



rijksuniversiteit  
 groningen

*Rijksuniversiteit Groningen - Faculty of Spatial Sciences  
 Bachelor's Project*

*The Long Shadow of Childhood Migration: An  
 Investigation into Path Dependency in  
 Migration Intentions*

Andrew Caskie

S4285654

Human Geography and Planning BSc

Word Count: 6512

Supervised by Adrien Remund

16-06-2023

## Abstract

Migration is often the result of a belief that one can improve their or their family's lives by moving to a new area, often due to perceived economic benefits or an improved standard of living. The life course perspective posits that migration and, in turn, migration intentions are long-term trajectories over life rather than several discrete events. As migration is viewed as a process rather than a singular event, it must start with a desire. However, this desire must somehow translate into an intent. Understanding the formation of migration intention is crucial. However, understanding the influence of previous life course events, such as migration, specifically in childhood, may provide a new understanding of intention formation. This research investigates the relationship between childhood migration and migration intentions upon graduation of university students. Childhood migration histories, post-graduation migration, personal beliefs and attitudes have been surveyed from a sample of university students to understand this relationship. Ordinal logistic regression modelling has been used to test the relationship and uncover the explanatory power of the surveyed variables. The modelling results have shown that childhood migration does not significantly impact migration intentions, but behavioural beliefs do.

# Table of Contents

<b>1. Introduction .....</b>	<b>3</b>
<b>2. Theoretical Framework.....</b>	<b>4</b>
2.1 Effects of Migration Histories.....	4
2.2 Migration Intentions.....	5
2.3 The Theory of Planned Behaviour.....	6
2.4 Conceptual Model.....	6
<i>Figure 1: Conceptual Model.....</i>	<i>7</i>
<b>3. Methodology.....</b>	<b>7</b>
3.1 Data Collection.....	7
<i>Figure 2: Survey Responses.....</i>	<i>9</i>
<i>Figure 3: Birthplace of Respondents.....</i>	<i>10</i>
3.2 Data Analysis.....	10
3.3 Ethics and privacy.....	11
<b>4. Results.....</b>	<b>12</b>
4.1 Descriptive Statistics.....	12
Migration History Variables.....	12
<i>Figure 4: Migration Histories Descriptive Statistics.....</i>	<i>12</i>
Ordinal Variables.....	12
<i>Figure 5: 'Personal Attitudes' Responses.....</i>	<i>13</i>
<i>Figure 6: 'Subjective Norms' Responses.....</i>	<i>13</i>
<i>Figure 7: 'Perceived Behavioural Control' Responses.....</i>	<i>14</i>
<i>Figure 8: 'Migration Intentions' Responses.....</i>	<i>15</i>
4.2 Tests of Multicollinearity.....	15
<i>Figure 9: Spearman's Rank Correlation Table.....</i>	<i>16</i>
4.2 Ordinal Logistic Regression.....	16
Model 1 (Total Migration Events Aged 0-18).....	16
<i>Figure 10: Ordinal Logistic Regression for Model 1.....</i>	<i>17</i>
Model 2 (Total Migration Events by Age Categories).....	17
<b>5. Discussion and Conclusion.....</b>	<b>18</b>
<b>6. Bibliography.....</b>	<b>21</b>
<b>7. Appendices.....</b>	<b>24</b>
Appendix A - Survey Cover Page and Informed Consent.....	24
Appendix B - Survey Questionnaire.....	24
Appendix C - Tests of Multicollinearity.....	26
Appendix D - Model 1 Test Outputs.....	27
Appendix E - Model 2 Test Outputs.....	31
Appendix F - Model Thresholds.....	35

## 1. Introduction

Migration is often the result of a belief that one can improve their or their family's lives by moving to a new area, often due to perceived economic benefits or an improved standard of living (Davin, 1998). Migration is also often linked with life-course events such as union formation or enrollment in higher education. Migration should be viewed as a process rather than a singular event, which often starts with a desire. However, this desire must somehow translate into an intent; without intent, a desire is nothing more. Commonly, emphasis is placed on said "push" and "pull" factors that evaluate an existing situation and its role in shaping migration intentions. Less emphasis has been placed on the influence of previous experiences in a life course and their affects on determining one's intentions. The life course perspective posits that migration and, in turn, migration intentions are long-term trajectories over life rather than several discrete events (Coulter, van Ham and Feijten, 2011). Research focusing on understanding the formation of migration intentions and the life course perspective has focused more on factors such as fertility, mortality, union formation and previous adult migration events. In an investigation into levels and patterns of internal migration in Europe, Bernard (2017) suggested that the age of the first adult migration event directly impacts the number of future migration moves, proposing a path dependency in migration events. However, lesser attention has been paid to the role of previous childhood migration in shaping migration intentions and whether a path dependency between the two may exist.

The stock of international childhood migrants has experienced a steady increase over the past decades. The international child migration stock has increased by roughly 50% from 1990 to 2020, going from 24,000,000-36,000,000, a rate closely matching that of international migrants during the same period (UNICEF, 2021). Voluntary migration in childhood has often been associated with family migration, and the role of the child has often been assumed as one of a "tied" migrant; those who have moved for opportunities or reasons related to their partners or, in this case, parent/s (Taylor, 2007), this phenomenon is connected to the five principles of the life course paradigm as referenced by Glen Elder. A direct connection can be seen between 'tied' migrants and the principle of linked lives; one of the five principles states that the influence of the people that matter to an individual also influences the life course, particularly migration.

After decades of emphasis on interconnectivity and globalisation, it may be expected to see an increasingly large cohort of international child migrants reaching adulthood. Two primary drivers of childhood migrations are transnational marriages and economic migration. Without a clear indication of either of these factors slowing down in the foreseeable future, understanding the effects of migration on children as they grow up will become increasingly important, particularly its role in affecting future migration intentions.

The existing literature is split on the direction of the effects of child migration in later life. The disruption argument states that moving in childhood interferes with a child's learning and can strain friendship ties (Myers, 1999). Other claims pose that learning the ability to navigate through the difficulty of migration transitions and being able to enter and exit social circles may play a positive role in childhood development. (Myers, 1999) In their investigation into the effects of childhood mobility on adult residential mobility in 11 European countries, Bernard and Vidal (2020) concluded that moving in childhood is positively associated with the number of moves recorded in early and middle adulthood. Whilst the impacts of childhood migration have been outlined on the social and physical development of children as they reach adulthood, as well as its impact on residential mobility in 11 European countries, there still lacks an investigation into the role of childhood international migration on shaping future migration intentions in adulthood and the potential for a path dependency between childhood migration and adult migration intentions.

Therefore, this research will analyse childhood migration's role in forming adult migration intentions. Furthermore, the research's focus on University students provides further importance. Understanding university students' migration intentions can help national and local governments fight against a 'brain drain' and sustain a 'brain gain'. The main research question is *How does childhood migration affect future adult migration intentions?* Further sub-questions include *At what age in childhood does a migration event have the largest impact on migration intentions?* As well as *Which component of the Theory of Planned Behaviour has the most considerable effect on migration intentions?*

This paper begins with a review of existing literature introducing the theoretical framework underpinning the investigation and introducing a conceptual model and the researcher's expectations. Section 3 will then outline the methodology of the investigation, including the data collection and the statistical analysis. Section 4 presents the results of the statistical analysis modelling, providing insight into the relationship between childhood migration and adult migration intentions. Finally, Section 5 concludes the research paper by providing insight into the results, placing these results in the larger context of the theoretical framework, reflecting on the study, and providing recommendations for future research.

## 2. Theoretical Framework

### 2.1 Effects of Migration Histories

Life course approaches to migration have been conceptualised as elements within a longer-term process, occurring across individual lives rather than simply a discrete event (Bernard & Perales, 2021). However, despite this acknowledgement, most literature focuses on migration events/intentions rather than life histories. A more centred focus on previous events in the life course and their impacts on migration intentions allows for investigation into the 'path-dependency' of migration. Research on this topic is present in the existing literature, although much of it examines life course events in adulthood and their impacts, but this is still of value.

One of the most critical assumptions within the life-course perspective is that individual actions are embedded within a long-term trajectory through time and place, life-span development, human agency, historical time and geographic place, the timing of decisions, and finally, linked lives, and this is no different for migration, thus meaning there are time-related interdependencies between decision-making in the present and the experiences and resources that an individual can attain over the life course. Thus, creating a path dependency, in which the current intentions are affected based on experiences in an individual's life history. (Bernardi, Johannes and Settersen Jr., 2019). Morrison (1971) demonstrated that the probability of a migration event among working adults in the United States was higher for those who had experienced previous migration; similarly (Bailey, 1993) found this same conclusion for young adults. Both Myers (1999) and Bernard and Vidal (2020) examined the effects of moves in childhood on the number of moves recorded in adulthood whilst drawing on time series data. Both suggested that moves in childhood positively impact the number of moves in adulthood, but more research into the effect of international migration is needed.

Much of the literature investigating path dependency in migration uses two different hypotheses: "socialisation theory" and "location-specific capital". Bernard and Vidal (2020) posit that the hypothesis of location-specific capital emphasises the role of tangible and intangible assets; these include home ownership and social networks. Having these assets may increase the likelihood of return migration in adulthood, and opposingly a lack of these assets reduces the 'cost' of further migration events (Malmberg & Fischer, 2001). The socialisation theory, which assumes migration to

become a learned behaviour, claims past migration events, particularly in childhood, can provide new skills and attitudes towards migration; migration may, on the one hand, become a lifestyle, as one can continuously acquire cumulatively acquire the skill and know-how of being able to migrate. (Myers, 1999)

Some literature posits that past migration may reduce the likelihood of further migration, mainly due to migration in childhood. The growing literature focusing on child development has shown in recent years that migration can significantly affect children's cognitive and behavioural development. The general idea coming from the psychological literature is that migration may interfere with children's learning and destroy their friendship ties; if migration is viewed as a disruptive life event with potential longer-lasting effects, it is reasonable to believe that adults may be less inclined to migrate in the future, especially if they have children. (Myers, 1999)

## 2.2 Migration Intentions

Migration is often a long thought-out process that involves leaving a city, region or country that must start with a dream or desire (Kley & Mulder, 2009). Despite the full acknowledgement that migration is a vast process, most empirical studies focus solely on the move itself without considering the stages and intentions leading up to said behaviour. Kley and Mulder (2009) distinguished the migration process into consideration, intention and realisation phases. Rossi (1988) concluded that a simple desire to move is necessary but insufficient to create an intention to move. Consideration and intention are separated within Kalter's model because people often consider a plethora of thoughts without ever developing an intention for said behaviour; however, once intention is there, many will see it through; borrowing from the Economics jargon, migration intentions can be seen as 'sticky downwards' once achieved, as they will increase quickly but great effort is needed for them to move down. Consideration of a migration event is often the result of a perceived opportunity differential between the place of current residence and a hypothetical new area. A second step is posited to result from life course events that creates a potential for a new residential destination, such as job opportunities or union formation. According to Mulder and Hooimeijer (1999), life course events are essential to forming migration intentions. The realisation may only occur once adequate social and financial support can be achieved.

