Migration Clusters

	Migration Cluster													
	One-way Migration						Onward Migration				Return Migration			
Migration Characteristics	Adult		Young		Child		Multiple		Twice		Twice		Once	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Number of Samples	255	268	383	423	396	578	614	503	455	476	92	65	535	505
Mean Age at First Migration	36	37	24	23	16	16	18	18	20	20	18	18	19	19
First Direction														
Village	41.73	40.60	38.38	37.35	40.20	32.58	24.10	22.80	26.49	26.58	28.26	15.38	31.59	29.11
Town	25.59	28.57	30.03	28.84	29.77	34.84	29.84	29.80	28.92	27.85	32.61	32.31	30.47	29.70
Large City	32.68	30.83	31.59	33.81	30.03	32.58	46.07	47.40	44.59	45.57	39.13	52.31	37.94	41.19
Last Direction														
Village	a	a	a	a	a	a	33.06	28.80	36.64	33.54	50.00	55.38	60.75	52.08
Town	a	a	a	a	a	a	29.13	30.40	29.58	29.54	33.70	23.08	23.55	26.34
Large City	a	a	a	a	a	a	37.81	40.80	33.77	36.92	16.30	21.54	15.70	21.58
First Migration Motives														
Work	33.07	17.80	30.10	17.26	20.26	10.61	35.47	16.63	33.26	20.08	39.13	26.15	39.14	25.85
Education	1.57	1.52	4.19	4.02	25.13	20.00	22.17	20.24	19.51	14.59	28.26	24.62	24.91	20.84
Marriage	18.11	12.12	27.49	37.12	6.92	18.96	5.25	10.82	6.87	14.59	6.52	15.38	10.67	11.82
Migration with Family	9.84	18.18	9.69	15.37	22.56	28.70	12.97	21.64	13.08	21.56	11.96	13.85	7.49	16.63
To be Closer to Family	4.72	7.95	5.76	5.67	5.64	6.78	5.25	10.22	4.66	5.92	3.26	7.69	2.62	6.81
Others Family Reason	12.99	14.77	11.78	9.46	11.28	7.30	8.70	8.02	7.98	10.36	6.52	9.23	7.49	9.22
Others	19.69	27.65	10.99	11.11	8.21	7.65	10.18	12.42	14.63	12.90	4.35	3.08	7.68	8.82
Main Migration Motives														
Work	a	a	a	a	a	a	38.63	18.20	25.28	13.29	34.78	21.54	23.41	11.93
Education	a	a	a	a	a	a	7.86	8.00	8.65	4.85	5.43	6.15	9.36	8.75
Marriage	a	a	a	a	a	a	4.26	5.80	6.21	9.07	2.17	3.08	8.05	8.75
Migration with Family	a	a	a	a	a	a	7.04	15.40	10.42	21.10	7.61	3.08	5.62	15.31
To be Closer to Family	a	a	a	a	a	a	7.36	10.00	10.64	11.18	19.57	15.38	21.35	21.47
Others Family Reason	a	a	a	a	a	a	10.15	12.20	13.30	15.40	9.78	20.00	14.79	14.12
Others	a	a	a	a	a	a	24.71	30.40	25.50	25.11	20.65	30.77	17.42	19.68
Migration With														
Alone	38.58	16.92	49.35	35.46	53.94	48.53	36.17	25.00	39.96	28.27	46.74	33.85	60.19	40.79
Husband/Wife	8.66	9.77	9.92	14.89	6.87	10.23	7.20	9.40	9.27	14.14	6.52	9.23	6.17	7.72
Husband/Wife and Child	35.83	43.23	23.50	32.86	10.18	13.86	40.75	42.20	33.11	35.44	33.70	40.00	24.86	30.89
With Others	16.93	30.08	17.23	16.78	29.01	27.38	15.88	23.40	17.66	22.15	13.04	16.92	8.79	20.59

Note: Author's calculation from 1993, 1997, 2000, 2007, and 2014 IFLS data; [a] Given that there is just one-way movement, the 'first' and 'main' or 'last' destination/motives for these groups of migrants are the same.

Who moves once, Who moves on, and Who moves back?

We then investigate how closely the clusters of migration trajectories correspond to sociodemographic characteristics. Table 4 displays the results of multinomial regression. We found that males were significantly more likely to migrate across these groups. The significant difference in the odds ratio between males and females in either the multiple onward migrants or twice-return migrants cluster suggested that males tend to re-migrate. Nekby (2006) discovered this as well. Among the female migrants, they also prefer to migrate in Cluster 2 (one-way young migrants), reflecting marriage migration. This finding is consistent with Chen et al. (2021). Employing a life course approach, Chen et al. investigated the migration trajectories of individuals moving from rural to urban areas in China between 2007 and 2008. Their study revealed that women who migrated during their early adulthood often did so to reunite with their spouses after getting married. In the case of Indonesia, as Williams (2007) stated, women's movement across the archipelago was typically associated with familial or marital migration.

