Zentrum für Entwicklungsforschung Bonn (ZEF)

Intergenerational mobility and the children of migrants in Indonesia

DISSERTATION

zur Erlangung des Grades
Doktorin der Agrarwissenschaften (Dr. agr.)

der Landwirtschaftlichen Fakultät
der Rheinischen Friedrich-Wilhelms-Universität Bonn

von
Alfariany Milati Fatimah
aus
Jakarta, Indonesien

Bonn 2022

Referent: Prof. Dr. Joachim von Braun
Korreferentin: Prof. Dr. Regina Birner

Tag der mündlichen Prüfung: 20.09.2021

Angefertigt mit Genehmigung der Landwirtschaftlichen Fakultät der Universität Bonn

Abstract

Although there has been substantial increase in human development in Indonesia, individual inequality has not reduced significantly. This dissertation focuses on intergenerational mobility and its interplay with internal migration. It analyses the impact of parental migration on their children's long-term outcomes as adults. The main data for the quantitative analysis was drawn from the Indonesian Family Life Survey. Endogenous treatment regression was used to address the self-selection bias of migration.

This dissertation analyses three aspects of intergenerational mobility: expenditures, education and occupation. It examines long-term impacts of childhood shocks from parental migration and the Asian financial crisis. An analysis of intergenerational expenditure mobility finds that the children of migrants have higher education levels and higher per capita expenditure than the children of non-migrants. However, migrants' children only have more intergenerational expenditure mobility than children of non-migrants if they live in urban areas in their adulthood, migrated as children, or if their parents belonged to the poorest quintile of studied households.

Exploring educational aspects, the dissertation examines if household and parental migration were able to mitigate the impact of children dropping out of school during the Asian financial crisis. Children who dropped out have on average 1.3 years less of schooling than those who stayed in school. However, I find that these differences have no long-term impact on children's future income and their probability of working in the agricultural sector. Migration only helped keeping children in school in the case of households that moved to a rural area and that experienced a negative food shock during the financial crisis.

I also find that migration has a positive impact on gaining job with higher occupational skills, yet to a varying degree across different ethnic groups. There is an indication of the existence of ethnic employment niches in Indonesia. Therefore, migrants are more likely to be employed in sectors dominated by their own ethnic group, which makes an occupation-education mismatch more likely among migrants compared to non-migrants. In addition, among migrants in the lowest occupational skill level, parental migration promotes intergenerational upward mobility.

Altogether, this dissertation contributes to the literature on intergenerational mobility, migration and human capital theory and adds to the scant literature on the long-term impact of parental internal migration.

Zusammenfassung

Obwohl die menschliche Entwicklung in Indonesien erhebliche Fortschritte verzeichnen konnte, hat sich die individuelle Ungleichheit nicht wesentlich verringert. Diese Dissertation konzentriert sich auf intergenerationelle Mobilität und ihr Zusammenspiel mit der Binnenmigration. Sie analysiert die Auswirkungen der Migration der Eltern auf die langfristigen Lebensumstände ihrer Kinder als Erwachsene. Die Daten der indonesischen Erhebung zum Familienleben dienten als Hauptquelle für die quantitative Analyse. Aufgrund der mit der Migration einhergehenden Selbstelektionsverzerrung wurde eine endogene Behandlungsregression verwendet.

Diese Dissertation analysiert drei Aspekte der intergenerationellen Mobilität: Ausgaben, Bildung und Beruf. Sie untersucht die langfristigen Auswirkungen der elterlichen Migration und der asiatischen Finanzkriese als in der Kindheit erlebte Schocks. Die Analyse der intergenerationellen Mobilität der Ausgaben zeigt, dass Kinder von Migranten ein höheres Bildungsniveau und höhere Pro-Kopf-Ausgaben haben als Kinder von Nicht-Migranten. Allerdings haben Kinder von Migranten nur dann eine größere intergenerationelle Mobilität als die Kinder von Nicht-Migranten, wenn sie im Erwachsenenalter in städtischen Gebieten leben, selbst als Kind migriert sind oder wenn ihre Eltern zum ärmsten Quintil der untersuchten Haushalte gehörten.

Hinsichtlich der Bildungsaspekte untersuchte diese Dissertation, ob die Migration von Haushalten und Eltern in der Lage war, die Auswirkungen eines Schulabbruchs ihrer Kinder während der asiatischen Finanzkrise abzuschwächen. Kinder, die die Schule abgebrochen haben, sind im Durchschnitt 1,3 Jahre kürzer zur Schule gegangen als diejenigen, die in der Schule geblieben sind. Es zeigt sich jedoch, dass diese Unterschiede keine langfristigen Auswirkungen auf das zukünftige Einkommen der Kinder und ihre Beschäftigungswahrscheinlichkeit im Agrarsektor haben. Die Haushaltsmigration verbesserte die Bildungschancen der Kinder nur dann, wenn ein Haushalt in eine ländliche Gegend umzog und während der Finanzkrise einem negativen Lebensmittelschock erlebte.

Meine Ergebnisse zeigen weiter, dass sich Migration positiv auf den Erwerb beruflicher Qualifikationen auswirkt, allerdings in unterschiedlichem Maße in verschiedenen ethnischen Gruppen. Es gibt einen Hinweis auf die Existenz ethnischer Beschäftigungsnischen in Indonesien. Entsprechend werden Migranten mit größerer Wahrscheinlichkeit in Sektoren beschäftigt, die von ihrer eigenen ethnischen Gruppe dominiert werden, was ein Missverhältnis zwischen Qualifikationen und Arbeitsplätzen bei Migranten im Vergleich zu Nicht-Migranten wahrscheinlicher macht. Darüber hinaus fördert die elterliche Migration bei Migranten mit der niedrigsten beruflichen Qualifikationsebene die Aufwärtsmobilität zwischen den Generationen.

Insgesamt leistet diese Dissertation einen Beitrag zur Literatur über intergenerationelle Mobilität, Migration und Humankapitaltheorie und ergänzt die spärliche Literatur über die langfristigen Auswirkungen der Binnenmigration der Eltern.

Acknowledgements

I am grateful to Prof. Dr. Joachim von Braun and Prof. Dr. Regina Birner for supervising this dissertation. Also to Dr Chiara Kofol and Dr Lukas Kornher for constant guidance during the research and the dissertation writing. Dr Chiara Kofol contributed to polishing the articulation of the findings in chapter three and Dr Lukas Kornher contributed to formalising the theoretical framework in chapter four and chapter five. The idea of examining migration and intergenerational mobility would not have come to me without my grandparents' migration story and without critical environment at J-PAL Southeast Asia office for early ideas development.

This dissertation could not be written without funding from the Deutscher Akademischer Austauschdienst (DAAD) and Fiat Panis. I am also thankful for the feedback I received from fellow ZEF researchers at multiple colloquiums, from participants at both the International Conference on Population Geography at the University of Loughborough, and the 8th PhD Conferences on International Development at the University of Sussex. I would like to thank Prof. Mayling Oey-Gardiner, Dr Essa C Mussa, and Dr Zaneta Kubik for their feedback.

This journey might have been much less bearable without continuous support from various people. I thank Dr Günter Manske, Maike and Max for their supports during my time in ZEF. I would like to thank RAND for providing access to Indonesian Family Life Survey data. Also, I am grateful to have supports during the fieldwork from Arief, Wisnu, Herni, Bobby, Ain and my fieldwork team. Also to Gareth, Aleks, Sundus, Alison, Astri and David who gave helpful feedback on the English, and Diane for her proofreading. Audrey, Katharina and Lukas for German translation for the abstract. Friends in Bonn, London and Jakarta for giving wonderful escapes during stressful times. The last, my family in the UK and Indonesia for always be there.

Also, errors and omissions in this dissertation remain my own.

Contents

List of Figures

List of Tables

Chapter 1

Introduction

1.1 Background and Motivation

Individual income inequality in Indonesia has been relatively stable with the Gini coefficient remaining between 0.3 and 0.4 points from 1994 to 2018.[1] The 1997–1998 Asian financial crisis caused a macroeconomic shock in Indonesia and during that time, the Gini coefficient decreased drastically before it slowly climbed back to its pre-crisis level by 2004. Despite this persistent inequality, Indonesia has been experiencing a continuous increase in its human development index of 0.53 in 1990 to 0.71 in 2018 (Conceição et al., 2019). The education index has also been steadily increasing since 2000 when decentralisation started and the effects from the Asian financial crisis had eased.

This persistence of individual inequality despite the increase in human capital leads us to examine intergenerational social mobility in Indonesia. Intergenerational social mobility is closely related to the concept of social mobility. Social mobility looks at the differences in the socio-economic status of one generation within their lifetime, intergenerational mobility looks at two or more generations. In economics, intergenerational mobility is defined as the transmission of earnings (Borjas, 1992; Peters, 1992), occupation (Borjas, 2006; Long and Ferrie, 2013) and consumption (Beegle, de Weerdt, and Dercon, 2011) from one generation to the next.

In a society with more intergenerational mobility, the parental background should not be the primary determinant of a child's outcome in adulthood (Becker and Tomes, 1979). Parental migration, however, may change children's life trajectory and have a lasting impact on their future livelihood. Migration may also help to lessen the negative impact of external shock, i.e. economic crises in the long term.

This dissertation concentrates on intergenerational mobility and its interplay with internal migration. Internal migration refers to migration within Indonesia rather than international

[1] Kuncoro and Murbarani (2016) for 1994–2011 data and Statistics Indonesia for 2012–2018

out-migration from Indonesia. Furthermore, the internal migrants in this dissertation are characterised as people who migrate between districts, a second-tier governmental area under the provinces. It should be noticed that internal migration represents a significant share of population mobility in Indonesia. It involves about 30 million permanent migrants (Handiyatmo, 2012) compared with only 349 thousand international out-migrants in 2017 (UNDESA, 2017).

Parental migration as a shock impacts children's long term outcomes has not been widely discussed in literature. Some papers examine the impacts of a shock on children's outcomes in their adulthood.[2] This dissertation proposes that shocks not only create a short-term disturbance but that the implications can be seen in the long term and are intergenerational.

The effect of parental migration on children's outcomes as adults is the main interest in this dissertation. Education, as we will observe later in chapter three, is an important mechanism for intergenerational expenditure mobility. Hence, in chapter four we investigate the impact of the Asian financial crisis on the disruption of children's education and its interplay with their household migration. A sizeable amount of literature focuses mainly on the short-term impact of shock in childhood. But there has been little discussion on the long-term impact of a particular event, such as migration, that took place during childhood. Furthermore, the literature on the impact of migration has primarily focused on international migration, especially of that from a less developed to a more developed country. There is only limited discussion on the impact of internal migration in developing countries.

This dissertation aims to close this gap by looking at the long-term impact in adulthood of a particular shock during childhood whilst taking into consideration the role of internal migration. Data from the Indonesian Family Life Survey (IFLS) supports this intention by providing longitudinal data which enable us to pair children to their parents and also capture changes in the socio-economic situation in Indonesia over the two decades of its survey periods from 1993 to 2014.

1.2 Research Questions and Research Objectives

The key research question in this dissertation is: *How strong an effect does migration have on long-term outcomes, in this case, intergenerational social mobility in Indonesia?* In doing so, the

[2]For example, the shock due to war (Jürges, 2013), famine (Dercon and Porter, 2014), orphanhood (Beegle, de Weerdt, and Dercon, 2006), weather-related shocks (Shah and Steinberg, 2017; Del Ninno and Lundberg, 2005; Jensen, 2000), and economic crises (Shafiq, 2010; Duryea, Lam, and Levison, 2007).

dissertation tests the impact of childhood shocks, such as parental migration and financial crisis, on children's life trajectory in adulthood. Three aspects of intergenerational social mobility, in terms of expenditures, education, and occupation of the children have been analysed in separate chapters.