The Migration intentions of University students have been examined in the existing literature, as it is essential to note several interesting nuances within the position of this group that may alter their intention formation and migration realisation when compared to the overall population. The university population is often comprised of many international migrants who have moved to achieve educational progression; often, this comes with an expectation of return migration after graduation. However, as research shows, this is often dependent on the origin of international students—in a series of surveys carried out in the United Kingdom, Canada and the United States, less than one-third of respondents expressed clear intentions to return to their home country (Baruch et al., 2007) & (Wu & Wilkes, 2017). However, a survey of Chinese international students enrolled in New Zealand returned return intentions at a rate of 54% (Soon, 2012).

Existing research has outlined numerous factors which shape the migration intentions of international students; these are often classified by the directionality of their effects on intentions in the form of push and pull factors as well as the level in which they operate; individualism, social, organisational and national. (Novotný, Feřtrová and Jungwiertová, 2020) Economic and social factors also play a prominent role in determining intentions, as university students are often on the cusp of their entrance into the workforce; Faggian and McCann (2008) concluded that wages rates and regional innovation play prominent roles in migratory intentions among university students in the United Kingdom. However, like the overall population, students often have imperfect information, and subjective

perceptions always play a significant role in intention formation (Novotný et al., 2020). Path dependency in post-university migration was examined by Liu et al., who found that students often possess a strong tendency to stay in their immediate surroundings after graduation, often because they are attending university. University student migration intentions are primarily similar to the rest of the population. However, due to the position in the life course they find themselves in, they possess a few quirks that distinguish them.

### 2.3 The Theory of Planned Behaviour

Azjen's Theory of Planned Behaviour (TOPB) forms a practical psychological framework that can examine the formation of migration intentions. Key to the psychological theory is the assumption that people are irrational (Azjen, 2014). Other migration decision theories postulate that an individual will move when they find a destination with an expected positive opportunity differential; however, this is never the case due to imperfect information and humans often exuding irrational behaviour. According to the TOPB, the core components shape the intention to perform any behaviour: Attitudes, Subjective/Social Norms, and Perceived Behavioural control regarding said behaviour (Ajzen, 1991). These three core components are influenced by an individual's behavioural, normative and control beliefs that people hold regarding the behaviour/intention. Behavioural beliefs shape the attitudes towards behaviour; this consists of a subjective assessment of the situation that the behaviour or action will produce a predicted outcome corroborated due to previous experiences (Jin et al., 2022). An individual's perceived behavioural control is based upon one's normative beliefs, which are formed by the expectation of influential individuals and groups, and the strength of these beliefs and the motivation to comply with different important groups in one's life determine the strength of said normative beliefs. Control beliefs are individuals' perceptions of factors that facilitate or hinder the intended act. The strength of the control belief combined with the power of each control factor to influence the final behaviour determines the general perceived behavioural control. The TOPB also does not assume the validity and accuracy of said beliefs. The beliefs may be irrational, a reflection of one's unconscious biases, paranoid tendencies, hopeful thinking, or other private motivations (Azjen, 2020).

TOPB holds that background factors may have a considerable influence on the beliefs an individual may hold. Thus, it is expected that said factors will indirectly impact the intention to perform an action through the influencing of people's beliefs. TOPB is a practical framework to investigate previous experiences' effect on future intentions, as it accounts for the impact of background factors, assumes irrational decision making and allows isolation of the three core components of the decision-making process. These considerations make it effective in discussing the effects of childhood migration on future migration intentions and will even allow us to investigate which of the three core components may account for the largest share in the decision-making process, as well as which component is most affected by childhood migration.

### 2.4 Conceptual Model

Figure 1 visualises the theories underpinning the investigation into the effects of childhood migration on future migration intentions. The model depicts the research's dependent variable, 'Migration Intentions'; the investigation aims to discover if Migration intentions are related to the factors also presented in the model. 'Childhood Migration' is the primary explanatory variable, it is expected that childhood migration will directly impact migration intentions, and the direction of the relationship would be positive. A person with a history of childhood migration will be more likely to intend to move after their degree, and potentially the more moves in childhood, the higher the

propensity to move, as explained through the hypothesis of location-specific capital, Place Attachment and the socialisation theory (Myers, 1999)

Childhood migration may also have a more indirect influence on migration intentions through mediating factors. This is investigated in this research through the framework of Azjen's Theory of Planned Behaviour (TOPB); it is expected that through migration events occurring during the early life course in childhood, a person's attitudes, social norms and perceived behavioural controls towards future migration will be altered. Similarly to the direct impact as elaborated above, the impact on these mediating variables is expected to affect migration intentions positively.

As explained throughout the theoretical framework for this research, there are a plethora of variables that may also play a role in influencing the migration intentions of university students. However, due to the scope of this paper, these will not be included directly within the analysis, but the explanatory power is recognised.

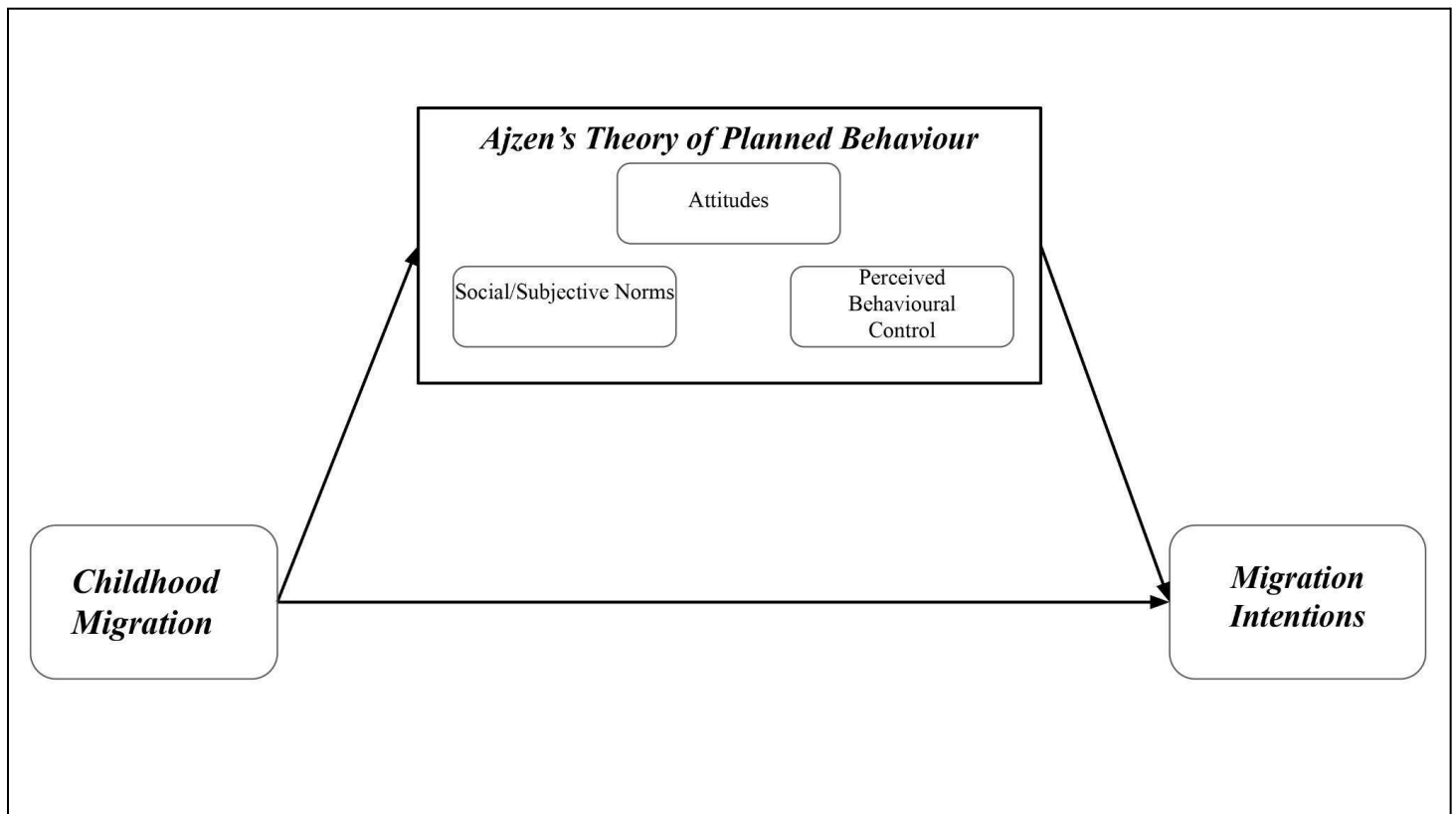


Figure 1: Conceptual Model

### 3. Methodology

#### 3.1 Data Collection

In-depth pre-existing datasets that examine the migration intentions of university students and their previous migration history are either not prevalent or inaccessible to the researcher. Thus, primary data collection in an online survey was necessary to obtain the quantitative data for statistical analyses. Several aspects need particular attention when creating a survey instrument to measure migration intentions. Whilst terms such as *intending* and *wanting to* appear similar, these can lead to widely differing interpretations from the research subject. A meta-analysis of existing migration surveys identified several aspects that need to be considered when formulating the data collection