Household heads were more likely to migrate multiple times or return twice than others. As previously stated, these two types of migration have complicated migration trajectories. This group of migrants was highly mobile. And this is not an easy decision to make because of the ramifications. Individuals who are the head of the household are eligible to do so. Household heads, particularly men, have more authority to make decisions and negotiate than other members of the household (Chant, 1997; Pardede et al., 2020). This is also driven by the head of the household's responsibilities as the primary source of finance and other household obligations (Chant, 1997) so that any steps are taken to fulfill them.

Regarding marital status, individuals in all clusters were more likely to move if they were single (unmarried or ever married). It is in line with Mulder and Wagner (1993), Courgeau (1985), and Sandefur and Scott (1981), who stated that marriage reduces the proclivity to migrate. One popular explanation for this phenomenon is that married people are more committed to their home and environment because they must consider some local ties and the married couple's career (Mulder & Wagner, 1993). So, they tend to be immobile. This result supports Kleinepier et al. (2015) and Pardede et al. (2020). However, it contradicts Takenaka (2007) and Zufferey (2019), who contended that secondary or multiple migrants were married.

Education is essential among one-way adult migrants, multiple onward migrants, and twice-return migrants. However, they vary based on gradient. Migrants in one-way adult clusters tend to be less educated. Migrants in the multiple onward and twice-return clusters, on the other hand, had a higher education level. The highest odds ratios in multiple onward migration clusters suggested that the likelihood of multiple migrations increases with education level. This finding supports the statements of Agrawal (2016), Nekby (2006), and Takenaka (2007) that multiple migrants seem to have higher education levels.

Previous results found that women were less likely to move, which changed as their education increased. Women with higher levels of education were more likely to migrate. However, the short distance was still favorable for them. It was supported by the highest odds of well-educated women in the one-way adult cluster. These findings confirm Ravenstein's (1885) theory that women prefer to migrate short distances.

Table 4: Multinomial Logistics Model of Cluster Membership

Social Demographics Characteristics	Migrants Cluster					
	One-Way Migrants		Onward Migrants		Return Migrants	
	Adult	Young	Multiple	Twice	Twice	Once
	Reference Model: One-Way Child Migrants					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender (Ref. Male)						
Female	0.584***	0.678***	0.500***	0.595***	0.430***	0.556***
Relation to Household Head (Ref. Household Head)						
Spouse/Child	1.065	1.053	0.867**	0.977	0.786**	1.006
Others	1.075	0.955	0.769***	0.997	0.790*	0.926
Marital Status (Ref. Unmarried)						
Married	0.736***	0.903	0.829***	0.933	0.963	0.905
Separated/Divorced/Widowed	0.792***	0.858**	0.740***	0.832***	1.240*	0.854**
Level of Education (Ref. Low)						
Middle (Junior High School/Equivalent)	0.759***	1.079	1.275***	1.100	1.661***	0.902
High (Senior High School & Higher)	0.657***	0.962	1.753***	1.102	1.701***	0.982
Gender x Level of Education						
Female x Higher Education	1.410***	1.228**	1.175*	1.376***	1.295	1.199**
Age Group (Ref. < 15 years)						
15–24 year	6.215***	1.599***	1.264**	1.374***	1.248	1.224**
25–44 year	12.523***	2.191***	2.166***	1.890***	1.818***	1.735***
45 year+	17.358***	2.222***	2.693***	1.928***	1.737**	2.166***
Working Status (Ref. Not working)						
Informal	1.040	0.967	0.824***	0.865**	1.068	0.998
Formal	1.176*	0.961	0.982	0.898	0.776*	1.030
Presence of Dependents (Ref. No child, no Elderly)						
With Child, No Elderly	0.345***	1.072	0.653***	0.699***	0.628***	0.783***
No Child with Elderly	0.845**	1.076	0.945	0.899*	0.686***	0.823***
With Child and Elderly	0.048***	0.121***	0.047***	0.172***	0.068***	0.262***
Welfare Status (Ref. Poor)						
Near Poor	0.780***	1.070	1.215**	1.035	0.783*	0.996
Not Poor	0.767***	0.927	1.350***	1.049	0.853	0.960
Area of Origin (Ref. Rural)						
Urban	1.150	1.060	1.176	1.543***	0.418***	0.837*
Island of Origin (Ref. Others)						
Java	1.379**	0.824*	1.076	0.958	2.153***	2.139***
Sumatera	1.076	0.867	1.305***	1.308***	0.708**	0.967
Island x Area of Origin						
Java Urban	0.598***	1.203	0.984	0.687***	0.843	0.508***
Sumatera Urban	0.752**	0.980	0.719**	0.658***	2.151***	0.963
Ethnic Group (Ref. Others)						
Javanese	1.025	0.983	1.172**	1.171*	0.467***	0.610***
Batak, Buginese, Makassarese, Madurese, Minangkabau, Banjarese	0.941	0.811**	1.228***	1.001	1.288**	1.040
Sundanese, Betawi, Cirebonese, Bantenese	1.015	0.766***	0.636***	0.948	0.450***	0.617***
Const.	0.151***	0.750**	0.734**	0.815	0.369***	1.703***

*Note: Author's calculations from 1993, 1997, 2000, 2007, and 2014 IFLS data; Statistical Significance: * p < .1, ** p < .05, *** p < .001*