The first research question relates to intergenerational expenditure mobility with education playing a key role. The questions are:

1. What is the long-term impact of parental migration on children's household per capita expenditure in adulthood and their intergenerational mobility?
2. Are there any differences in the impact of parental migration between children left behind by migrants and children of non-migrants?
3. Does education help to explain the impact of parental migration on intergenerational mobility?

The objective of these research questions is to highlight the importance of parental migration on the children's future household per capita expenditure and their intergenerational expenditure mobility.

The second research question examines the role of parental migration in mitigating the shock of the Asian Financial Crisis on children's schooling outcomes. The aim of these research questions is to study the long-term impact of the financial crisis on the dropouts whilst also exploring the intergenerational educational mobility of the affected cohort. It is asked:

1. What are the consequences for school dropouts during Asian financial crisis in terms of their completed years of schooling and future labour market outcomes?
2. What is intergenerational educational mobility of the children of Asian financial crisis cohort?
3. Did parental migration play a role in keeping children in school during the Asian Financial Crisis ?

The third research question focuses on the importance of ethnicity in determining intergenerational occupational mobility and transmission of self-employment. The questions for this area are:

1. Are there any differences between ethnic groups on the impact of individual migration on occupational skill and occupation-education matching?

2. What is the impact of parental migration on intergenerational occupational mobility and its differences between ethnic groups?
3. How does parental migration influence the children's self-employed status?

The objectives are to explore the occupational path of the children and their parents and to show that ethnicity plays an important role in occupational transmission.

1.3 Intergenerational Mobility and Migration

This dissertation is built around the theory of human capital (Becker, 1993) and intergenerational mobility (Becker and Tomes, 1979). Both theories analyse the rationale and mechanism of the importance of parental migration for their children in the long-term. Parental migration could alter the direction of the children's future path, and hence their intergenerational mobility with respect to their parents. The theory of human capital helps us to identify parental migration as a shock in determining human capital investment and its accumulation.

The intergenerational mobility theory suggests that intergenerational elasticity is equal to the proportion of what parents spend on their children and the rate of return per generation (Becker and Tomes, 1979). Migration may affect the ability of the children to be in school and the investment made by parents for their education. In addition, society determines the intergenerational mobility of the younger generation by controlling the behaviour and endowments of their children (Becker and Tomes, 1979). Borjas (1992) suggests that the average human capital stock of an ethnic group influences the children's human capital accumulation. Parental migration may have neighbourhood effects (Chetty and Hendren, 2018) when the children move with their parents and the society surrounding the children determines the children's human capital accumulation.

Parental migration is not a random event and has a self-selection bias which is emphasised in later chapters. Migration theories revolve around the causes and perpetuation of migration, which can be combined and synthesised between different theories (Massey et al., 1993). The earliest theory of migration is provided by Ravenstein (1885) who lists the push and pull factors of migration. Later, neo-classical theorists identify agricultural labour surpluses (Lewis, 1954) and wage differentials (Ranis and Fei, 1961; Harris and Todaro, 1970) to explain migration behaviour. The new economics of labour migration (Stark and Bloom, 1985; Stark, 1991) criticise and complement the neo-classical theory of migration by suggesting the

concept of relative deprivation, heterogeneous skills level, and its asymmetric information, risk handling, and network migration. Rather than an individual decision, the decision to migrate is a joint decision by the migrants and non-migrants in the origin place. It frames the migratory decision as an inter-temporal agreement between migrants and non-migrants at the origin that is realised in the form of remittance. Hence, the migration is a 'calculated strategy' and a collective decision which implies risk sharing. We agree with Stark (1991) that wage differential is not the only cause of migration. In chapter two, we find that the availability of job guarantees at the destination place is the primary migration requirement for Indonesian internal migrants. This phenomenon refers to the migration network to finance the migration (Stark and Jakubek, 2013), minimising risk and lowering the cost of migration (Massey, 1990).

This dissertation focuses on the impacts of migration on intergenerational mobility. Although the background is on inequality persistence, the research does not try to establish the relationship between migration and inequality that has already been extensively research. The dissertation intertwines migration, intergenerational mobility, and human capital investment theories. It also contributes to research on the long-term and intergenerational impacts of migration.

1.4 Endogenous Treatment Regression

The main methodological issue in this study is the selection bias both in determining parental migration (chapter 3 and chapter 5) and the dropouts (chapter 4). The endogeneity of migration comes from the non-randomness of migration. In our case, parental migration is determined by parents' place of origin and the children's characteristics. Meanwhile, dropping out is mainly affected by the food expenditure shock. The research uses the interaction between the food expenditure shock with migration to get the combined effect of migration and the food expenditure shock on dropping out. We include the average weather shock and parents' time preference as a proxy to discount rate in determining the dropout selection equation.

In order to capture the selection bias, we apply an endogenous treatment regression (ETR) to model the problems. The ETR is a variant of the sample selection model by Heckman (1976), but it observes both selected and unselected regimes. The model allows both unobservables affecting the treatment and the potential outcome to have a specific correlation structure. The concept of selection variables in ETR is similar to instrumental variables, where there should

be at least one variable affecting the self-selected decision to migrate but not the outcome variables.

It may be suggested that either the fixed-effect model or fixed-effect model with instrumental variables, provide an alternative empirical strategy. However, we have the time-invariant information of past parental migration when the children are 0–15 years old. The fixed-effect model cannot estimate our interest variable of parental migration when it is time-invariant. Hence, the ETR is preferable as it can model the endogeneity in the interest variable. The same argument is advanced for the case of dropping out of school, which also has time-invariant variables.

1.5 The Indonesian Family Life Surveys (IFLS) Data

The Indonesian Family Life Survey (IFLS) is our primary source of data. The IFLS sampling design is representative at the national, provincial and district level. It covers 13 of the 27 provinces (in their base year in 1993) and represents 83% of the Indonesian population. IFLS is a longitudinal survey which follows the household from the base year. It has five survey waves in 1993, 1997, 2000, 2007, and 2014. In the case of the Asian financial crisis, the 1997 IFLS interview period was from August 1997 to March 1998, just after the Asian financial crisis started in July 1997. The IFLS followed 87.6% of the base year 1993 households in all five waves. However, data gaps occured for some individuals within the household.

The IFLS is a rich dataset containing retrospective information on migration, education, and employment. The 21-year period covered by the survey enables us to capture the long-term impact of migration. In two of the chapters, we observe all adults, 15 years old and older, who match with interviewed parents. The cut off at 15 years old follows the criteria of the the Statistics Bureau of Indonesia, which defines people of working age as 15 years of age and older. An exception was made in chapter 4 as here we selected children born between 1981 and 1991 to match with the schooling period during the crisis. The eldest was 16 years old in 1997 and did their final year in high school. The youngest was six years old in 1999 and had just started elementary school.

The IFLS also identifies the father and mother of each individual. This enables us to match the children with at least one of their parents. Hence, the data structure is pooled rather than a panel.

1.6 The Outline of the Dissertation

There are six chapters in this dissertation. The first and current chapter explains the background, whilst also outlining the framework and structure of the dissertation.

Chapter 2 introduces the context of internal migration to deepen our understanding of migration in Indonesia. It explains the reasons for migration, prerequisites for migration, investment in education, the perception of intergenerational mobility and migration experiences. The narratives include migration history and stories from field research interviews conducted at the end of 2017.

Chapter 3 examines the intergenerational social mobility of internal migrants' children across Indonesia. The effects that a parent's internal migration has on their children have been underexplored. This chapter investigates the long-term impact of parental migration on their children's intergenerational social mobility, looking at the children's household expenditure per capita when they are adults. The analysis differentiates between the impact caused by the mother's and father's migration on all the children and the children left behind. It also explores the heterogeneity of the new location, working in the agricultural sector and the children as adults' per capita expenditure quantiles. We examine the parents' investment in education, migration when adults, and occupation when adults as the mechanisms between migration and intergenerational mobility.

Chapter 4 investigates how the shock from the Asian financial crisis of 1997/1998 affected children's human capital accumulation. The chapter looks at the long-term impact and examines migration during the crisis and ways to ease the short- and long-term effects. We analyse the cohort born in the period 1981–1991 as they were of school age during the financial crisis. We find proxies for the shock caused by the crisis using household food expenditure between 1997 and 2000 and plug in the predicted years of schooling into Mincer's equation. It examines the consequences of dropping out of school on long-term educational attainment, future labour market outcomes, the probability of employment in agriculture and the permanent earnings of those children affected. The chapter further explains how family migration, during a period of crisis, affects the children's education. We also analyse the role of migration and intergenerational education mobility in this cohort.

Chapter 5 examines the intergenerational occupational mobility and transmission of self-employment. Using the International Labour Organisation's (ILO) International Standard Classification of Occupations (ISCO)-08, we identify four different skill levels. The analysis

shows the impact of individual migration on obtaining a job in a particular occupational skill group and its match to education attained between different ethnic groups. It also explores the impact of parental migration on intergenerational occupational mobility and self-employment transmission among different ethnicities. The chapter also explains the differences migration impact of different ethnicities by examining relevant ethnography literature.

The last chapter summarises the findings from all chapters and the policy implications of the findings related to migration, education, and labour matching to promote intergenerational mobility.

Chapter 2

Migration and the Life of the Migrants

2.1 Introduction

Migration affects the migrants and the local residents in the destinations and places of origin. This chapter explores the context of migration in Indonesia, both in the destinations and areas of origin of the migrants. Understanding the current migration context is necessary both in devising our analytical research questions and to feed into the analysis in the later chapters. Whilst later chapters are using quantitative methods, this chapter is a narration built from semi-structured interviews, providing the context of migration and the life of internal migrants in Indonesia.

The interview questions aim to understand three main issues. The first is the reason for migration, including the social norms that encourage and discourage migration. Secondly, the research looks at the migration experience and life in the origin and destination place. Thirdly, it considers the education investment for the migrants' children. This chapter contributes to the literature on contemporary migration in Indonesia through confirming that migration networks are important (Elmhirst, 2002; Hugo, 2002) as a prerequisite of out-migration. It adds to the literature on the perception of educational investment, discrimination, and migrants' social mobility perspective with reference to their stay-behind peers at their origin location.

This chapter comprises five sections; the next section provides a historical review of migration in Indonesia, followed by section three on data and methods. Section four describes the findings from interviews.

2.2 Migration in Indonesia

Contemporary migration, whether it is forced or voluntary, has a root in the historical forced migration during the colonial era (Hugo, 2006). Further, Hugo (2006) suggests that in the pre-colonial era, the lack of transportation infrastructure and political constraints from local elites were the key factors that suppressed population mobility between regions in Indonesia. He shows that migration during the pre-colonial era was primarily due to slave trading, the agricultural colonisation of the people from neighbouring kingdoms, and the establishment of another kingdom's authority leading to displacement of the local population. In the colonial era, the exploitative nature of colonial systems shaped population mobility. There were also refugees from natural disasters and the military enforcement of colonial governments (Hugo, 2006). In summary, the compulsory labour policy and slave trading for plantations and factories by the colonial government forced migration from Java to other islands (Nitisastro, 2006; Hugo, 2006).