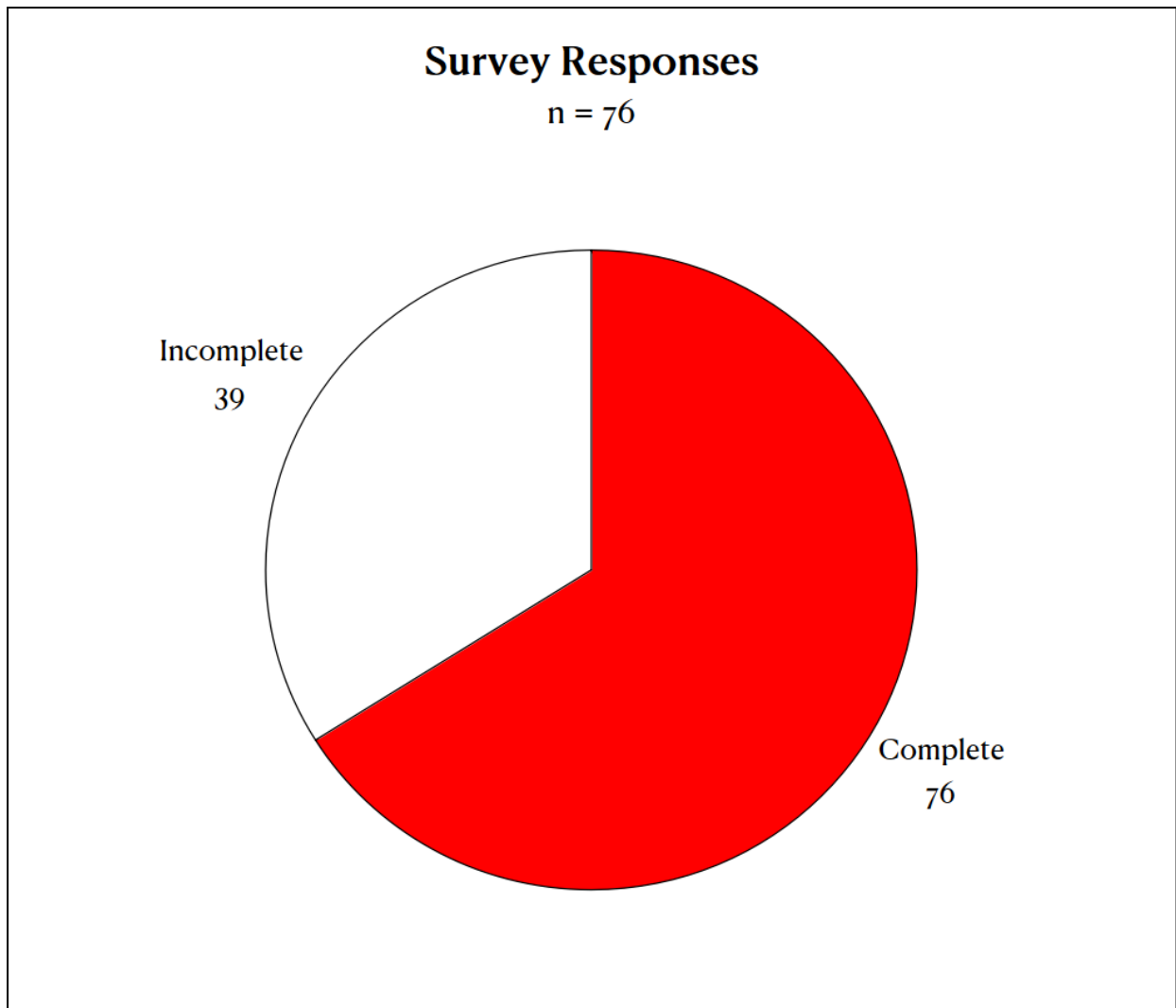


instrument for this research. These include conditionality of the action, temporality of the action and the nature of the action (Carling & Mjelva, 2021). For this investigation's survey, the nature of the mindset is explicit; from reading the central research question, "Intent" will be used throughout the investigation and will feature throughout the data collection instrument. The temporality of the mindset used is the present, as the investigation looks to investigate current migration intentions. Within the nature of the action, three considerations must be made: the migration event's spatiality, duration and purpose. This data collection instrument will always refer to "leaving" as the spatial reference. It will have no reference towards the duration or the purpose of the migration intentions, as this does not appear relevant to the research. As for the temporality of the actions, migration intention questions will be posed with "Within the 12 Months after the completion of your study" This is inspired by approaches from the "Gallup World Poll: The Many Faces of Global Migration. Finally, no conditions will be applied to the migration intention questions.

A research team was formed with a colleague investigating a similar phenomenon, and the surveys were merged. This would likely increase the coverage and response rate of the survey. A first draft was shared with University students to ensure the survey was appropriate and the questions incited valid responses. In-depth feedback was provided regarding word choice and the labelling of ordinal response variables and clarified the definition of migration within the investigation: "Movement across an international border away from his/her previous habitual place of residence".

At first, the target population was undecided. However, when considering the researcher's positionality as a student in a foreign country, it was assumed that most respondents would be students if random sampling were attempted. Thus the target population of the research is university students; convenience sampling was used, as it was believed this might result in broader coverage and an increased response rate. The survey was shared through the researcher's social media, and attempts to create snowball sampling were made, with respondents encouraged to share the survey with a friend after completion as this technique can provide geographically dispersed and appropriate participants (Parker, Scott and Geddes, 2023). Given the researcher's vast migration history and diverse social network reach, it was assumed that respondents from various backgrounds would be included in the sample. For example, suppose a single national or regional background dominated the responses; this may allow for specific contextual factors that may increase or decrease migration intentions to play a more prominent role than expected.

The survey was open for over a month and was distributed through Instagram, Whatsapp, Twitter and Discord. In addition, the researcher contacted people with extensive international networks to increase the survey coverage. As seen in Figure 2, the survey concluded with 115 respondents; however, only 76 of these were fully completed and eligible for statistical analysis.



*Figure 2: Survey Responses*

As the survey was distributed using convenience sampling, overrepresentation may have occurred in the respondents' nationality. Figure 3 shows the birthplace of respondents to the survey; whilst 34 different countries are represented in the responses, 16 respondents were born in the United Kingdom, the largest share of any country, followed by Germany with nine and the Netherlands with 7. This result may have been expected given that the researcher is from the United Kingdom and attends a university in the Netherlands. Given that a large share of respondents are from Western Europe and the USA, this may play some role in determining migration intentions that were not considered.

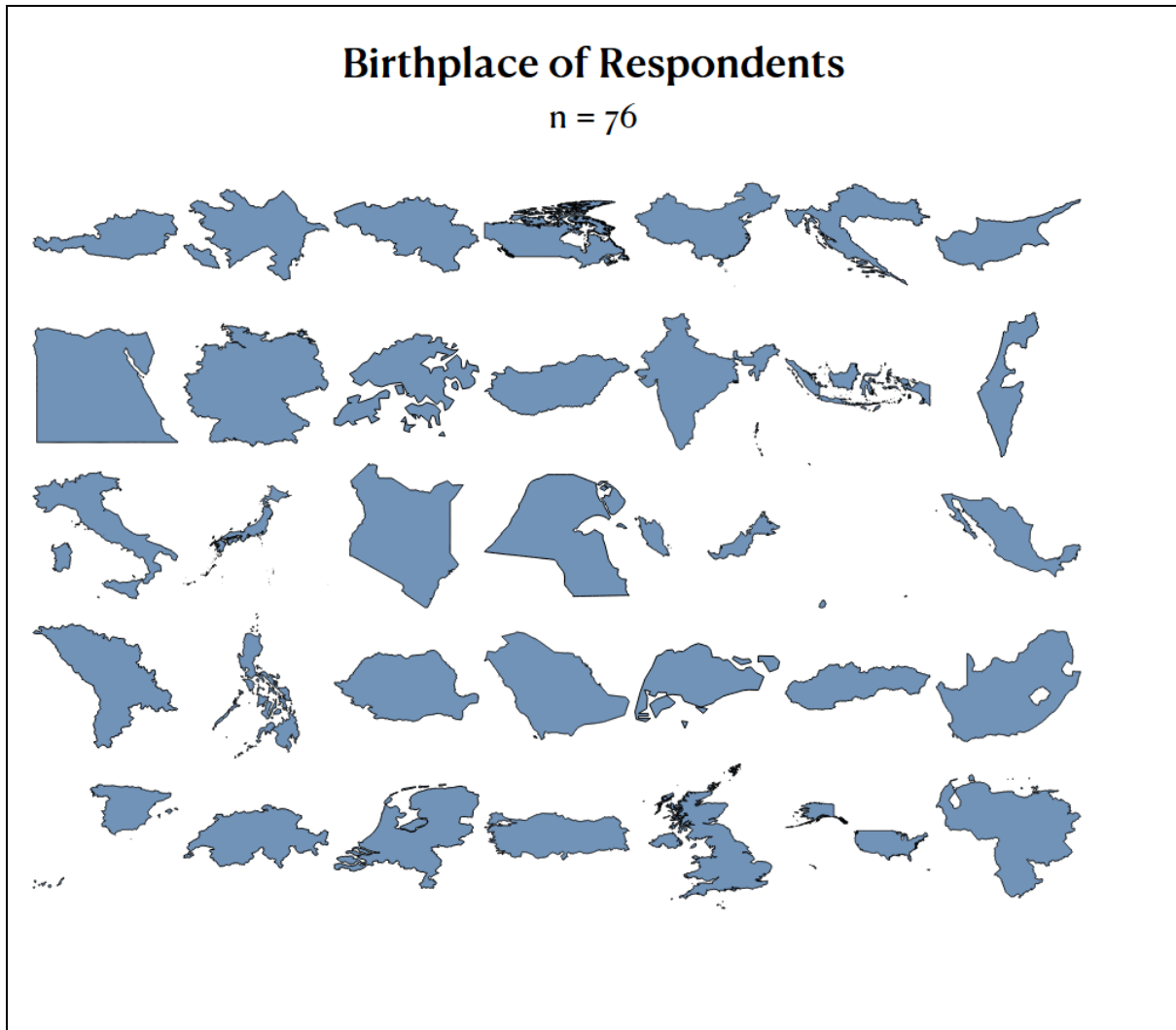


Figure 3: Birthplace of Respondents

### 3.2 Data Analysis

Migration Intentions, the dependent variable within this study was measured on an ordinal scale from Strongly Disagree to Strongly Agree. Thus, the appropriate statistical method to test for relationships between said ordinal dependent variable and the independent variables is Ordinal Logistic Regression. The Null Hypothesis (H0) for the regression testing is *"The regression coefficients are equal to zero"*; in other words *"there is no relationship between childhood migration and migration intentions"*. The independent variables in this investigation include five variables related to the Theory of Planned Behaviour; one measuring respondents' attitudes, two measuring the subjective norms, and a further two measuring the perceived behavioural control, all in reference towards a hypothetical migration event, also using the same ordinal scale as the dependent variable; however, certain variables were recoded to invert the scale for ease of interpretation. The prompts were worded as follows:

Personal Attitudes: *"I feel obliged to stay in my current country of residence for a longer period after the completion of my study."*

Subjective Norms (Family Expectation): *"My family expect me to migrate once my studies are finished."*

Subjective Norms (Family Support): *"My family would support a decision to migrate after my studies."*

Perceived Behavioural Control (Social Factors): *"It would be difficult socially to migrate at the end of my study period."*

Perceived Behavioural Control (Economic Factors): *"It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends."*

The other independent variable utilised in modelling is childhood migration history; this was collected in two separate ways. First, respondents were questioned about the total number of moves between 0-18; this variable was used in Ordinal Logistic Regression Model 1. Then, respondents were further requested to break down their migration history into the Ages of 0-6, 7-12 and 13-18, and these categories were used in Model 2 to answer the first sub-question.

In order to fulfil the prerequisite assumptions of an Ordinal Logistic Regression, which includes no multicollinearity, both a Spearman's Rank Correlation Coefficient and multicollinearity tests were conducted between the independent variables. These tests would clarify the correlation between independent variables by providing a correlation coefficient and a VIF figure.