Table 4 also demonstrated that migrants were, on average, adults. The substantial difference in the odds ratio between the 24–44 and 45+ age groups in the one-way adult, multiple onward, and once-return migrants clusters implied that the desire to migrate increases significantly with age. These results, especially for the multiple onward migrant clusters, provide additional evidence that migration is a recurring activity. Individuals who migrated early were more likely to migrate again in adulthood. This finding is consistent with Agrawal (2016), Salamońska and Czeranowska (2021), and Takenaka (2007), who claimed that multiple migrants are older than one-way migrants (except for one-way adult migrants in this study). Nevertheless, it contradicts Nekby (2006), Silvestre and Reher (2014), and Zufferey et al. (2021), who reported that repeat migrants were typically young.

The non-working people migrate onward, either twice or multiple times, and return twice. This finding is unique. The most plausible explanation is that the unemployed who opt to move on formerly had high-paying employment. This is consistent with Bijwaard and Wahba's (2022) observation that unemployment causes people to return home. Yet, high-income unemployed persons are more likely to move onward. Newbold and Cicchino (2007) also found that the unemployed in Canada prefer to migrate either to another place or return to their place of origin.

The presence of dependents hampers migration. People from households with no children and older people tend to migrate more efficiently in all migration clusters. Overall, a household with elderly dependents but no children has a higher odds ratio than a household with children but no elderly dependents. It implies that child dependents impede migration more than elderly dependents. This result is consistent with Silvestre and Reher (2014). Nevertheless, the Indonesian case contradicts Pardede et al. (2020), who contended that elderly dependents are a more significant obstacle to migration.

Among these typologies, one-way adult migrants were primarily characterized by poor people. This may be due to a lack of capital and skills to migrate, so they choose to relocate to places with similar characteristics but require less capital. In contrast, multiple onward migrants were more prevalent among the upper middle class. Given the many capital requirements needed, it stands to reason that they would find it easier to do so. This indirectly reinforces the prior observation that it makes sense for unemployed persons to continue relocating as long as they have a high income.

According to the area of origin, it demonstrated that return migration, either twice or once, is more prevalent among rural people. The majority of people who returned had previously resided in rural areas. They typically relocate to pursue employment or education and return when they have had enough. The regression result also showed that people living in Java are more likely to move once when they become adults or to return to where they came from after moving several times. On the contrary, people living in Sumatera tend to migrate multiple times. Most of them were living in rural areas. This is evidenced by the odds ratio being lower in urban Sumatera compared to other regions, including rural Sumatera.

Regarding ethnicity, Table 4 shows that either multiple onward migrants or twice returning migrants are favorable for the Batak, Buginese, Makasarese, Madurese, Minangkabau, and Banjarese. This makes sense, given that these ethnic groups are known to be nomadic (Heriyanti, 2020; Lineton, 1975; Salazar, 2016; Tirtosudarmo, 2009). On the other hand, the Sundanese, Betawi, Cirebonese, and Bantenese tend to be more immobile than other ethnic groups.

Conclusion

This study goes beyond the conventional perspectives used in most previous migration research. Instead of perceiving migration as a one-time occurrence, we see it as a repeated event. Using a life-course approach and longitudinal data annually, we remap the history of internal migration in Indonesia for people aged 12 to 50. Both onward and return migration are distinguished to investigate them in greater detail.

We found that multiple migration is more prevalent in Indonesia. More than 50% of migration patterns involve complex trajectories. People who relocate frequently are more likely to be male, well-educated, upper middle class, and older. Despite having a higher level of education, women are still less likely than men to migrate more than once. However, women with higher education levels have a greater chance of migrating than women with lower levels of education. Unemployed people, uniquely, have a higher likelihood of relocating more. They appear to be previously employed individuals with substantial incomes. Thus, their abundant capital makes it easier for them to do so. Individuals living in Sumatera or from adventurous tribes were confirmed to prefer multiple migrations. This finding implies that migration takes many different paths and continually evolves. Migration is no longer a one-way movement in which migrants settle permanently at their destination. Instead, migrants continue moving to strive for their objectives.

While our study enhances comprehension of migration patterns, it is crucial to acknowledge limitations and outline avenues for future exploration. Our research confirms that migration isn't always prolonged. This subsequently aroused curiosity about short-term mobility, which should be more mobile. Earlier scholars (Skeldon, 1990; Zelinsky, 1971) indicated an impending rise in short-term population mobility and potential long-term population mobility decline. Moreover, the literature portrayed a descending trend in migration rates (Ananta & Arifin, 2014).

The emergence of technologies like Zoom during the COVID-19 pandemic accentuates involuntary mobility, where individuals can be virtually present without physical relocation (Ananta, 2020). This shifting landscape underscores the significance of discussing short-term population mobility. Nonetheless, delving into the dynamics of short-term mobility poses challenges. Utilizing big data may offer avenues for comprehensive analyses. In this dynamic context, unraveling intricate connections among short-term mobility, long-term migration, and tech-driven mobility warrants thorough investigation. This exploration contributes to a holistic understanding of evolving population movement patterns in Indonesia.

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