By independence, the demography and population distribution had been shaped. The population mobility profile further changed due to involuntary migration during the independence war and post-independence conflicts. Hugo (2006) claimed that flows of refugees helped to urbanise Bandung and Makassar and induce out-migration of the Bugis people from Sulawesi to Java and Sumatra.

The government of Indonesia then encouraged migration from the high-density population of the island of Java to other islands in the archipelago in what was known as the transmigration programme. The programme is similar to the colonial government programme of Javanese resettlement to other islands (Nitisastro, 2006). The colonial government introduced the colonisation programme in the early 20th century, which mobilised people in Java to move to less populated areas outside Java with an incentive of land in the destination. One example for this is Lampung province where, after 25 years of Javanese resettlement in Lampung, by the 1930 census a third of the population in Lampung had been born in Java (Nitisastro, 2006). The colonial government perceived the Javanese had better skills to clear the forest and establish paddy fields (Nitisastro, 2006).

The transmigration programme started in 1950, and by the end of 1970, Lampung was again the leading destination of the programme (Kusworo, 2014). About 250 thousand indigenous people in Lampung were displaced as the government cleared up some areas for transmigration, and by the mid-1980s, Javanese compromised 70% of the population in Lampung (Kusworo, 2014). Between 1905 and the mid-80s, there were 4.8 million people

participating in the transmigration programme (Fearnside, 1997), and 7.8 million by the end of 2010 (Wajdi, 2017). However, the programme was hardly significant in redistributing the Indonesia population (van der Wijst, 1985). In the 2010 population census, 57% of the Indonesian population lived in Java, and it is projected to be reduced to 54% in 2035 (Statistics Indonesia, 2013). Outside the transmigration programme, the internal migration in Indonesia is still Java-centric due to the over-urbanisation of the island (Wajdi, Wissen, and Mulder, 2015).

Muhidin et al. (2003) suggest some determinants of partial or entire household migration using 1995 inter-census data. The propensity to migrate will be higher for a household that had already experienced migration, has more educated household members, does not own any land, and has unmarried children. The regional differences, however, are not significant to determine family migration.

The other migration phenomenon in Indonesia is circular migration or non-permanent migration. A systematic review by Hugo (1982) summarised studies on circular migration in Indonesia. He argues that circular migration reduces the cost of migration and subsistence in the destination and maximises consumption by spending in the village of origin using the income earned in the city. Hetler (1989) shows that households with at least one circular migrant who bring remittance back home are moving up to middle-income and upper-income ranges in the village. However, she argues that the high-income households are inhabited by people who stay in the area and who do not rely on remittance but high-earning activities.

The literature shows that past migration has influenced the current migration patterns in Indonesia. The following sections will explore beyond this pattern by looking at the prerequisites to migrate, the migration experience of migrants, and the difference migration makes to their children, social mobility and life satisfaction.

2.3 Data and Methods

This chapter uses primary data from individual interviews in the district (*kabupaten*) of Muara Enim (South Sumatra), Ciamis (West Java), Selayar (South Sulawesi), Bekasi (West Java), and Bitung (North Sulawesi) in October–November 2017. The interviews were semi-structured on topics to cover migration experiences, investment behaviour for a child's education, perception of social mobility, and subjective individual happiness and life satisfaction. The

sampling is purposive, which aimed at interviewing five migrants and five locals in each community.

The selection of *kabupaten* was based on some selection criteria applied using the National Social Economic Survey (SUSENAS) 2013 data. The selection criteria identified:

1. Islands with the highest proportion of migrants. The top three are Sumatera, Java and Sulawesi.
2. For each island, all *kabupaten*s on the island were listed and defined as either rural or urban *kabupaten*s. In accordance with, the Statistics Bureau's definition, a rural *kabupaten* has, on average, 70% of the population living in rural areas, and an urban *kabupaten* has 90% of the population in an urban area.
3. The rural *kabupaten*s were ranked by their highest out-migration rate and urban *kabupaten*s by their highest in-migration rate in each of the three islands.
4. A rural *kabupaten* that has the highest out-migration rate and an urban *kabupaten* that has the highest in-migration rate were selected in each of the three regions.

Six *kabupaten*s were identified using these criteria. However, after interviews had been conducted in five *kabupaten*s, the information from the interviews was considered to be sufficient and repetitive. Hence one urban *kabupaten* of Pekanbaru in Sumatera was dropped from the research study.

Two communities/villages/*kelurahan* were visited based on several considerations:

1. For an urban area the selection was made based on the location, and a *kelurahan* in the city centre and a *kelurahan* in the city's fringe were chosen.
2. For a rural area the selection was made based on known numbers of migrants, and a village with a high number of out-migrants and a village with fewer out-migrants were chosen. This information was based on suggestions provided by local government officials and local leaders.

The head of community/village was first approached to get a list of potential respondents; the study purposively aims to get five migrants and five locals in an urban area, whilst in a rural area five migrants/return migrants and five non-migrants. As the research interest is on education investment and intergenerational mobility, all the respondents needed to have at

least a school-aged child. Hence, one criterion for the respondents that was communicated to the head of community/village is whether the households have at least one school-age child.

The communities' characteristics are determined by their ethnicities and religious norms, professions, geography and infrastructure. Table 2.1 shows the differences between the five *kabupaten*s. Even in the same *kabupaten*, two different communities have unique characteristics, in particular for their jobs, based on the natural landscape of the place.

Out of 99 respondents who were interviewed, 62 have migrated at least once in their lifetime.[1] In urban areas, the selection criteria identified five locals, born and grown up in their current place of residence, and five migrants. Meanwhile, in the rural *kabupaten*s, the locals who have migration experience are classified as return migrants. There were 41 migrants and 21 return migrants in the sample. Table 2.2 shows the household characteristics of our respondents and Table 2.3 shows the respondents' characteristics.

The mean of the household size was 4.6 people in the household with a maximum of eight people and a minimum of two in the household. The mean of the parents' age was 41.5 years old whilst for children it was 12.6 years old. The mean education of the head of household and their spouse is about junior secondary school level(8.54 and 9.53 years of schooling), similar to the education of their children (6.89 years of schooling). The last month's income, which include the last seasonal income for agriculture and construction workers, shows 3.4 million rupiahs on average. Also, the households in average sending more than receiving remittance.

There are more women (67 women) interviewed than men (32 men) due to their availability at the time of interviews. The heads of the household were mostly working, with 17 unemployed at the time of interview. Of those working, the highest three sectors of employment were agriculture (23), small trades (18), and other services (16) such as teachers and priests. The majority of respondents were Muslims with 12 Christians. Also, there are 12 different ethnicities that defined mainly by their location. Only one respondent could not read.

[1] The definition used by the Statistics Bureau and the Indonesian Family Life Survey defines migration as a movement from one *kabupaten* to another for at least six months.

TABLE 2.1: *Kabupaten* Characteristics

*kabupaten*s	Characteristics
Bekasi	Bekasi is a city neighbouring Jakarta. It is part of Jakarta Metropolitan. The local ethnicity is Betawi, and the majority of inhabitants are Muslim. **Kelurahan Jatimakmur** is in the fringe of Kota Bekasi; it is neighbouring east Jakarta. Some children go to school in Jakarta instead of Bekasi. **Kelurahan Margajaya** is in the heart of Kota Bekasi, not too far from the city government office and train station. It is denser in terms of population than the Jatimakmur. There are also more migrant population, as it is hard to get the locals to stay in this area.
Ciamis	Ciamis is in West Java Province neighbouring central Java; it is mainly in the highland area. **Desa Utama** is a village 15 minutes drive from the centre of Ciamis government. Two communities were visited in Desa Utama. The first has mainly non-migrants, but the next village has more members of household who have migrated. The houses in the other community are more permanent and much better quality than the first. People in Desa Utama are know as a skilful welders besides farmers. **Desa Maparah** is an hour and a half away from Ciamis, but the migrants are more connected to the city of Bandung about four hours' drive away. The out-migrants in Maparah are mainly vegetable traders in Caringin market in Bandung. The Caringin market is a wholesale vegetable market for retailer traders in some smaller markets in Bandung.
Bitung	Bitung is a city in the North Sulawesi. The population rely on fisheries industries as well as being fisherman in a big ship.Two sub-districts (*kelurahan*) in the city centre and the fringe of the city centre on the border to another *kabupaten* were visited. **Kelurahan Pateten 3** is located in the city centre but on the uphill. We talked with ten people in the *kelurahan* that was established in the place for quite a long time. Muslim and Christian are living side by side in this area **Kelurahan Manembo-Nembo Tengah** is located in the fringe of the city and far from the port. It is on the border with neighbouring *kabupaten* of North Minahasa. It took about 40 minutes drive from the centre of Bitung to Manembo-nembo.
Muara Enim	Muara Enim is a *kabupaten* that has coal and rubber industry, but the villages uphill are known for their coffee In **Desa Perapau**, people mainly doing agriculture work, for the coffee plantation and paddy field. The paddy, however, is only for their consumption. This village practises '*Tunggu Tubang*.' In **Desa Rami Pasai**, the agriculture crops are more rubber and palm oil. There is a big palm oil plantation around in which the villagers are working. Not very far away there is also a transmigration village (about an hour away from the main road).
Selayar	Selayar is an island *kabupaten*. People are farmers or fishermen. A farming village and fishing village in Selayar were visited. The Selayar people are mainly Makassar ethnicity. The journey to Makassar city, however, takes a 40 minutes' flight or eight hours multi modes journey. **Desa Layolo** is the south part of selayar island; the soil is fertile, resulting in more people doing agricultural work, being a farmer than going to the sea. Primary products are copra, cashew and cloves. Some also plant candle nut, nutmeg, and vanilla. **Desa Bungaiya (Bontomate'ne)** is a fisheries village in which mainly the men are working. If the women work, they will do agriculture work, trading or other services in the centre of Selayar

TABLE 2.2: Household Characteristics

Variables	N	Mean	Std.Dev	Min	Max
Household size	99	4.58	1.29	2	8
Years of schooling of the head of household	98	8.54	3.53	0	16
Years of schooling of the spouse	96	9.53	3.04	6	16
Years of schooling of the children	255	6.89	4.81	0	16
Age of household	98	43.61	8.19	22	65
Age of spouse	96	39.22	7.92	21	67
Age of the children in the household	255	12.61	5.53	3	29
Last month's income of the household (in million Rp)	99	3.42	3.75	0	17.2
Last migration cost (in million Rp)	62	0.36	0.92	0	5
Transfer from destination	21	1.04	1.14	0.15	5
Transfer from origin	47	0.56	0.61	0.004	3

Source: Author calculation from fieldwork data.

TABLE 2.3: Respondents' Characteristics

Variables	Freq	Variables	Freq
Migration status		**Ethnicities**	
Migrants	41	Sunda	21
Return migrants	21	Makassar	18
Stayers	37	Jawa	11
Sex		Benakat	8
Male	32	Betawi	7
Female	67	Semende	8
Head of household working		Bitung	3
Working	82	Talaud	3
Unemployed	17	Minahasa	2
Job sector		Sitaro	2
Agriculture	23	Toraja	2
Trade, hotel and restaurant	18	Ternate	1
Manufacture	2	Tobelo	1
Other services	16	Tolaki	1
Construction	1	Amurang	1
Transportation and communication	5	Banten	1
Finance	1	Boltim	1
Religions		Bugis	1
Islam	87	Gorontalo	1
Protestant	11	Kendari	1
Catholic	1	Medan	1
		Palembang	1
Head of household can read		Rawas	1
Can read	98	Siau	1
Cannot read	1	Mixed	1

Source: Author calculation from fieldwork data.