The independent variables in the data modelling have been treated as continuous variables rather than categorical. Treating the variables in this way continuously decreases Akaike's Information Criterion (AIC), thus providing valid reasoning to treat the variables in this way as it improves the relative quality of the model. However, results from an ordinal logistic regression model that treats the TOPB independent variables as categorical can be found in Appendix C; running the model in this way can also provide some nuance to conclusions.

### **3.3 Ethics and privacy**

Ensuring a respondent can provide informed consent is integral to any research investigation. Within this investigation, the introduction page of the online survey provided vital information such as what data will be collected, where it is stored, who has access to said data and the purpose of the study. Respondents were then required to tick a box expressing their informed consent and interest in continuing the study. Respondents were also provided with the email addresses of the research team and were informed of their ability to contact the researchers and withdraw from the study at any time, the cover page included in the consent form can be seen in Appendix A.

Safe and effective data storage is of the utmost importance, and because of this, consideration has been given to how to achieve this. Data was stored on the researcher's institutional Google Drive account using a Two-Factor Authentication process. Further, the data storage folder is Password protected, ensuring another layer of security. The data will only be accessible by the research team and on request by the researcher's supervisor. Qualtrics, the software in which the survey was created, does collect metadata such as time of response and IP Address; however, this data was deleted and disregarded as it plays no role in the investigation.

## 4. Results

### 4.1 Descriptive Statistics

#### Migration History Variables

The descriptive statistics of the primary independent variable, migration history, are presented in Figure 4. “Migration Events Aged 0-18” is used in Model 1; from the figure, we can see that the mean number of moves in childhood for the sample is 2.04. However, the context behind the high mean can be uncovered when looking at the median and mode. The mode is 0, meaning that the most common number of moves in the sampled population is 0, on top of the median being 1; this suggests the sample includes a smaller number of hypermobile childhood migrants, leading to a higher mean number of moves. Finally, when comparing the timing of moves using the variables used in model 2, it is clear that migration in the sample peaks between the ages of 13-18; the existing literature suggests this may be due to many young adults migrating to attend university.

Variable	Mean	Median	Mode	Minimum	Maximum
<b>Migration Events Aged 0-18</b>	2.04	1	0	0	10
<b>Migration Events Aged 0-6</b>	0.71	0	0	0	4
<b>Migration Events Aged 7-12</b>	0.66	0	0	0	4
<b>Migration Events 13-18</b>	0.82	1	0	0	4

*Figure 4: Migration Histories Descriptive Statistics*

#### Ordinal Variables

The descriptive statistics of the independent mediator variables can be seen in Figures 5-7. The data here demonstrate that the sampled population feel little obligation to stay within their country of residence upon graduation. Furthermore, it appears as if most respondents do not feel an explicit expectation from their family to migrate upon graduation. However, if they intended to migrate, an overwhelming majority claim their family would support the decision. Finally, a majority sample does not expect to incur significant social or economic challenges if they were to migrate.

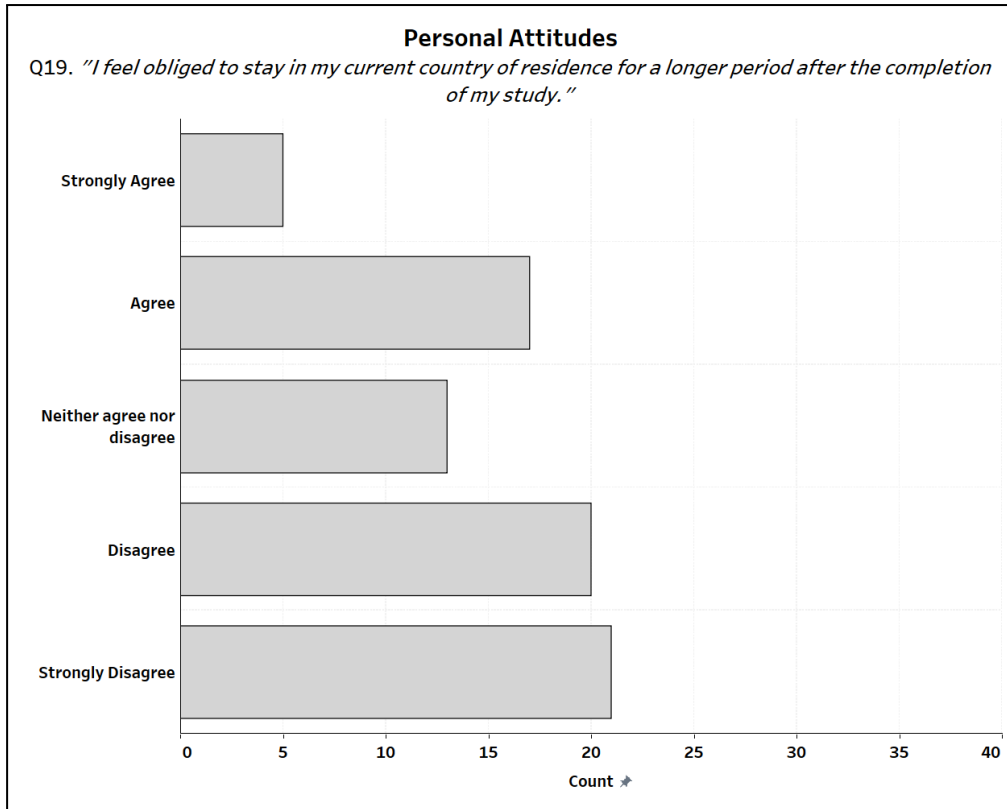


Figure 5: 'Personal Attitudes' Responses

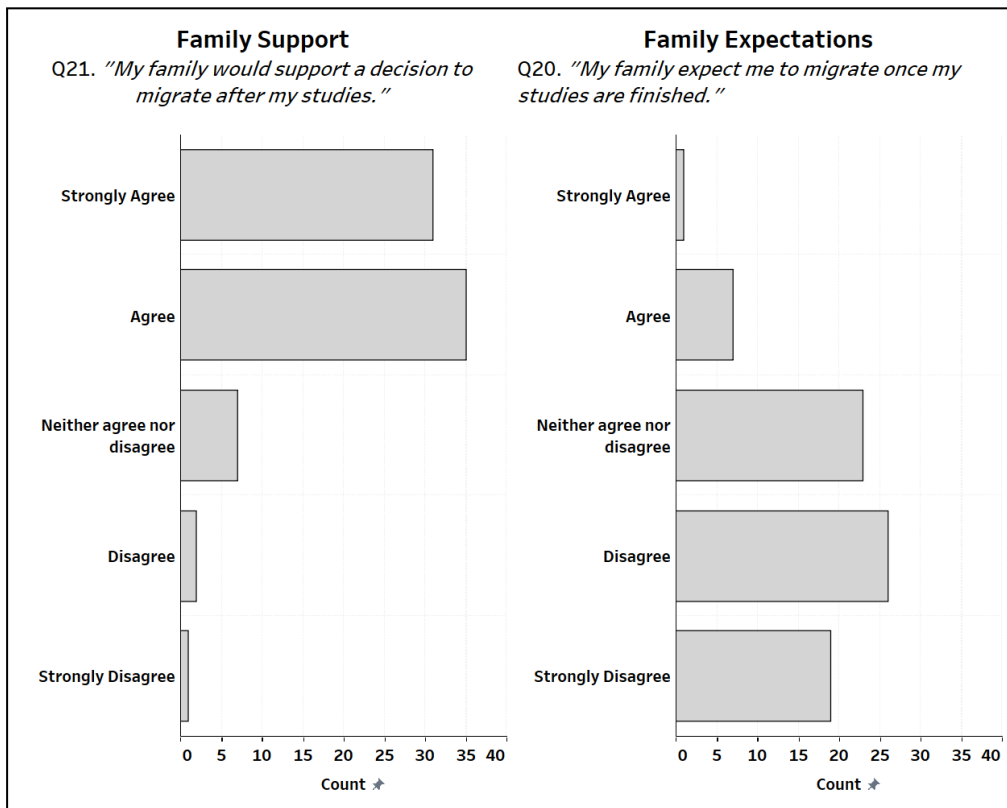


Figure 6: 'Subjective Norms' Responses

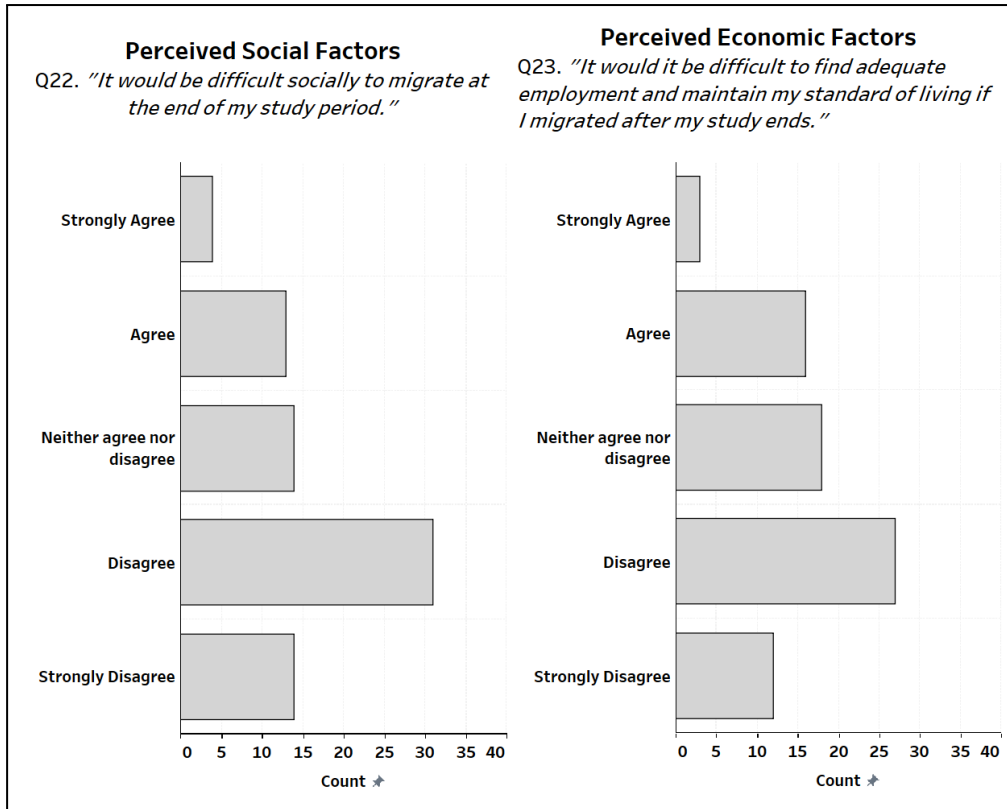


Figure 7: 'Perceived Behavioural Control' Responses

Figure 8 shows responses to the research's dependent variable, migration intention. This figure portrays a situation in which the sampled respondents, the majority, are either firmly set on migration upon graduation or believe they will remain in their country of residence. However, this intention to remain is not as firm as it could be.