2.4 Findings

2.4.1 Prerequisite and Reason of Migration

Paul (2015) in her negotiated migration model, divides the pre-migratory process into individual aspiration, negotiation with family and the decision to migrate. This study follows this pre-migratory process by asking the respondents their prerequisite to migrate and who made the migration decision. This question is necessary to understand cultural selection to migrate. The analysis showed that gender is significant in determining who made the migration decision, but not their prerequisite to migrate. The security of having a job and network at the destination was more important than getting higher income relating to risk-averse behaviours of the respondents.

Gender Differences: Who Made the Decision to Migrate?

About 60% of the respondents reported that they make their own decision to migrate or to stay. Being male gave respondents more freedom to migrate as most feel that migration was their own decision regardless of the opinions of their parents or family opinion. However, if a woman is an aspirant migrant, the decision is a joint decision of the parents and husband, sometimes including a network of relatives.

Further, the responsibility of women to take care of their elderly parents keeps them in their place of origin. For about 86% of women migrants in the sample, the decision for the woman to migrate or remain at home was made by their parents. Women migrate to follow family members, either after or with the husband, or to give monetary support to their family as the 'dutiful daughter'. The notion of 'dutiful daughter' in Indonesia has been well-discussed for trans-national women migration (Khoo and Yeoh, 2017; Chan, 2017) and for internal women migration (Elmhirst, 2004).

In Perapau village, the women's responsibility at home is even institutionalised by the tradition of '*Tunggu Tubang*'. The eldest daughter is responsible for remaining at home and taking care of the elderly, the family house, coffee plantation and paddy field. Even though they would like to migrate, the tradition keeps them home:

> *"I would like to migrate if I did not have to do 'Tunggu Tubang'"*-Ibu M.[2]

[2]Ibu is a female salutation in Bahasa Indonesia

Similar stories were found in Selayar. Women have some aspirations to migrate, but they have never migrated due their parents wish for them to stay at home:

> *"I have never migrated because my parents have never allowed me to migrate and I have the responsibility to take care of them. My parent also said that they are worried if I went, I would 'leave with money, [come] back with debt'"* - Ibu Y.

There was an even stronger sentiment in Ciamis. In one conversation with a woman in Ciamis, her opinion on migration reflects subjugation of women:

> *"Men have a longer step than women, being a woman, in the end, we will end up as a housewife. Hence, women should stay in the village, but men are free to migrate" - Ibu L.*

Social and parental pressure exert strong constraints on women to remain in their place of origin, discouraging the migration of women. However, in the migrant destinations of Bekasi and Bitung such pressure is less and women have more freedom to migrate. The reason for this can be because people in destination place are more exposed to migration. However, one respondent in Bitung, a destination place, was worried about the possibility that a woman who migrates may experience extramarital pregnancy:

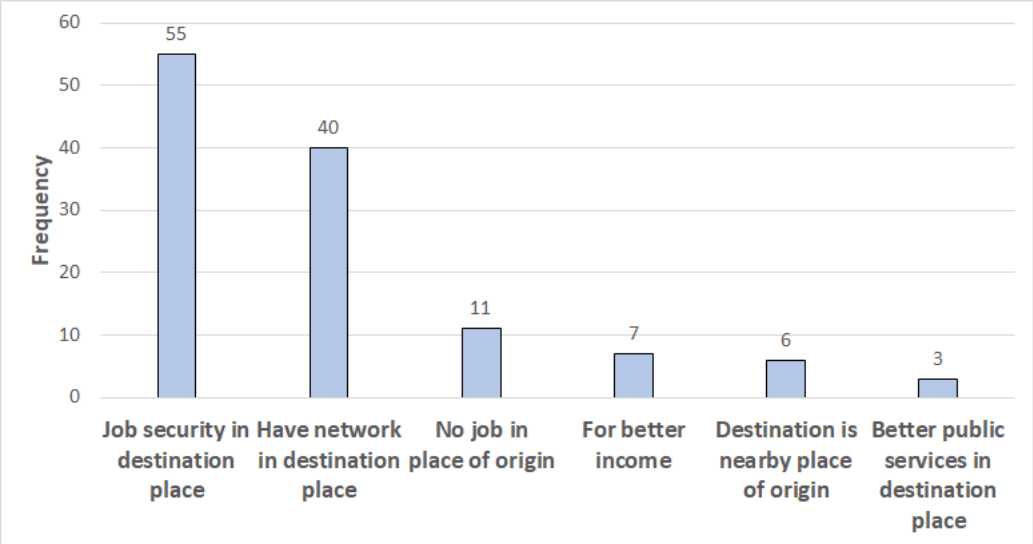
> *"Away from parents, women have more freedom and [this might bring] them back with a baby but without a husband"- Ibu J*

This notion that women must guard family honour was also discussed in Florey and Healey (2002). They suggest that adolescent women who migrate in eastern Indonesia are guarded with the social norm of family honour.

Some young women who migrate envision themselves retuning to their place of origin after getting married. Elmhirst (2004) suggests that the young women from Lampung who migrate to Tangerang have strong ties to the origin place and want to return back home when they became married and have children. Being married, women have more parties to negotiate with about migrating, as they also have to negotiate with their husband. The male, however, rarely has to negotiate with their wife. Only one man, out of the 32 men interviewed, reported that his spouse influenced his migration and only two of them expressed that the decision was a joint decision with their spouse. Although, when a wife is tied to the place of origin, the husband migrates temporarily or seasonally, leaving their wife and children in the place of origin between each migration. The phenomenon appears in the origin villages of Ciamis, Selayar and Muara Enim.

Job and Social Networks in Destination

The main reason for migrating for the respondents was to work at the destination, accounting for 67% of the ever-migrated respondents.[3] However, they would not migrate if there was not a promise of employment in the destination place. Figure 2.1 shows the prerequisites of migration. For all of our respondents, the most important prerequisite of migration is promised employment at the destination. The job security may not be guaranteed if the potential migrants or their family do not have any reliable contacts and networks at the destination. Both the job guarantee and the social network are more important than a higher wage in the employment at the destination. Hence, migration in Indonesia is more than the wage differential between origin and destination that Harris and Todaro (1970) suggested.



Source: Own calculation from own primary data collection.

FIGURE 2.1: Prerequisite of migration

Since ethnic identity is a big part of the social network in Indonesia, it is an important determinant of the individual migration decision. Auwalin (2019) argues that an individual associated with an ethnic group with higher mobility has a higher propensity to migrate. Some ethnicity, such as Minangkabau and Bugis, are known for their higher out-migration rate. Migration has been a big part of their culture and tradition. The Minangkabau's matrilineal society conditions the adolescent male to out-migrate (Naim, 1973). One of the study sites of Perapau village in Muara Enim, South Sumatera has a similar cultural situation, as the eldest daughter is reserved for the "*Tunggu Tubang*" tradition. The sons envisage

[3]Ever-migrated respondent refer to all respondents who migrated before, either migrants or return migrants

themselves as being able to out-migrate from the village, mainly to Lampung, where there is an enclave of people from Perapau.

Because of its importance as a prerequisite of migration, the migration network determines the destination of the migrants and the migrants' occupations. The out-migrants from Maparah village, Ciamis, have migrated to Bandung, where an extensive network of Maparah's vegetable traders in Bandung have been established for generations. This is similar to the case of central Java migrants in Bitung, who are predominantly traders in Bitung and migrants from Talaud working as construction workers. In Rami Pasai village Javanese migrants come because their relatives were already in the transmigration programme in that area. In Bekasi, the migrants are more established, and their network spread over the Jakarta metropolitan, which includes Depok and Tangerang. There was no enclave of migrants based on ethnicity in Bekasi, at least in the two communities in the sample.

The out-migrants in Selayar migrate to Batam, Kepulauan Riau in Sumatra which is about 2,000 km away. Their behaviour is an exception for the law of migration that most migrants move only in short distance (Ravenstein, 1885). The reason for Batam as a destination may relate to the conflict in the 1960s in Makassar and surrounding, as Hugo (2006) suggested. Although, an elder in Selayar has a slightly different story:

> *"In Batam, there are many people from Selayar. People start to migrate in the 1960s. The elders migrated to Batam due to the head tax that was imposed. From that time, most people from Selayar go to Batam to migrate and join their relatives there"*-Pak S.[4]

The importance of job guarantees and social networks not only determines the destination of the migrants but also skills transfer among the migrants. Children are also more likely to follow the career path of their parents than create their own career. The young migrants started their career as a helper to their parents or relatives. They learned the skills associated with this work before starting on their own enterprise. One example among the interviewees is the son of a welder. He migrated to Bekasi for five years with his father and uncle and trained to be a welder and now has work as a welder. Similar stories were obtained from migrants in Bitung working as traders, migrants from Selayar as fishermen working on commercial fishing boats, migrants from Ciamis as vegetable traders and migrants from Muara Enim working as coffee growers in Lampung. This shows an intergenerational employment persistence between parents and their children: an issue that we will explore more in chapter 5.

[4]Pak is salutation for men, a reduced form from a word Bapak.

2.4.2 Migration Experience: Life in the Destination and Place of Origin

The experience of migration of most respondents ever migrated was mainly positive. They did not report any experience of being excluded due to their status as migrants. Although, we need to view the reported lack of social exclusion with some caution, as there may be some reporting bias. For our migrants, social exclusion was primarily related to economic status rather than migration status or different religious practices and ethnicities. The communities we visited in two destination areas of Bekasi and Bitung are lower-middle-class communities where there is a cohesion between different identities. In Bitung, the interaction between Muslims and Christians has been strong and without conflicts. In Bekasi, the response from a local of Betawi ethnic on whether he saw any different treatment or exclusion to migrants with different backgrounds was:

> *"Everyone in this community, local or migrant, do their best to earn money and take care of their family. We respect each other, and there is no different treatment for the migrants or the other way around"*.

Both migrants and locals repeat the importance of getting involved in the cultural and social activities in the community. Being part of the community helps understanding between distinct groups, which reduces the conflicts between migrants and locals. Most locals said that it takes at least a year for the local residents to consider migrants as a part of the community. About 85% of the local people identify the children of migrants as locals. In the high-density area of Bekasi, where most people are migrants, the integration process is not only of the migrants and the locals but also between the new migrants and old migrants.

Migrants who have been settled at the destination place see themselves as local people, in particular, if their children have grown up with the local children and they have adopted the local accent when speaking Bahasa Indonesia and are able to speak local languages. A central Javanese migrant in Bitung further adopted the custom of having a family name like the local people:

> *"My eldest son was protesting why he does not have a family name because the children in the school have a family name. I end up by attaching my husband's name for him and the rest of my children"*- Ibu T.

The migrants also do not have any difficulties in accessing public health and education facilities, even without the identification card of destination. However, they have to pay

a small amount of Rp.5,000 to access a public health centre (Puskesmas). In a rural area, the locals said that both education and health facilities had been better compared with the situation in the early 2000s. The availability of high school keeps the children at school and living with the parents longer, and this pushes their first migration to a later age.

Also, about 50% of the migrants perceive their socio-economic status similar to their peers in their place of origin. A quarter of the migrants consider they have a worse status, and another quarter think they are better off than their peers in the origin place. Their migration for most of the migrants are not uplifting their socio-economic status compared if they did not migrated.

Return Migration and Seasonal Migration

It was found that the migrants embarked on their first migration at 12–25 years old when unmarried. In most cases, they found their spouse at the migration destination (25 out of 99). The migrants then settled in the destination place with some moving back to their partners' origin place or their own village. The reason for the return migration is related to family assets or the responsibility of taking care of their parents (14 out of 21 respondents). The return migrants in the sample have less willingness to migrate, but were not opposed to the migration of their children.

In addition to the return migrants, seasonal migration is also part of the migration behaviour. The seasonal migrants are usually men who migrate for a short period and over a short distance. For some seasonal migrants who are construction workers, the dry season (June–August) is the best time to migrate. The construction work projects are more abundant in the dry season than in the rainy season.

Another reason for seasonal migration is the high cost of migration. It makes migrating with their spouse and children difficult for some migrants. A woman from Muara Enim suggests:

> *"I understood that it is hard and expensive to migrate as a family. It is easier for my husband to migrate alone and bring the money when he is back home"*-Ibu U.

Men in Muara Enim, Selayar and Ciamis also agree that bringing their family with them is not an option as it is too expensive, especially when the men are working as construction workers and as other daily labourers. In Ciamis, seasonal migrants to Bandung return fortnightly to their home base at their place of origin for a couple of days.

2.4.3 Education Investment and Intergenerational Mobility

Most migrant and non-migrant parents would like to support their children to the undergraduate level. Of the sample interviewed, 14 respondents indicated they would like to support the children to finish only high school. The central and local government programme for free or small tuition helps the parents to keep their children at school.[5] All respondents agreed that they have no preferences in educating their daughter or son. They also believe that there are no cognitive differences between male and female. They think females have the same opportunities compared to males. Hence, there are no gender preferences in education.

The interviewees' responses gathered in 2017 for this research study echo a study using data in the 1970s and 1980s. Oey-Gardiner (1991) suggests that it is education, not sex, that determines the proportion of formal sector employment. Hence the parents are 'as likely to send daughters as sons to school' (Oey-Gardiner, 1991). A more recent study also confirms that there is no 'son preference' even when the daughter has to move with their husband after marriage (Levine and Kevane, 2003). Their children's achievement in school is also a source of pride. In Perapau village, households showed off their children's school graduation certificates in their living room.

We asked respondents for their household expenditure on education in the last academic year for their school attending children. The spending on education is all the expenses related to the children's education, which includes their school fees (if any), any other related fees, school supplies and pocket money. In total, 160 children are still at school from the households in the sample. Table 2.4 shows the differences of mean education expenditure for different education levels in Rupiah. The total can be minimal due to no tuition fees, so the parents are only spending on school supplies and pocket money. Sometimes, the children do not bring any pocket money and take food to school instead, which was excluded in the calculation. Different local governments have different policies on school fees, which affecting education spending of the parents. In all areas, primary school is free but secondary, and high school fees varied.

Table 2.5 shows the average of total household expenditure on education. It shows that a household with an head of household or spouse who has ever migrated has a higher mean of education spending than the non-migrants. The difference is significant when excluding

[5]Central government provides budget for free education for six years of primary school. Some local governments with their own budget supports high schools resulting for free tuition or small tuition for the students in that school.

TABLE 2.4: Expenditure on Last Year of Education, in Million Rupiah

Education level	n	Mean	Std. Dev.	Min	Max
Kindergarten/early childhood	16	2.23	1.26	0.50	5.60
Elementary	59	2.37	2.64	0.42	18
Junior secondary	36	3.45	2.77	0.50	11.2
High school	42	7.02	5.31	0.60	23
College/diploma	1	10.00	.	10.00	10
Bachelor	6	9.77	5.16	4.50	18

Source: Author calculation from fieldwork data.

primary school spending as free education is provided at primary school level in all parts of Indonesia.

TABLE 2.5: Education Spending by Migration Status of the Head of Household or Spouse

	Obs	Mean	Std. Dev.	Min	Max
All					
Stayers	37	6.07	5.42	0	20.26
Ever migrated	61	7.90	8.19	0	32.6
t-test		-1.21			
Excluding primary					
Stayers	21	7.371	6.054	0	20.26
Ever migrated	39	10.81	8.79	0.36	32.6
t-test		-1.60*			

*** p<0.01, ** p<0.05, * p<0.1

Source: Author calculation from fieldwork data.

A higher expenditure on education for the people who have ever migrated implies that the migrants and return migrants keep their children longer at school, send them to better quality school and send their children away to a boarding school or to stay with relatives to advance their children's schooling.

> *"In this village, the quality of education is not good enough, there are many schools without accreditation. I am hoping for my daughter to go to Ciamis centre to get into public high school"*-Ibu K.

In Selayar, there is a pattern of sending the children to school outside the island to nearby Makassar, the province capital, or even to Java and Sumatera for higher education or boarding school. One of the respondents, Ibu M, reported that she sends two of her children stay in the religious boarding school (*pesantren*) in Java (cost her Rp. 8 million annually) and Sumatera (Rp.10.5 million annually). She has never migrated, but her husband is a return migrant and has obtained his university degree and has worked in Java. Other return migrant households in Selayar send their children to high school, and to study for a vocational diploma and a university degree in Makassar, aspiring to get a better education for their children.

Half of our respondents said that they have saved for their children's education. However, more migrants have savings for education than non-migrants. The respondents who had no savings for their children's education were asked how they obtain funding for education if they need a considerable amount of money, i.e. at the early academic year. Half of the respondents reported that they rely on their family and relatives, whilst some will borrow from their neighbour. None of the respondents in the sample would go to a formal financial institution such as a bank, but a few (five people) said they would go to an informal financial institution. The others will sell their assets to obtain funds, i.e. land and livestock.

2.5 Conclusion

This chapter gives context on migration in Indonesia by exploring migration history, the social norms that determine migration, life as a migrant, and investment in education. The findings show that the migration network and job guarantees are the most crucial factors. It determines the decision to migrate, destination and occupation of the migrants. There is also a sign of intergenerational occupational persistence between parents and children, in particular, the migrant father and their son. The young migrants follow the steps of their migrant parents or their relatives. Also, the skill transfer to the young migrants in the network results in a similar career path between the young migrants and their parents.

The social norms regarding gender difference still determine that men have less social restrictions on migration. The women need to negotiate more than men on their decision to migrate. In some places, the women are encouraged to stay in the origin place, where there is an institutionalised custom of keeping the eldest, and in one case the eldest daughter, to stay or return to their village to take care of parents and the family assets back home.

Most of the migrants in the survey sample have had a positive experience of their migration. In all the sites, there were no reports of any systematic discrimination or exclusion in accessing public services for the migrants. Although, people may have some bias in reporting only their positive experience. However, both locals and migrants have similar ideas of integration by participating in social events in their communities. The local people consider that a year living in their community is enough to adopt the migrants as locals and the children of migrants are also considered as locals. This shows social cohesion between the migrants and the locals both in more mixed ethnicities destinations and homogeneous ethnicity origins.

Both the migrants and the locals have aspirations for their children to have better education than themselves and there were no expressed son preference in education. People believe that both sons and daughters should have the same job opportunities and have the same cognitive ability. This finding confirms previous studies on gender and education that found no son preference in Indonesia. The people who have ever migrated spent more on their children education than stayers. The difference is significant for secondary education.

In chapter 5, we look deeper into the importance of ethnicities for getting a better skilled job and intergenerational occupational mobility. We also examine the education and labour mismatch in different ethnic groups. The mismatch within the ethnic migration network would shed light on the return to education and migration.

Chapter 3

Intergenerational Mobility of Internal Migrants' Children in Indonesia

3.1 Introduction

Internal migration represents a significant share of population mobility in Indonesia, involving almost 30 million lifetime migrants (Handiyatmo, 2012). In comparison, international out-migration from Indonesia is relatively smaller as it involved around only 349 thousand people in 2017 (UNDESA, 2017). Approximately 3.3 million of these internal lifetime migrants are children aged 0–14 years old (Handiyatmo, 2012). The children are affected by this migration both in the short and long run and have no say in their parents' migration. Suwandinata (2012) suggests that when it comes to household choices, whilst parents are the main decision-makers on food and consumption within the household children are often seen by the parents as influencers. Moreover, some children are left behind when their parents migrate. Beazley, Butt, and Ball (2018) argue that left-behind children in Lombok have no choice but to accept their parents' migration despite their strong feelings on the matter. Lam and Yeoh (2018) present similar findings suggesting that children have a lack of voice, although some succeed in persuading their parents to return home. This chapter inquires whether past parental migration during the children's childhood benefits those children when they reach adulthood and whether there is less intergenerational per capita expenditure persistence among the children of the migrants. These questions have been scarcely explored in the current literature.

The impact of parents' migration on children depends predominantly on how migrant and non-migrant parents invest in their children's human capital. Perceived improved access

to higher-quality schooling can be a driver of parents' migration. Klein (2011) suggests that investment in children's human capital can be a key driver of migration, besides the rural-urban wage differential. If parents aspire to move for better investment in their children's education, then parental migration may benefit children in the future. Also, Long (1972) shows that the number and age of the children influence US parents' decisions to migrate. The parents are more mobile when children are under six years old, indicating that once children enter school the family is less likely to migrate. These findings indicate that human capital investment is a determinant of parental migration and that parents' choice to migrate has a positive impact on children's welfare when adults.

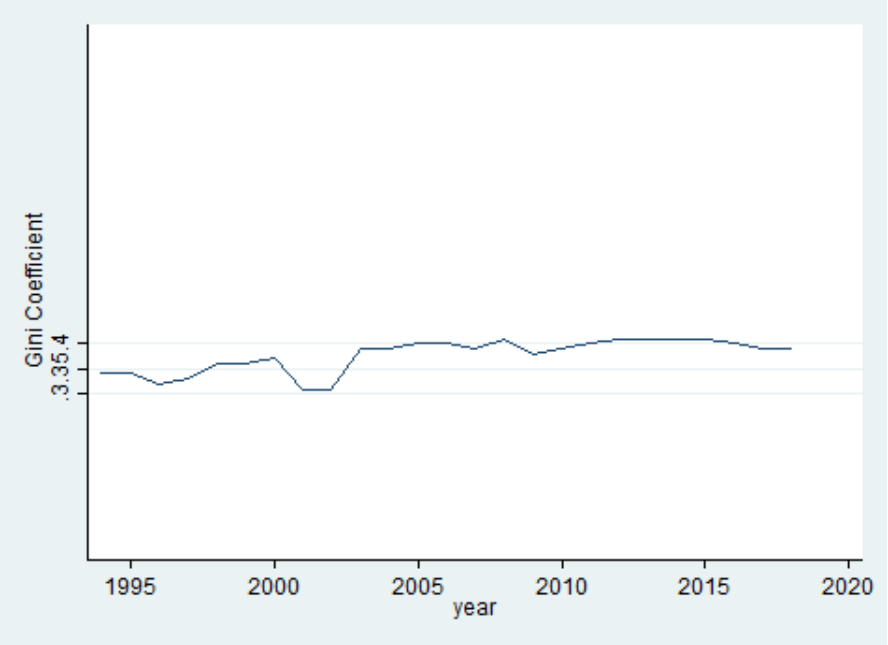
In this chapter, we investigate the long-term impact of parents' migration during their children's childhood on the future outcomes of their children when adults. In particular, we examine how parents' migration affects their children's per capita expenditure as an indicator of intergenerational mobility. We also explore the mechanisms that might explain this relationship, in particular, education. In this chapter, 'children' refers to children of migrants and non-migrants at the time of their adulthood.