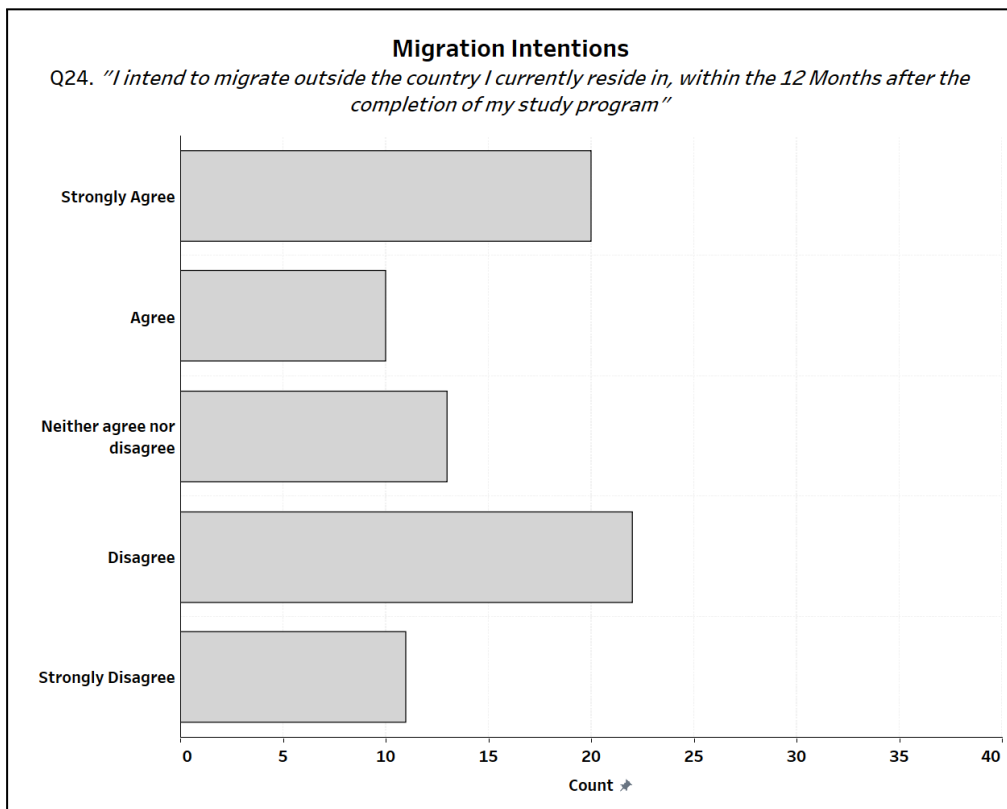


Figure 8: 'Migration Intentions' Responses

## 4.2 Tests of Multicollinearity

A Spearman's rank correlation was run to test for any underlying correlation between the independent variables; the results can be seen in Figure 4. The test provided some statistically significant results; these may provide some valuable insight into the sampled population and university students.

The model exhibits a significant weak negative correlation at a p-value of 0.006 and a coefficient of -0.314 between the number of migration events experienced during childhood and one's family's expectations regarding future migration. Thus, a family's expectation of future migration decreases as childhood migration events increase.

When looking at the specific relationships between variables, as seen in Figure 4, there are some with statistical significance. However, the strength of these relationships is always weak; the strongest is between Family Support and Personal Attitudes, with a correlation coefficient of -0.423. Whilst there may be a few weak violations of the independence assumptions, the results for the multicollinearity tests for the independent variables ran in both model 1 and model 2 of the ordinal logistic regression can be seen in APPENDIX C, and should clear any doubts of data suitability.

In the test for Model 1, the VIF values range from 1.15 to 1.43. These values are all significantly under the maximum range of a VIF value of 5, implying a low correlation between the independent variables, thus requiring further adjustments of the independent variables used in model 1. Similarly, in the test for Model 2, the VIF values produced a range from 1.21-2.85. There is a more extensive range of values and a larger absolute highest value within this model, but again the VIF values are still considerably under the maximum threshold of 5; again, this means no further adjustments are required for the independent variables used in model 2. Thus, with the case of only a few weak violations of the assumption of independence and no risk of multicollinearity as demonstrated by the VIF values, the data is appropriate for modelling.

		Correlations									
			Migration Events Aged 0-18	Migration Events Aged 0-6	Migration Events Aged 7-12	Migration Events Aged 13-18	Personal Attitudes	Family Expectation	Family Support	Perceived Social Factors	Perceived Economic Factors
Spearman's rho	Migration Events Aged 0-18	Correlation Coefficient	1.000	.786**	.816**	.836**	-.053	-.314**	-.097	.181	-.101
		Sig. (2-tailed)	.	<.001	<.001	<.001	.651	.006	.404	.118	.387
		N	76	76	76	76	76	76	76	76	76
Migration Events Aged 0-6		Correlation Coefficient	.786**	1.000	.682**	.598**	-.014	-.193	-.124	.222	-.048
		Sig. (2-tailed)	<.001	.	<.001	<.001	.903	.095	.285	.054	.678
		N	76	76	76	76	76	76	76	76	76
Migration Events Aged 7-12		Correlation Coefficient	.816**	.682**	1.000	.649**	-.058	-.232*	-.162	.218	-.003
		Sig. (2-tailed)	<.001	<.001	.	<.001	.621	.044	.163	.059	.981
		N	76	76	76	76	76	76	76	76	76
Migration Events Aged 13-18		Correlation Coefficient	.836**	.598**	.649**	1.000	.015	-.181	-.071	.223	-.059
		Sig. (2-tailed)	<.001	<.001	<.001	.	.899	.118	.544	.052	.611
		N	76	76	76	76	76	76	76	76	76
Personal Attitudes		Correlation Coefficient	-.053	-.014	-.058	.015	1.000	-.215	-.424**	.325**	.409**
		Sig. (2-tailed)	.651	.903	.621	.899	.	.062	<.001	.004	<.001
		N	76	76	76	76	76	76	76	76	76
Family Expectation		Correlation Coefficient	-.314**	-.193	-.232*	-.181	-.215	1.000	.281*	-.215	-.004
		Sig. (2-tailed)	.006	.095	.044	.118	.062	.	.014	.062	.972
		N	76	76	76	76	76	76	76	76	76
Family Support		Correlation Coefficient	-.097	-.124	-.162	-.071	-.424**	.281*	1.000	-.248*	-.300**
		Sig. (2-tailed)	.404	.285	.163	.544	<.001	.014	.	.031	.009
		N	76	76	76	76	76	76	76	76	76
Perceived Social Factors		Correlation Coefficient	.181	.222	.218	.223	.325**	-.215	-.248*	1.000	.443**
		Sig. (2-tailed)	.118	.054	.059	.052	.004	.062	.031	.	<.001
		N	76	76	76	76	76	76	76	76	76
Perceived Economic Factors		Correlation Coefficient	-.101	-.048	-.003	-.059	.409**	-.004	-.300**	.443**	1.000
		Sig. (2-tailed)	.387	.678	.981	.611	<.001	.972	.009	<.001	.
		N	76	76	76	76	76	76	76	76	76

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).



*Figure 9: Spearman's Rank Correlation Table*

## 4.2 Ordinal Logistic Regression

### Model 1 (Total Migration Events Aged 0-18)

Figure 10 shows the results from the ordinal logistic regression model 1. This figure presents four different modelling attempts; M0, M1, M2 and M3. This is done to test the mediation effect identified in the conceptual model. The thresholds for these four modelling attempts can be found in Appendix F. M0 shows the regression modelling results when using solely the independent variable 'Migration Events Aged 0-18'. This model produces a p-value of 0.116 and a coefficient of 1.139; therefore, despite this variable lacking statistical significance as it has a p-value of 0.116, higher than the alpha level of 0.05, childhood migration increases the likelihood of intending to migrate upon completion of a degree program within the sample as the coefficient of 1.139 would suggest. It would be appropriate to turn to M3; this model used all of the independent variables used in 'Model 1' and thus may demonstrate the extent of both the mediation effect and the explanatory power of all the independent variables. In M3, the results for 'Migration Events Aged 0-18' are a p-value of 0.188 and a coefficient of 1.144, strikingly similar to M0. Thus, adding these variables related to the TOPB seemingly has no impact on the explanatory power of migration history.

Thus, it is appropriate to turn to the results for the other variables in M3 to see their explanatory power. The model only produces one significant effect: "Personal Attitudes". The p-value is  $<0.001$ , below the alpha level of 0.05; thus, we can reject the null hypothesis that the regression coefficients are equal to zero. Thus we can conclude that there is a relationship between Personal attitudes and migration intentions. The odds ratio for the effect is 0.354; this can be interpreted as follows: as an individual's perceived obligation to stay in their country of residence increases, their intention to migrate decreases. This relationship can be explained as someone believes their obligation to stay in their country of residence after graduation decreases; this allows the individual to explore migration possibilities. Conversely, belief in a high obligation to stay may be influenced by an individual's location-specific capital or place attachment; when an individual possesses several tangible and intangible assets such as home ownership or extensive friendship networks, this may provide a feeling of obligation to stay, thus contributing to low migration intentions. Using the Ordinal Logistic regression model 1, which treats the TOPB independent variables as categorical, can provide some insight into Personal Attitudes. The difference in the Estimate value between responses 3, "Neither agree nor disagree", and 4 "agree" suggests a step in the relationship between these response types.

Despite weaker statistical significance, the regression outputs for several other variables may provide meaningful insights into the relationship being tested. An interesting result to interpret is that of "Family Expectation". The p-value is 0.080; thus, we cannot reject the null hypothesis. However, with it being somewhat close to the alpha level of 0.05, it is interesting to interpret the coefficient. This variable has the largest odds ratio of any tested, being 1.386; thus, as family support for a migration decision increases, so does the intent to migrate. The relationship is straightforward; family support provides comfort and security in intending to migrate and crucial behavioural approval from those whose opinions matter.

Perceived Social factors have a p-value of 0.054. This p-value is very close to the alpha level of 0.05; interpreting the results may be of value. The odds ratio for this variable is 0.635; thus, like Personal Attitudes, an increase in the belief that social integration will be difficult following migration leads to decreased migration intentions. Again, this is relatively easily explained; the more people believe they will struggle socially following migration, the less likely they are to intend to migrate. It

is interesting to note that Perceived social factors had a lower odds ratio than perceived economic factors. Thus in the sample of respondents, social factors are a more significant deterrent to intending to migrate than economic ones.