This chapter contributes to the scarce literature on the impact of parental migration on children's future outcomes. Notably, in a developing country setting these studies are rare, which is in part due to limited data availability. This chapter fills the gap in the literature exploring the long-term impacts of migration of the previous generation. It differs from earlier studies that compared the migrants' socio-economic status with their non-migrant parents (Long and Ferrie, 2013) and the non-migrant siblings (Beegle, de Weerdt, and Dercon, 2011) in rural areas.

The chapter is organised as follows: section two provides an overview of Indonesia's inequality and migration. Section three examines the literature on intergenerational mobility and migration, followed by a theoretical framework and overview of the data in section four and the empirical strategy in section five. Section six describes our findings, section seven explores the mechanisms, and section eight describes the robustness checks. The last section concludes, providing suggestions for future research.

3.2 Background: Indonesia's Individual Inequality and Migration Profile

Over 24 years from 1994 to 2018, Indonesia's Gini coefficient remained between 0.3 and 0.4 points (see Figure 3.1). The Gini coefficient showed a steady increase during the 1990s before dropping to 0.31 over 2001 and 2002 following a period of financial and political instability. However, inequality increased to 0.39 in 2003, just higher than the previous level high of 0.37 in 2000. Since then, individual inequality has stayed reasonably constant over the following 15 years.



Source: Gini coefficients for the years 1994 to 2011 from Kuncoro and Murbarani (2016) who refer to Statistic Indonesia (BPS) in their chapter. Official data from BPS are used for the remaining years. The Gini coefficient is calculated by BPS using annual SUSENAS data.

FIGURE 3.1: Gini coefficient in Indonesia, 1994–2018

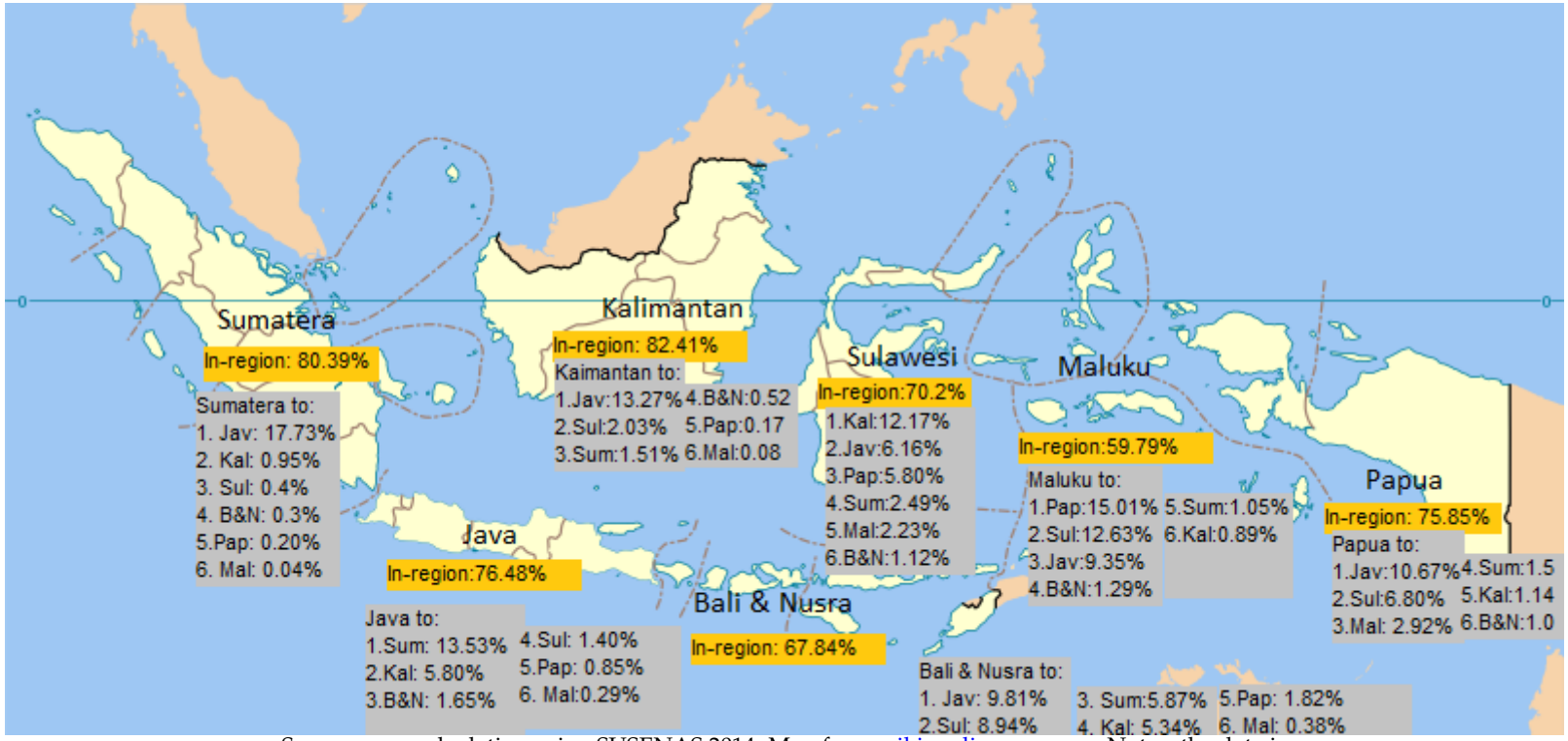
The relationship between inequality and intergenerational mobility is famously captured by Corak (2013) and described as the "Great Gatsby Curve". Using cross-sectional data across 22 countries, he finds that those countries with higher income inequality have more intergenerational persistence and less intergenerational mobility. If Indonesia follows a similar pattern as this curve, then the persistence of this level of individual inequality indicates that there may be intergenerational persistence rather than intergenerational mobility.

Stark (2006) suggests that relative deprivation positively related to the Gini coefficient and the Gini coefficient correlates positively with migration. This relationship implies that people from

a region with high inequality tend to migrate to a more equal region. Inequality in this case is the cause of migration between regions. In the Indonesian context, Java and Bali have more within inequality than the rest of the islands in the period 2002–2004 (Suryadarma et al., 2006) and in 1996 (Akita, 2003). However, when we divided Indonesia into its seven major islands, population mobility in Indonesia predominantly occurs within the same region rather than between regions. Ravenstein's law of migration that posits most migration is short distance therefore holds true for Indonesia.

Using the 2014 National Socio-economic Survey (SUSENAS), Figure 3.2 shows migration flows between and within the seven major regions. The migrants mainly migrate within a region.[1] When they migrate to other regions, they migrate more to neighbouring islands, such as Java and Kalimantan. The figure also shows that Java is still a major destination for people from other regions. This is again in line with Ravenstein's law of migration that the economic and industrial centres are the primary destinations for long-distance migrants. If we look at inter-island migration, the highest percentage of non-Java migrants migrate out of their island to Java, with Sulawesi and Maluku as exceptions. More migrants inter-regionally migrate to Kalimantan if they were born in Sulawesi, and to Papua if they were born in Maluku.

[1]Statistic Indonesia record two types of migration, lifetime migration and recent migration. We use lifetime migration in which define by people who were born in different districts (Kabupaten) to those where they currently live, in the seven major regions in Indonesia



Source: own calculation using SUSENAS 2014. Map from wikimedia commons. Notes: the data is within and between regions migration in Indonesia from total migrants' population of 45,354,892 people. Nusra refers to West and East Nusa Tenggara

FIGURE 3.2: Migration flows of Indonesian regions, 2014

3.3 Relevant Literature

3.3.1 Intergenerational Mobility and Migration

In economics, intergenerational mobility is defined as the transmission of earnings from one generation to the next (Borjas, 1992; Peters, 1992). In addition, occupation (Borjas, 2006; Long and Ferrie, 2013) and consumption (Beegle, de Weerdt, and Dercon, 2011) can also be used to measure intergenerational mobility. Becker and Tomes (1979) explain how the mechanism of the transmission of parental income to the earned income children is through human capital investment. The available literature on both social and intergenerational mobility focuses on international migration rather than internal migration. This is due particularly to developed countries having more data available and because South–North immigration is both economically and politically a critical issue. Some of these studies focused more on assimilation and acculturation of immigrants in destination communities.

A number of papers have explored intergenerational mobility in the USA and provide mixed findings. Borjas (1992) studied second-generation migrants in the USA and how ethnicity impacted skills transmission and intergenerational mobility. He found that the differences in income and education persist across generations. This persistence has been shown to relate not only to ethnicity but also to parents' occupation. Kim (2006) looked at the children of Korean immigrants in the US, and found that being a child of Korean entrepreneur immigrants limits education and occupational choices, leading to downward intergenerational mobility. The direction of intergenerational and social mobility for international migrants can also depend on structural economic changes in the destination country (Borjas, 2006; Dribe, Helgertz, and Putte, 2015) and on the investment in skills and education of the migrants (Heckman and Mosso, 2014).

In Europe, using German socio-economic panel data, Dustmann (2008) found that immigrants's children have lower intergenerational mobility than native children. Hammarstedt and Palme (2012) studied the earnings of second-generation immigrants in Sweden and found that there is overall higher intergenerational mobility in this context. However, different groups of migrants have different rates of intergenerational mobility depending on differences in their group human capital transmission. Also, proficiency in host country language is important for education investment (Nielsen and Rangvid, 2012; Smith, Helgertz, and Scott, 2016).

Few studies have investigated the impact of internal migration on intergenerational mobility.

Long and Ferrie (2013) examined 19th-century rural-urban migration in Great Britain when the industrial revolution saw labour from agricultural jobs in the rural areas move to manufacturing jobs in cities. The study found that there was upward intergenerational occupational mobility among migrants in 1881, compared with their father's occupations in the place of origin in 1851. On average, people from all socio-economic strata who moved to the city were substantially more successful in improving their socio-economic status than they would have been had they remained in rural areas, and they were more likely to experience an upward intergenerational occupational mobility. In another study, Krishna (2013) found that children in 14 Bangalore slums experienced intergenerational persistence as they followed their father's occupations. As residents of the slums are mainly migrants, the study implies that the migration of poor parents may result in intergenerational persistence instead of upward intergenerational mobility.

The current empirical findings show that internal migration has a positive impact on the social mobility of the migrants. Beegle, de Weerdt, and Dercon (2011) evaluated the impact of rural to urban migration in Tanzania, using siblings and relatives as counterfactuals for measuring the effects of people's decision to migrate. They found that per capita consumption increased 36% for migrants in comparison with rural stayers, implying the upward social mobility of the migrants. They also found that the destination mattered; migrants who moved to a more connected area have higher returns than those in less connected areas. However, even moving to the less connected areas resulted in higher growth in consumption. A study of rural-urban migration in Vietnam confirms a similar positive relationship between migration and social mobility. Nguyen, Raabe, and Grote (2013) found that the resulting higher income growth both helps the migrants out from poverty, as well as improving the poverty situation of rural stayers.

The literature on internal migration suggests that migrating leads to higher consumption growth and that migrant parents have more resources and can invest more in their children than those who stay. It also shows that investment in human capital can be a mechanism through which the impact of migration on intergenerational mobility is channelled.

3.3.2 Intergenerational Mobility and Migration: Indonesia

There are only a limited number of empirical studies that can help us to build an initial hypothesis of the relationship between migration and intergenerational mobility in Indonesia. Intergenerational persistence is evident for children from more impoverished families across

the country (Pakpahan, Suryadarma, and Suryahadi, 2009), although there is no information on whether poor migrants' children are better off than non-poor migrants' children. Sumner, Yusuf, and Suara (2014) show that rural Indonesians who work in agriculture have a 90% probability of remaining poor. However, in general, there is a decline in the intergenerational correlation of education for the cohort groups born in 1943–1956 and 1976–1980 due to the benefits of widespread investment in education during the Soeharto era (Levine and Jellema, 2007).