Group	Variable	M0 p-value	M0 Exp(B)	M1 p-value	M1 Exp(B)	M2 p-value	M2 Exp(B)	M3 p-value	M3 Exp(B)
Migration History	Migration Events Aged 0-18	0.116	1.139	0.033	1.221	0.085	1.181	0.188	1.144
Attitudes	Personal Attitudes			<0.001	0.317	<0.001	0.317	<0.001	0.354
Subjective Norms	Family Expectation					0.067	0.64	0.080	0.636
	Family Support					0.344	1.306	0.277	1.386
Perceived Behavioural Control	Perceived Economic Factors							0.300	0.772
	Perceived Social Factors							0.054	0.635

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"  
Model: (Threshold), Migration Events Aged 0-18, Personal Attitudes, Family Expectation, Family Support , Perceived Social Factors, Perceived Economic Factors

Figure 10: Ordinal Logistic Regression for Model 1

### Model 2 (Total Migration Events by Age Categories)

Model 2 attempts to answer sub-question 2, "At what age in childhood does a migration event have the largest impact on migration intentions?" three different age categories as independent variables in contrast to one used in Model 1 . Figure 11 shows the results of the ordinal logistic regression. Similarly to Model 1, in Model 2, there is no evidence of a mediation effect as the p-values and coefficient for the migration history variables appear almost identical from M0 to M3.

Interpreting the odds ratio for the Migration Events aged 13-18 provides insightful results despite lacking statistical significance. The p-value for this effect is 0.077, above the p-value of 0.05, but still close; thus, the null hypothesis still cannot be rejected. However, interpreting the odds ratio of 1.826 is interesting. This odds ratio presents a relationship from the respondents that migrating in childhood between the ages of 13-18 increases intent to migrate upon graduation. It has the most considerable effect compared to the two other age groups. This may be explained due to the high number of international students in the sample, and many return to their home country upon graduation. Conversely, migrating between the ages of 13-18 may expose an individual at greater depth to the importance of the independent variables modelled. A migration event at this age may be the first time an individual realises the importance of family support or expectation and the impact of social and economic factors, thus potentially explaining the low p-value and high coefficient compared to moves at other points in childhood. Like ages 13-18, migration aged 7-12 also displays an odds ratio suggesting an increase in the intention to migrate, however just slightly, as the odds ratio

is 1.002. Interestingly, migration at the age of 0-6 has the opposite effect; the odds ratio for this variable is 0.893. However, the statistical power prevalent is insufficient to draw a clear conclusion

Group	Variable	M0 p-value	M0 Exp(B)	M1 p-value	M1 Exp(B)	M2 p-value	M2 Exp(B)	M3 p-value	M3 Exp(B)
Migration History	Migration Events 13-18	0.077	1.826	0.057	1.847	0.034	2.025	0.077	1.826
	Migration Events Aged 0-6	0.914	0.963	0.826	0.926	0.662	0.54	0.757	0.893
	Migration Events Aged 7-12	0.824	0.93	0.766	1.106	0.902	1.045	0.996	1.002
Attitudes	Personal Attitudes			<0.001	0.326	<0.001	0.312	<0.001	0.351
Subjective Norms	Family Expectation					0.031	0.588	0.430	0.594
	Family Support					0.292	1.352	0.237	1.433
Perceived Behavioural Control	Perceived Economic Factors							0.283	0.761
	Perceived Social Factors							0.100	0.674

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"

Model: (Threshold), Migration Events Aged 0-6, Migration Events Aged 7-12, Migration Events Aged 13-18, Personal Attitudes, Family Expectation, Family Support, Perceived Social Factors, Perceived Economic Factors

Figure 11: Ordinal Logistic Regression for Model 2

## 5. Discussion and Conclusion

The goal of this study was to investigate the migration intentions of university students upon completion of their programme and the role that previous childhood migration histories have in intention formation. The research project was centred around one main research question and two sub-questions to investigate this relationship.

Main Research Question: *How does childhood migration affect future adult migration intentions?*

Sub-Question 1: *At what age in childhood does a migration event have the largest impact on migration intentions?*

Sub-Question 2: *Which component of the Theory of Planned Behaviour has the most considerable effect on migration intentions?*

The main research question was investigated through ordinal logistic regression modelling using data collected through a survey instrument. The pre-investigation expectation was that childhood migration would positively affect migration intentions, increasing the intent to migrate. The reasoning behind this was explained within the theoretical framework and visualised through the conceptual Model. It was believed that results similar to those produced by Myers (1999) and (Bernard & Vidal, 2020) would be produced. The theories of socialisation and location-specific capital reinforced these expectations. When looking at the M0 from both Figure 10, it is clear that this was not the case for model 1; however, a different picture is presented when looking at M0 in Figure 11. It appears that childhood migration, but only between the ages of 13-18, impacts migration

intention formation. The p-value for this effect may be 0.077 above the 0.05 threshold, but this is more due to the limits of the investigation, the chosen statistical Model of Ordinal Logistic Regression rather than the effect itself. Ordinal Logistic Regression often requires a large dataset to derive significant results. With a more limited timeframe, the ability to attain such a large sample size was not feasible, and thus the modelling was completed using a sample size of 76. Thus there may be some validity in interpreting the insignificant odds ratios; when doing this, it is evident that childhood migration does affect migration intentions, even if it is just for the sample of 76. An Odds ratio of 1.144 for the variables' Migration Events Aged 0-18' demonstrates a relationship between childhood migration and migration intentions; however, this relationship is small. Thus, this investigation concludes that childhood migration did not directly affect migration intentions.

When Childhood migration history is broken down into three distinct groups as it was in the Model, seen in Figure 8, this provides an answer to Sub-Question 1. Again, all three categories lack statistical significance, but we can see that Migration events aged 13-18 have the highest Exp(B) when interpreting the odds ratio. This variable is also the closest to being statistically significant with a p-value of 0.077, closer to the alpha level of 0.05 than the others. Despite weak statistical power, it indicates that moving in the later childhood years increases the intention to move upon graduation. As elaborated on in the results section, this may be because migration events in the latter stages of childhood may expose children to the realities of migration, and the role of social norms, perceived behavioural control and personal attitudes as outlined in the TOPB framework. Conversely, This may be explained due to the nature of the sampled respondents; many of the respondents are international students and thus would have migrated at 17/18 to attend university. Unlike local students, these students may feel the need or desire to return home upon graduation more than a local student does to migrate outside their home country, thus explaining the higher odds ratio. This poses an interesting question when researching university student migration intentions: Should international students' return migration be treated like international migration upon graduation by a local student? Both events fall under the definition of international migration, yet the circumstances appear very different.

A mediation effect through which childhood migration would affect the TOPB variables was expected and depicted in the conceptual Model. However, as outlined in the results, this does not occur. Through multiple attempts at modelling in both Model 1 and 2, seen through the labels M0, M1, M2 & M3, it is clear that no meditative effect exists.

Personal attitudes play the most critical direct role in determining migration intentions. Of all five variables measuring the components of the theory of planned behaviour, the personal attitude was the only one that displayed a statistically significant impact on migration intentions in both models. Personal attitudes, measured through an individual's perceived obligation to remain in their country of residence, impacted migration intentions negatively, as it is intuitive that the higher the one's perceived obligation to stay, the less intent they have on migrating. In model 2, family expectations, a measure of subjective norms, garnered a statistically significant result, thus demonstrating that the expectation to migrate from family increases their intent to migrate, reinforcing the vital role that critical social figures play in determining migration intentions. Interestingly, the component of perceived behaviour control towards migration intentions returned no significant results; this may demonstrate that social and economic integration does not play a role in migration intentions, potentially due to the abundance of information regarding both now available via the internet. However, when concluding the impact of the theory of planned behaviour and childhood migrations' effects on its core components, it is crucial to note the influence of background factors and the irrationality of human decision-making that was not modelled within this investigation and the hidden role these factors may play.

The results produced within this investigation are based on a sampling population of 76 university students and thus should not be used to cast generalisations of the total student population.

As childhood migration becomes more prevalent, future research must continue to investigate the outcomes of such events early on in the life course. Further investigation into the possibility of a relationship between childhood migration and both future migration intentions should focus on encapsulating background factors, including a sense of belonging, economic and social ties, bureaucratic factors such as Visa and Residency restrictions, travel bans or political instability as well as the potential for differing effects of childhood migration depending on the countries in which these moves occur. Future research should also distinguish between voluntary and in-voluntary childhood migration and the differing effects this may have. On top of this, it may be beneficial to investigate this phenomenon with qualitative or mixed methods approaches. Migration is such a complex phenomenon and should not be boiled down to solely a set of numbers to be analysed; instead, migration stories should be investigated to add to the insight provided by quantitative methods to understand the impact of previous migration and how it shapes future migration intentions.

## 6. Bibliography

- Ajzen, I. (1991) 'The theory of planned behavior', *Organizational Behavior and Human Decision Processes*, 50(2), pp. 179–211. Available at: [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- Ajzen, I. (2020) 'The theory of planned behavior: Frequently asked questions', *Human Behavior and Emerging Technologies*, 2(4), pp. 299–415. Available at: <https://doi.org/10.1002/hbe2.195>.
- Ajzen, I. (2014) 'The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotta, Pesseau, and Araújo-Soares', *Health Psychology Review*, 9(2), pp. 131–137. Available at: <https://doi.org/10.1080/17437199.2014.883474>.
- Bailey, A. (1993) 'Migration history, migration behavior and selectivity', *The Annals of Regional Science*, 27(4), pp. 315–326. Available at: <https://doi.org/10.1007/BF01583571>.
- Baruch, Y., Budwhar, P. and Khatri, N. (2007) 'Brain drain: Inclination to stay abroad after studies', *Journal of World Business*, 42(1), pp. 99–112. Available at: <https://doi.org/10.1016/j.jwb.2006.11.004>.
- Bernard, A. (2017) 'Levels and patterns of internal migration in Europe: A cohort perspective', *Population Studies*, 71(3), pp. 293–311. Available at: <https://doi.org/10.1080/00324728.2017.1360932>.
- Bernard, A. and Vidal, S. (2020) 'Does moving in childhood and adolescence affect residential mobility in adulthood? An analysis of long-term individual residential trajectories in 11 European countries', *Population, Space and Place*, 26(1). Available at: <https://doi.org/10.1002/psp.2286>.
- Bernardi, L., Johannes, H. and Settersen Jr., R. (2019) 'The life course cube: A tool for studying lives', *Advances in Life Course Research*, 41. Available at: <https://doi.org/10.1016/j.alcr.2018.11.004>.
- Carling, J. and Mjelva, M.B. (2021) 'Survey instruments and survey data on migration aspirations'. QuantMig. Available at: <https://www.quantmig.eu/res/files/QuantMig%20D2.1%20Survey%20instruments%20and%20survey%20data%20on%20migration%20aspirations%20v1.1.pdf>.
- Coulter, R., van Ham, M. and Feijten, P. (2011) 'A Longitudinal Analysis of Moving Desires, Expectations and Actual Moving Behaviour', *Environment and Planning A: Economy and Space*, 43(11), pp. 2742–2760. Available at: <https://doi.org/10.1068/a44105>.