Studies have also shown that migration can play a role in breaking intergenerational persistence. Resosudarmo et al. (2009) show that urban migrants' households have a higher income and lower probability of falling into absolute poverty than local urban residents. In another study, the higher social status of the migrants results in a higher propensity to climb the social ladder, as the poor migrants have fewer opportunities than more prosperous migrants to experience upward mobility (McCulloch, Weisbrod, and Timmer, 2007). Resosudarmo and Suryadarma (2014) also find that migrants' children in urban areas spend on average three more years at school than similar children in rural areas. The study shows that migrants' children have more human capital investment than non-migrants' children, which may result in less intergenerational persistence. However, the left-behind children of migrants have lower educational attainment than those who live with their parents. Although, Lu (2014) suggests there is a better height-for-age of children left behind of internal migrants.

All of these studies suggest that migration can be a way to promote upward social mobility both for the migrants as well as for their children.

3.3.3 Intergenerational Mobility Mechanism

The theory on intergenerational mobility is closely related to the theory of human capital investment, as the past human capital investments of the previous generation have an impact on the earnings of the current generation. Becker et al. (2015) suggest that intergenerational income elasticity is equal to the intergenerational transmission of human capital. They argue that persistence in intergenerational mobility in the top income group is due to the fact that they invest more in human capital on average than their poorer counterparts.

The investment in human capital is even more critical in the early years of life for shaping and forming skills in later years (Heckman and Mosso, 2014). Not only human capital investment, but also other events that happen in the early years of the children's lives, health and early

education, have consequences in adulthood. Almond and Currie (2011) summarise the empirical evidence of the importance of early life human capital investment, although they do not directly include parental migration as one of the variables having an impact on the early years of the children.

The human capital theory treats migration as an investment, with the decision to migrate based on income differences and the assumption that the income at the destination must be higher than the income at the origin after taking into account the migration cost (Yezer and Thurston, 1976), and suggests that the returns of migration can be a source of investment in the children of migrants. Lu (2014) finds that in Indonesia parental migration has a positive impact on left-behind children's height-for-age, although she found a reverse result in Mexico. These mixed results are in line with Bucheli, Bohara, and Fontenla (2018) who find that in Ecuador remittances have a stronger positive effect on secondary school enrolment with regard poor urban males children, and a negative effect on to poor rural female children whilst for wealthier children it has negative or non-significant effects.

However, the potential long-term benefits of migration can also be, at least partially, offset by negative impacts on the children who also migrated along with their parents or who were left behind. There is an extensive literature on left-behind children, and it highlights both negative psychological and health impacts as well as increases in child labour. Fellmeth et al. (2018) in their systematic review and meta-analysis of 111 studies, of which 91 were conducted in China, show that left-behind children are at higher risk of depression, anxiety, suicide, conduct disorder, substance use, wasting and stunting compared with the children of non-migrants. They, however, find no differences in other nutritional outcomes, diarrhoea, abuse and unintentional injury. Hagan, MacMillan, and Wheaton (1996) argue that children who migrated along with their parents may also experience negative psychological and health impacts due to being uprooted from their support system in the original community. Further, they suggest that these negative impacts are more pronounced for children with uninvolved fathers or unsupportive mothers. The impacts of parental migration are mixed in different locations. In China, left-behind children are more prone to be child labourers as they spend more time on agricultural and domestic activities when their parents are away. The impact is higher for left-behind girls than left-behind boys (Chang, Dong, and MacPhail, 2011). However, in El-Salvador, parental migration reduces child wage labour upon the receipt of remittances from the parents (Acosta, 2011).

3.4 Theoretical Framework

The economic literature studies intergenerational mobility and migration separately. The migration literature discusses the causes of migration, which explain the self-selection of migrants, whilst the literature on intergenerational mobility discusses parents' investment in their children. We combine both theories to answer our research questions.

Intergenerational social mobility consists of the transmission of parents' social status to the children's social status. The classic theory of intergenerational mobility in a simple Markov model (Black and Devereux, 2011) is presented below:

$$Ln(Y_i) = \beta Ln(Y_j) + \epsilon_i \tag{3.1}$$

where Y_i is the social status of the children and Y_j is the social status of the parent. Economics literature uses income as a measure of social status; this study uses per capita expenditure as a proxy for income. The coefficient β is the intergenerational elasticity $(0 < \beta < 1)$ which means higher intergenerational persistence if the coefficient is closer to 1 and higher intergenerational mobility if the coefficient is closer to zero.

The path and mechanism of this transmission is explained by Becker and Tomes (1979) by suggesting that the wealth of the child as an adult (Y_i) is determined by the income of the parents (Y_j), the wage level of the children when adults (w_i), the children's endowment (ϵ_i), and their luck (u_i) in the labour market. Hence, the parents' demand function of children's income shows:

$$\begin{aligned} Y_i &= \alpha(1 + r_j)Y_j + \alpha w_i \cdot \epsilon_i + \alpha w_i \cdot u_i \\ &= \beta Y_i + \alpha w_i \cdot \epsilon_i + \alpha w_i \cdot u_i \end{aligned} \tag{3.2}$$

where, $\beta = \alpha(1 + r_j)$, showing the intergenerational elasticity as the proportion of what parents spend on their children (α) and the rate of return per generation $(1 + r_j)$.

In this chapter, we introduce parents' migration M_j to the intergenerational mobility framework. We propose that past parental migration affects children's income as adults Y_i and the effect of parental income Y_j on their children's income is conditional on their migration:

$$Y_i = \beta Y_j + \gamma M_j + \delta Y_j.M_j + \alpha w_i.\epsilon_i + \alpha w_i.u_i \tag{3.3}$$

The issue is that parents do not migrate randomly. The literature on migration has long discussed the determinants of migration; one of the earliest studies is Ravenstein's law of migration (Ravenstein, 1885), which acknowledges the determinants of migration such as distance and economic opportunities as pull factors. Later, neo-classical economists emphasised the excess of labour in the agricultural sector (Lewis, 1954), and wage differences in rural and urban sectors (Ranis and Fei, 1961; Harris and Todaro, 1970) as the main drivers of rural-urban migration. At the individual level, the non-randomness of the migrants is due to different levels of education (Chiquiar and Hanson, 2005; Kaestner and Malamud, 2014) and skills (Borjas, Bronars, and Trejo, 1992). In section 3.5.3, we will explain how we deal with the parent's self-selection into migration.

3.5 Empirical Strategy

3.5.1 Data

The Indonesian Family Life Survey (IFLS) is our primary source of data. The IFLS sampling design is representative both at the national and district level. We also use migration data from census and inter-census surveys of Statistics Indonesia and, in addition, weather data from the National Oceanic and Atmospheric Administration in order to explain some aspects of migrants' self-selection.

In addition to the quantitative data, the qualitative data gathered by the author in 2017 is also included in the analysis. Semi-structured interviews were conducted for this purpose in five different districts, two urban and three rural, with 99 respondents of migrants and non-migrants. This qualitative data informed the quantitative model specification and the interpretation of our results.

The IFLS is a longitudinal survey in Indonesia covering 13 out of 27 provinces (in 1993) collecting information at both household and individual level. It has more than 30,000 respondents, and it represents 83% of the population. IFLS has been conducted in five waves (1993, 1997, 2000, 2007, and 2014) with 87.6% of original IFLS 1 households being interviewed in all five waves. In our analysis, we use individual information on migration and individual characteristics and household information on household expenditure.

The IFLS data enable us to match each parent with their children who have been interviewed in the survey rounds. We observe all adults, who are more than 15 years old and whose parents are interviewed, in each wave of the survey so that we have a data set of adults and their

parents from all five waves. The 15-year-old benchmark follows the criteria of the Statistics Bureau of Indonesia, which defines people of working age as 15 years old and above. We define parents' migration as migrating out of the district when children were less than 15 years old. Retrospective data on individual migration enable us to trace parents' migration in the year when the children as adults were under 15 years old.

Although the IFLS is a longitudinal survey, we pooled the data as our observations are of adults older than 15 years old who matched with at least one of their parents. Past parental migration, in this case, is a time-invariant variable. Hence, for the purpose of our analysis, it is necessary to use a repeated cross-section instead of panel data.

TABLE 3.1: Observations Interviewed for x Times

	Times the observations appeared					
Year	1	2	3	4	5	Total
1993	703	444	767	878	1,100	3,892
1997	591	743	1,011	1,228	1,100	4,673
2000	890	1,032	1,691	1,467	1,100	6,180
2007	1,200	1,960	1,222	1,452	1,100	6,934
2014	3,130	1,647	934	995	1,100	7,806
Total	6,514	5,826	5,625	6,020	5,500	29,485

Source: Author's calculation, IFLS 1993–2014

TABLE 3.2: Number of Parents - Children Pairs

	All children		Left-behind children	
	Daughter	Son	Daughter	Son
Father	9,507	10,176	628	670
Mother	13,436	13,479	892	879

Source: Author's calculation, IFLS 1993–2014

The IFLS data have some limitations. First, there is some attrition because some observations could not be tracked over time. Table 3.1 shows how many times the observations appeared in the survey waves. In our sample, 1,100 observations (5,500 in total) repeatedly appear in each wave. Weights provided by the IFLS are used to deal with differences in sampling design and attrition.

Second, although the IFLS migration record identifies whether the parents migrated with children, it does not specify which children. However, it is assumed the children are left behind when the parents migrated without any of their children. Hence, we can differentiate the impact on all the children sampled and the children who were left behind compared with the children from non-migrant parents. Table 3.2 shows the number of parents-children pairs for all the children and the left-behind children in all of the IFLS years.

The literature on intergenerational mobility mainly focuses on males, looking at the relationship between son's, father's and grandfather's income (Olivetti, Claudia; Paserman, Daniele; Salisbury, Laura, 2013). The reason why studies on intergenerational mobility primarily focus on males is due both to the availability of the data and the assumed importance of the father as the main breadwinner in many migrant households. The longitudinal nature of IFLS data allows us to match mother-child pairs as well as father-child pairs. In this way, the research does not miss out the children who only have a mother in the survey. Also, some mothers or fathers have separate migration histories and may have not migrated together.

The IFLS survey observes grown-up children and their parents at five points in time over 21 years. The period of the survey provides different points in the parents' and children's lifecycles, creating bias. In order to eliminate lifecycle bias, we predict both parents' and children's permanent expenditure fixing their age at 40 years old. In this way, the household per capita expenditure of the children and their parents will be comparable. In the identification strategy section, we explain in more detail how we tackle the lifecycle bias issue.