Davin, D. (1998) 'Why People Migrate', in *International Migration in Contemporary China*. 1st edn, pp. 49–77. Available at: [https://link.springer.com/chapter/10.1057/9780230376717\\_5](https://link.springer.com/chapter/10.1057/9780230376717_5) (Accessed: 14 May 2023).

Faggian, A. and McCann, P. (2008) 'Human capital, graduate migration and innovation in British regions', *Cambridge Journal of Economics*, 33(2), pp. 317–333. Available at: <https://doi.org/10.1093/cje/ben042>.

Jin, C. *et al.* (2022) 'What attracts young talents? Understanding the migration intention of university students to first-tier cities in China', *Cities*, 128. Available at: <https://doi.org/10.1016/j.cities.2022.103802>.

Kley, S. and Mulder, C. (2009) 'Considering, planning, and realizing migration in early adulthood. The influence of life-course events and perceived opportunities on leaving the city in Germany', *Journal of Housing and the Built Environment*, 25, pp. 73–94. Available at: <https://doi.org/10.1007/s10901-009-9167-8>.

Malmberg, G. and Fischer, P. (2001) 'Settled People Don't Move: On Life Course and (Im-)Mobility in Sweden', *Population, Space and Place*, 7(5), pp. 357–371. Available at: <https://doi.org/10.1002/ijpg.230>.

Morrison, P. (1971) 'Morrison, P. A. (1971). Chronic movers and the future redistribution of population: a longitudinal analysis. *Demography*, 8(2), 171–184.', *Demography*, 8(2), pp. 171–184. Available at: <https://doi.org/10.2307/2060607>.

Mulder, C. and Hooimeijer, P. (1999) 'Residential Relocations in the Life Course', *Population Issues*, 1, pp. 159–186. Available at: [https://doi.org/10.1007/978-94-011-4389-9\\_6](https://doi.org/10.1007/978-94-011-4389-9_6).

Myers, S. (1999) 'Childhood Migration and Social Integration in Adulthood', *Journal of Marriage and Family*, 61(3), pp. 774–789. Available at: <https://doi.org/10.2307/353577>.

Novotný, J., Feřtřová, M. and Jungwiertová, L. (2020) 'Postgraduate migration behaviour of international university students supported from the Czech Development Cooperation scholarships', *Population, Space and Place*, 26(7). Available at: <https://doi.org/10.1002/psp.2361>.

Parker, C., Scott, S. and Geddes, A. (2023) *Snowball Sampling*. London: SAGE Publications Ltd. Available at: <https://doi.org/10.4135/9781526421036831710>.

Rossi, P. (1988) 'Why families move: a study in the social psychology of urban residential mobility', *The Free Press*, (1), p. 220.

Soon, J.J. (2012) 'Home is Where the Heart Is? Factors Determining International Students' Destination Country upon Completion of Studies Abroad', *Journal of Ethnic and Migration Studies*, 38(1), pp. 147–162. Available at: <https://doi.org/DOI:10.1080/1369183X.2012.640026>.

Taylor, M. (2007) 'Tied Migration and Subsequent Employment: Evidence from Couples in Britain', *Oxford Bulletin of Economics and Statistics*, 69(6), pp. 795–818. Available at: <https://doi.org/10.1111/j.1468-0084.2007.00482.x>.

UNICEF Data (2021) 'Child Migration', *unicef for every child*, April. Available at: <https://data.unicef.org/topic/child-migration-and-displacement/migration/#:~:text=The%20number%20of%20migrant%20children,million%20of%20them%20were%20children>. (Accessed: 14 May 2023).

Wu, C. and Wilkes, R. (2017) 'International students' post-graduation migration plans and the search for home', *Geoforum*, 80, pp. 123–132. Available at: <https://doi.org/10.1016/j.geoforum.2017.01.015>



## 7. Appendices

### Appendix A - Survey Cover Page and Informed Consent

Thank you for your consideration and interest in taking part in this investigation. This survey is part of the bachelor's thesis by Andrew Caskie and Kasper Rentenaar. We are third-year students at the University of Groningen.

The overarching theme of the research is a 'life course' approach to migration, particularly path dependency in international migration and rural/urban migration. Therefore, the survey's target population is people currently enrolled in a tertiary school educational institution.

No data is collected other than what is explicitly asked in the survey, which is entirely anonymous. The data collected will be used solely for educational purposes, including statistical analyses and will be dealt with confidentiality; only the researcher and supervisor will have access to the results, which will be stored securely via institutional online storage. Your participation is entirely voluntary. If you have any further questions or wish to withdraw your participation at a later date, please contact [a.g.caskie@student.rug.nl](mailto:a.g.caskie@student.rug.nl) & [k.rentenaar@student.rug.nl](mailto:k.rentenaar@student.rug.nl)

Thank you for your participation!

Are you part of the target audience, consent to the research and wish to continue?

- A Click to Agree/Continue Option is Presented Here

### Appendix B - Survey Questionnaire

Q1. How old are you?

Q2. What gender do you identify as?

Q3. What country were you born in?

Q4. Were you born in the country you consider to be home?

Q5. What is your current country of residence?

Q6. How long have you been living in your country of residence?

Q7. Is your stay in your current country of residence limited by Visa/Residence

Permit Constraints?

Q8. What is your current employment status?

Q9. What is your current relationship status?

Q10. Do you have any family members living outside your home country?

Q11. If you answered yes to Q10, How many of your family members live outside your home country?

Q12. Do you have any family members living in your current country of residence?

Q13. If you answered yes to Q12, How many family members are living in your current country of residence?

Q14. Are you currently living with any family members?

Q15. How many migration events occurred during your childhood (0-18)?

Q16. How many migration events occurred during your early childhood (0-6)?

Q17. How many migration events occurred during your middle childhood (7-12)?

Q18. How many migration events occurred during your adolescence (13-18)?

Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study"

1. Strongly Disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly Agree

Q20. "My family expect me to migrate once my studies are finished"

1. Strongly Disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly Agree

Q21. "My family would support a decision to migrate after my studies"

1. Strongly Disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly Agree

Q22. "It would be difficult socially to migrate at the end of my study period"

1. Strongly Disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly Agree

Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends"

1. Strongly Disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly Agree

Q24. I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program?

1. Strongly Disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly Agree

## Appendix C - Tests of Multicollinearity

### Test for Model 1

Model	Constant	Collinearity Statistics	Value
<b>1</b>	Migration Events Aged 0-18	Tolerance	0.87
		VIF	1.15
	Personal Attitudes	Tolerance	0.71
		VIF	1.41
	Family Expectation	Tolerance	0.83
		VIF	1.21
	Family Support	Tolerance	0.76
		VIF	1.31
	Percieved Social Factors	Tolerance	0.72
		VIF	1.39
	Percieved Economic Factors	Tolerance	0.70
		VIF	1.43

### Test for Model 2

Model	Constant	Collinearity Statistics	Value
<b>2</b>	Migration Events Aged 0-6	Tolerance	0.35
		VIF	2.85
	Migration Events Aged 7-12	Tolerance	0.36
		VIF	2.75
	Migration Events Aged 13-18	Tolerance	0.35
		VIF	2.85
	Personal Attitudes	Tolerance	0.70
		VIF	1.42
	Family Expectation	Tolerance	0.83
		VIF	1.21
	Family Support	Tolerance	0.76
		VIF	1.32
	Percieved Social Factors	Tolerance	0.70
		VIF	1.43
	Percieved Economic Factors	Tolerance	0.68
		VIF	1.47

## Appendix D - Model 1 Test Outputs

### *Ordinal Logistic Regression*

<b>Model Fitting Information</b>				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	236.942			
Final	179.879	57.064	21	<.001

Link function: Logit.

<b>Goodness-of-Fit</b>			
	Chi-Square	df	Sig.
Pearson	288.180	279	.340
Deviance	179.879	279	1.000

Link function: Logit.

<b>Pseudo R-Square</b>	
Cox and Snell	.528
Nagelkerke	.552
McFadden	.241

Link function: Logit.

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q24 = 1]	-6.764	3.074	4.842	1	.028	-12.789	-.739
	[Q24 = 2]	-4.625	3.030	2.330	1	.127	-10.564	1.314
	[Q24 = 3]	-3.538	3.016	1.376	1	.241	-9.450	2.374
	[Q24 = 4]	-2.368	3.005	.621	1	.431	-8.258	3.522
Location	Q15	.088	.109	.651	1	.420	-.125	.301
	[Q19=1]	-4.704	1.293	13.229	1	<.001	-7.238	-2.169
	[Q19=2]	-2.970	.844	12.382	1	<.001	-4.624	-1.316
	[Q19=3]	-2.836	.808	12.321	1	<.001	-4.420	-1.253
	[Q19=4]	-1.694	.714	5.624	1	.018	-3.095	-.294
	[Q19=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q20=1]	17.722	.000	.	1	.	17.722	17.722
	[Q20=2]	.909	1.008	.814	1	.367	-1.066	2.884
	[Q20=3]	.999	.684	2.131	1	.144	-.342	2.340
	[Q20=4]	-.168	.684	.061	1	.806	-1.510	1.173
	[Q20=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q21=1]	-1.485	2.720	.298	1	.585	-6.816	3.846
	[Q21=2]	-1.040	2.635	.156	1	.693	-6.204	4.125
	[Q21=3]	-.270	2.744	.010	1	.922	-5.648	5.109
	[Q21=4]	-.754	2.906	.067	1	.795	-6.450	4.942
	[Q21=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q22=1]	-2.312	1.356	2.909	1	.088	-4.969	.345
	[Q22=2]	-2.116	1.125	3.541	1	.060	-4.321	.088
	[Q22=3]	-1.816	1.081	2.822	1	.093	-3.935	.303
	[Q22=4]	-1.240	.860	2.078	1	.149	-2.926	.446
	[Q22=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q23=1]	-1.316	1.747	.568	1	.451	-4.741	2.108
	[Q23=2]	-.879	1.021	.740	1	.390	-2.880	1.123
[Q23=3]	.029	.920	.001	1	.975	-1.773	1.832	
[Q23=4]	.144	.820	.031	1	.861	-1.464	1.751	
[Q23=5]	0 <sup>a</sup>	.	.	0	.	.	.	

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Test of Parallel Lines <sup>a</sup>				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	179.879			
General	98.315 <sup>b</sup>	81.563 <sup>c</sup>	63	.058

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

*Generalised Linear Model*

<b>Goodness of Fit<sup>a</sup></b>			
	Value	df	Value/df
Deviance	186.784	294	.635
Scaled Deviance	186.784	294	
Pearson Chi-Square	305.600	294	1.039
Scaled Pearson Chi-Square	305.600	294	
Log Likelihood <sup>b</sup>	-93.392		
Akaike's Information Criterion (AIC)	206.784		
Finite Sample Corrected AIC (AICC)	210.169		
Bayesian Information Criterion (BIC)	230.091		
Consistent AIC (CAIC)	240.091		

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"

Model: (Threshold), Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study", Q20. "My family expect me to migrate once my studies are finished", Q21. "My family would support a decision to migrate after my studies", Q22. "It would be difficult socially to migrate at the end of my study period", Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends", Q15. How many migration events occurred during your childhood (0-18)? - # of Migration events<sup>a</sup>

a. Information criteria are in smaller-is-better form.

b. The full log likelihood function is displayed and used in computing information criteria.

<b>Omnibus Test<sup>a</sup></b>			
Likelihood Ratio Chi-Square	df	Sig.	
50.158	6	<.001	

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"

Model: (Threshold), Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study", Q20. "My family expect me to migrate once my studies are finished", Q21. "My family would support a decision to migrate after my studies", Q22. "It would be difficult socially to migrate at the end of my study period", Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends", Q15. How many migration events occurred during your childhood (0-18)? - # of Migration events<sup>a</sup>

a. Compares the fitted model against the thresholds-only model.

<b>Tests of Model Effects</b>			
Source	Wald Chi-Square	Type III	
		df	Sig.
Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study"	20.301	1	<.001
Q20. "My family expect me to migrate once my studies are finished"	3.073	1	.080
Q21. "My family would support a decision to migrate after my studies"	1.182	1	.277
Q22. "It would be difficult socially to migrate at the end of my study period"	3.701	1	.054
Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends"	1.074	1	.300
Q15. How many migration events occurred during your childhood (0-18)? - # of Migration events	1.734	1	.188

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"

Model: (Threshold), Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study", Q20. "My family expect me to migrate once my studies are finished", Q21. "My family would support a decision to migrate after my studies", Q22. "It would be difficult socially to migrate at the end of my study period", Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends", Q15. How many migration events occurred during your childhood (0-18)? - # of Migration events

## Appendix E - Model 2 Test Outputs

### *Ordinal Logistic Regression*

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	236.942			
Final	177.342	59.600	23	<.001

Link function: Logit.

	Chi-Square	df	Sig.
Pearson	255.319	277	.821
Deviance	177.342	277	1.000

Link function: Logit.

Cox and Snell	.544
Nagelkerke	.569
McFadden	.252

Link function: Logit.



Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Q24 = 1]	-7.048	3.158	4.980	1	.026	-13.238	-.858
	[Q24 = 2]	-4.906	3.113	2.483	1	.115	-11.008	1.196
	[Q24 = 3]	-3.809	3.099	1.511	1	.219	-9.884	2.265
	[Q24 = 4]	-2.605	3.087	.712	1	.399	-8.656	3.445
Location	Q16	-.246	.401	.377	1	.539	-1.032	.540
	Q17	-.010	.379	.001	1	.979	-.752	.732
	Q18	.620	.366	2.861	1	.091	-.098	1.337
	[Q19=1]	-4.599	1.329	11.980	1	<.001	-7.203	-1.995
	[Q19=2]	-2.850	.849	11.265	1	<.001	-4.514	-1.186
	[Q19=3]	-3.075	.839	13.452	1	<.001	-4.719	-1.432
	[Q19=4]	-1.549	.722	4.602	1	.032	-2.963	-.134
	[Q19=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q20=1]	17.905	.000	.	1	.	17.905	17.905
	[Q20=2]	.999	1.009	.980	1	.322	-.979	2.977
	[Q20=3]	1.084	.688	2.484	1	.115	-.264	2.432
	[Q20=4]	-.224	.691	.105	1	.746	-1.579	1.131
	[Q20=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q21=1]	-1.909	2.830	.455	1	.500	-7.456	3.638
	[Q21=2]	-1.308	2.733	.229	1	.632	-6.665	4.049
	[Q21=3]	-.796	2.856	.078	1	.780	-6.395	4.802
	[Q21=4]	-.951	2.992	.101	1	.751	-6.815	4.914
	[Q21=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q22=1]	-2.115	1.392	2.309	1	.129	-4.842	.613
	[Q22=2]	-2.098	1.127	3.465	1	.063	-4.306	.111
	[Q22=3]	-1.612	1.075	2.250	1	.134	-3.720	.495
	[Q22=4]	-1.251	.851	2.163	1	.141	-2.918	.416
	[Q22=5]	0 <sup>a</sup>	.	.	0	.	.	.
	[Q23=1]	-1.652	1.884	.769	1	.381	-5.343	2.040
	[Q23=2]	-.973	1.033	.889	1	.346	-2.997	1.051
[Q23=3]	-.244	.940	.068	1	.795	-2.088	1.599	
[Q23=4]	-.016	.821	.000	1	.985	-1.625	1.594	
[Q23=5]	0 <sup>a</sup>	.	.	0	.	.	.	

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Test of Parallel Lines <sup>a</sup>				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	177.342			
General	97.959 <sup>b</sup>	79.383 <sup>c</sup>	69	.184

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

*Generalised Linear Model*

<b>Goodness of Fit<sup>a</sup></b>			
	Value	df	Value/df
Deviance	184.117	292	.631
Scaled Deviance	184.117	292	
Pearson Chi-Square	290.228	292	.994
Scaled Pearson Chi-Square	290.228	292	
Log Likelihood <sup>b</sup>	-92.058		
Akaike's Information Criterion (AIC)	208.117		
Finite Sample Corrected AIC (AICC)	213.069		
Bayesian Information Criterion (BIC)	236.085		
Consistent AIC (CAIC)	248.085		

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"

Model: (Threshold), Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study", Q20. "My family expect me to migrate once my studies are finished", Q21. "My family would support a decision to migrate after my studies", Q22. "It would be difficult socially to migrate at the end of my study period", Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends", Q16. How many migration events occurred during your early childhood (0-6)? - # of Migration events, Q17. How many migration events occurred during your middle childhood (7-12)? - # of Migration events, Q18. How many migration events occurred during your adolescence (13-18)? - # of Migration events<sup>a</sup>

a. Information criteria are in smaller-is-better form.

b. The full log likelihood function is displayed and used in computing information criteria.

<b>Omnibus Test<sup>a</sup></b>		
Likelihood Ratio Chi-Square	df	Sig.
52.826	8	<.001

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"

Model: (Threshold), Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study", Q20. "My family expect me to migrate once my studies are finished", Q21. "My family would support a decision to migrate after my studies", Q22. "It would be difficult socially to migrate at the end of my study period", Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends", Q16. How many migration events occurred during your early childhood (0-6)? - # of Migration events, Q17. How many migration events occurred during your middle childhood (7-12)? - # of Migration events, Q18. How many migration events occurred during your adolescence (13-18)? - # of Migration events<sup>a</sup>

a. Compares the fitted model against the thresholds-only model.

<b>Tests of Model Effects</b>			
Source	Wald Chi-Square	Type III	
		df	Sig.
Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study"	20.186	1	<.001
Q20. "My family expect me to migrate once my studies are finished"	4.086	1	.043
Q21. "My family would support a decision to migrate after my studies"	1.396	1	.237
Q22. "It would be difficult socially to migrate at the end of my study period"	2.701	1	.100
Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends"	1.154	1	.283
Q16. How many migration events occurred during your early childhood (0-6)? - # of Migration events	.096	1	.757
Q17. How many migration events occurred during your middle childhood (7-12)? - # of Migration events	.000	1	.996
Q18. How many migration events occurred during your adolescence (13-18)? - # of Migration events	3.131	1	.077

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"

Model: (Threshold), Q19. "I feel obliged to stay in my current country of residence for a longer period after the completion of my study", Q20. "My family expect me to migrate once my studies are finished", Q21. "My family would support a decision to migrate after my studies", Q22. "It would be difficult socially to migrate at the end of my study period", Q23. "It would it be difficult to find adequate employment and maintain my standard of living if I migrated after my study ends", Q16. How many migration events occurred during your early childhood (0-6)? - # of Migration events, Q17. How many migration events occurred during your middle childhood (7-12)? - # of Migration events, Q18. How many migration events occurred during your adolescence (13-18)? - # of Migration events

## Appendix F - Model Thresholds

### Model 1

Parameter	Label	M0 B	M0 p-value	M0 Exp(B)	M1 B	M1 p-value	M1 Exp(B)	M2 B	M2 p-value	M2 Exp(B)	M3 B	M3 p-value	M3 Exp(B)
Threshold	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=1]	-1.543	<0.001	0.214	-4.886	<0.001	0.008	-6.262	<0.001	0.002	-7.938	<0.001	<0.001
	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=2]	-0.004	0.988	0.99	-2.860	<0.001	0.057	-4.199	<0.001	0.015	-5.794	<0.001	0.003
	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=3]	0.703	0.017	2.019	-1.913	<0.001	0.148	-3.214	0.003	0.04	-4.756	<0.001	0.009
	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=4]	1.318	<0.001	3.738	-1.018	0.052	0.361	-2.281	0.027	0.102	-3.706	0.003	0.025

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"  
 Model: (Threshold), Migration Events Aged 0-18, Personal Attitudes, Family Expectation, Family Support, Perceived Social Factors, Perceived Economic Factors

### Model 2

Parameter	Label	M0 B	M0 p-value	M0 Exp(B)	M1 B	M1 p-value	M1 Exp(B)	M2 B	M2 p-value	M2 Exp(B)	M3 B	M3 p-value	M3 Exp(B)
Threshold	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=1]	-1.472	<0.001	0.230	-4.839	<0.001	0.008	-6.487	<0.001	0.002	-7.946	<0.001	<0.001
	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=2]	0.087	0.761	1.091	-2.790	<0.001	0.061	-4.385	<0.001	0.012	-5.785	<0.001	0.003
	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=3]	0.817	0.007	2.265	-1.814	0.001	0.163	-3.359	0.002	0.035	-4.719	<0.001	0.009
	[Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"=4]	1.454	<0.001	4.280	-0.889	0.098	0.411	-2.376	0.021	0.093	-3.634	0.003	0.026

Dependent Variable: Q24. "I intend to migrate outside the country I currently reside in, within the 12 Months after the completion of my study program"  
 Model: (Threshold), Migration Events Aged 0-6, Migration Events Aged 7-12, Migration Events Aged 13-18, Personal Attitudes, Family Expectation, Family Support, Perceived Social Factors, Perceived Economic Factors