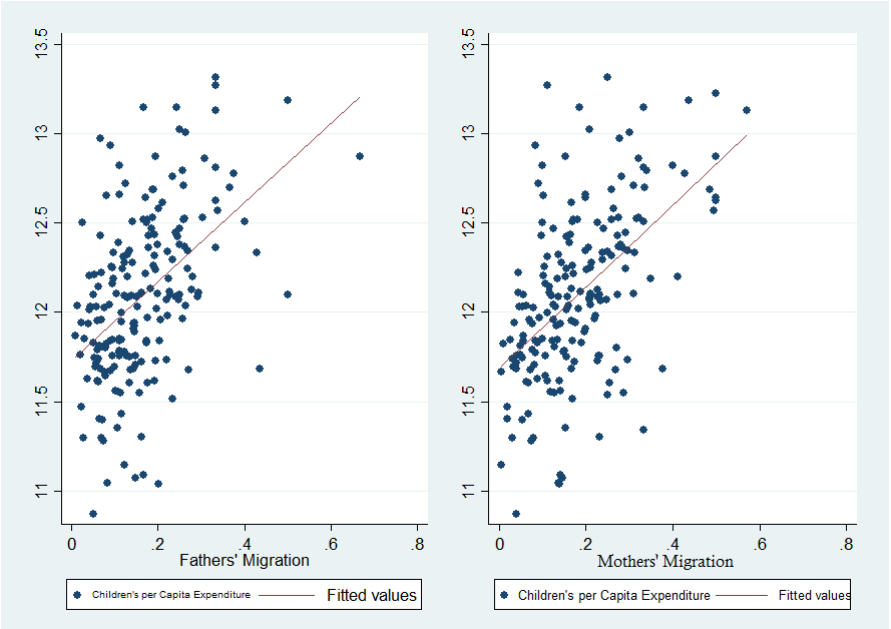
Table 3.3 shows a simple mean difference between inflation-adjusted per capita expenditure and the predicted per capita expenditure at age 40 according to their parents' migration status. The table shows that the children and their parents have significantly higher household per capita expenditure (both real and predicted at age 40) if the parents migrated than if the parents stayed. It suggests the selection of migration where migrated parents had more resources than those who stayed. Table 3.3 also shows possible benefits of parental migration on children's per capita expenditure.

Figure 3.3 also shows that children who live in districts with a higher share of migrated parents have higher household per capita expenditure at 40 years old. The x-axis in Figure 3.3 shows the mean of parental migration at the district level, and migrated parents over the total number of parents in that district. Meanwhile, the y-axis shows the mean of children's log of household per capita at the district level. Both Table 3.3 and Figure 3.3 indicate that parents' migration is positively correlated with children's per capita expenditure.

TABLE 3.3: Inflation-adjusted Weekly per Capita Expenditure (in Rupiah) by Migration Status of the Parents in All IFLS Waves

	Obs	Mean
Child's per capita expenditure		
Parents migrated	5,798	96,882
Parents stayed	22,880	76,203
t-stat		-17.549***
Child's predicted permanent per capita expenditure at age 40		
Parents migrated	5,798	208,513
Parents stayed	22,880	186,901
t-stat		-18.078***
Father's per capita expenditure		
Migrated	5,868	59,940
Stayed	23,617	40,414
t-stat		-21.436***
Father's predicted permanent per capita expenditure at age 40		
Migrated	4,354	115,697
Stayed	15,296	99,672
t-stat		-14.139***
Mother's per capita expenditure		
Migrated	5,868	71,907
Stayed	23,617	54,608
t-stat		-18.735***
Mother's predicted permanent per capita expenditure at age 40		
Migrated	5,439	85,711
Stayed	21,433	71,504
t-stat		-14.670***

Source: Author's calculation, IFLS 1993–2014



Source: Own calculation using IFLS waves 1-5 data.

FIGURE 3.3: Parents' migration and children's log of household per capita expenditure at the age of 40 by district

Table 3.4 shows the mean difference of the covariates in a different estimation. We regress the covariates that we use in our regressions on the migration variable to calculate the difference and the associated standard error between the migrants' and stayers' children. The stars refer to significant differences in the covariates between different groups. Table 3.4 indicates that the parents who migrated are slightly younger than the parents who stayed, from provinces with a higher out-migration rate and with more negative weather shocks, and migrated parents are more often born in urban areas than parents who stayed.

The covariates for outcome equations relating to children's characteristics are mainly balanced, although children from fathers who migrated are significantly older compared with the children of fathers who stayed. We can also see that the children left behind from mothers who migrated are from a bigger average household size than those from mothers who stayed. Children from migrant parents are currently living more frequently outside Java and in rural areas compared with children from non-migrant parents. This suggests that there is a heterogeneous effect of the current residency of the children to the outcome.

TABLE 3.4: Mean Differences of Covariates from Different Estimations

	Father: All samples			Father: The left-behind			Mother: All samples			Mother: The left-behind		
Variables	Stayer	Migrate	Difference	Stayer	Migrate	Difference	Stayer	Migrate	Difference	Stayer	Migrate	Difference
Household size	5.822	5.891	0.068	5.822	6.057	0.235*	5.862	5.908	0.046	5.862	6.090	0.228**
	(2.713)	(3.013)	(0.084)	(2.713)	(3.189)	(0.129)	(2.761)	(2.891)	(0.069)	(2.761)	(2.905)	(0.103)
Children's HH with child age 6-10 y.o	0.429	0.447	0.019	0.429	0.454	0.025	0.434	0.462	0.028*	0.434	0.485	0.051**
	(0.607)	(0.638)	(0.019)	(0.607)	(0.652)	(0.029)	(0.617)	(0.652)	(0.015)	(0.617)	(0.652)	(0.023)
Children's HH with child age 11-14 y.o	0.362	0.400	0.038**	0.362	0.413	0.051*	0.364	0.384	0.019	0.364	0.430	0.066***
	(0.580)	(0.612)	(0.018)	(0.580)	(0.601)	(0.027)	(0.587)	(0.604)	(0.015)	(0.587)	(0.622)	(0.022)
Children being male	0.493	0.531	0.038**	0.493	0.472	-0.020	0.483	0.508	0.025**	0.483	0.458	-0.025
	(0.500)	(0.499)	(0.015)	(0.500)	(0.500)	(0.023)	(0.500)	(0.500)	(0.012)	(0.500)	(0.499)	(0.019)
Children's age	27.047	27.795	0.748***	27.047	27.928	0.881**	29.655	29.839	0.184	29.655	29.551	-0.104
	(8.181)	(8.417)	(0.250)	(8.181)	(8.742)	(0.385)	(9.972)	(9.288)	(0.243)	(9.972)	(9.211)	(0.367)
Children live in urban areas	0.476	0.571	0.095***	0.476	0.524	0.048**	0.483	0.600	0.117***	0.483	0.594	0.110***
	(0.499)	(0.495)	(0.015)	(0.499)	(0.500)	(0.023)	(0.500)	(0.490)	(0.012)	(0.500)	(0.491)	(0.018)
Children live in Java	0.607	0.549	-0.058***	0.607	0.601	-0.005	0.614	0.516	-0.098***	0.614	0.578	-0.036**
	(0.489)	(0.498)	(0.015)	(0.489)	(0.490)	(0.023)	(0.487)	(0.500)	(0.012)	(0.487)	(0.494)	(0.018)
Quintile on children's HH per capita expenditure	3.055	3.323	0.268***	3.055	3.243	0.188***	2.988	3.355	0.367***	2.988	3.290	0.301***
	(1.399)	(1.389)	(0.043)	(1.399)	(1.411)	(0.066)	(1.394)	(1.363)	(0.034)	(1.394)	(1.386)	(0.052)
Parent's birthplace, urban areas=1	0.205	0.276	0.071***	0.205	0.241	0.037*	0.213	0.288	0.075***	0.213	0.265	0.052***
	(0.403)	(0.447)	(0.012)	(0.403)	(0.428)	(0.019)	(0.409)	(0.453)	(0.010)	(0.409)	(0.441)	(0.015)
Parent origin district negative precipitation shock	2.238	2.443	0.206***	2.238	2.350	0.112	2.283	2.518	0.235***	2.283	2.490	0.207**
	(2.289)	(2.322)	(0.070)	(2.289)	(2.443)	(0.108)	(2.353)	(2.462)	(0.059)	(2.353)	(2.466)	(0.088)
Parents origin province outmigration rate	21.563	23.732	2.169***	21.563	23.260	1.697**	21.744	23.950	2.207***	21.744	22.638	0.894
	(16.823)	(18.736)	(0.521)	(16.823)	(16.952)	(0.788)	(16.848)	(19.712)	(0.429)	(16.848)	(18.233)	(0.628)
Parents' age	56.936	56.230	-0.706**	56.936	55.611	-1.324**	54.810	53.067	-1.743***	54.810	51.376	-3.434***
	(11.441)	(10.770)	(0.345)	(11.441)	(11.045)	(0.534)	(12.680)	(11.475)	(0.308)	(12.680)	(10.839)	(0.465)
Number of Observations	6,895	1,281	8,176	6,895	489	7,384	9,322	1,989	11,311	9,322	790	10,112

Source: Author's calculation, IFLS 1993-2014

*** p<0.01, ** p<0.05, * p<0.1

3.5.2 Estimation Strategy

In order to estimate the impact of parent's migration on their children's intergenerational mobility, we use an endogenous treatment regression (ETR) model. Heckman (1976) introduced the sample selection model, which was expanded by Maddala (1986) by deriving both the maximum likelihood and the control function of the model. The model allows both unobservables affecting the treatment and the potential outcome to have a specific correlation structure. The model is a variant of Heckman's selection model which observed both migrants' and stayers' regimes. It addresses self-selection issues and estimates treatment effects as being a migrant or a stayer is non-randomly allocated.

The endogenous treatment-regression model consists of an outcome equation Y_i and an endogenous treatment equation M_j, where M = 1 when parents migrated, where Z is a vector of selection variables for parents' migration, j refers to the parents, and i refers to the children.

$$
\begin{aligned}
Ln(Y_i) &= \beta Ln(Y_j) + \tau M_j + \delta Ln(Y_j) * M_j + \lambda X_i + \epsilon_i \\
M_j &= \begin{cases} 1, & \text{if } \gamma Z_j + \mu_j < 0. \\ 0, & \text{otherwise.} \end{cases}
\end{aligned} \tag{3.4}
$$

Y_i is the children's household per capita expenditure and for parents it is Y_j; the β is the coefficient which captures intergenerational elasticity while δ represents the difference in intergenerational elasticity between the group of children whose parents migrated and those whose parents stayed. We used the standard practice in development economics, as using expenditure as income is noisy and subject to measurement error. X is a vector of control variables which includes household and individual characteristics of children when adults. We use the following variables in the selection equation of parents' migration when children are aged 0–14 years old: rural-urban information on the parents' birthplace; provincial out-migration rate of the place of the parents' origin (defined as the province where parents were living when they were 12 years old); precipitation shock in the district where parents lived when they were 12 years old; parents' age; and children's gender and age. Table 3.5 shows the definition of the variables we use for our estimations.

TABLE 3.5: Variables Definition

Variables	Definition
Log of household per capita expenditure	Log of household weekly total per capita expenditure for children when adults, father and mother. Total household expenditure is the inflation-adjusted (based on year 2010) weekly household expenditure on food and non-food items
Household size	Number of people who live in the household
Male	Dummy variable for gender, male = 1 female = 0
Number of children aged 6–10 years old in the household	Total number of children aged 6–10 years old in the children's household
A household with child aged 11–14 years old	Total number of children aged 11–14 years old in the children's household
Age	Age at the survey year
Migration	Dummy variable migration = 1, when parents migrated across districts at least once when the child was 0–14 years old
Parents' birthplace	Dummy variable urban = 1, using the information on whether the birthplace was rural or urban
Negative precipitation shock	The sum of the event of negative precipitation shock at the parents' origin district when the parents were 12 years old
Out-migration rate	Out-migration rate of the province where the parents lived when they were 12 years old. The data is from Statistics Indonesia (BPS), calculation of provincial out-migration from census and inter-census survey

3.5.3 Identification Strategy

The reason for using per capita expenditure instead of income is because of sample selection bias and reporting bias in income data. Sample selection bias in income data happens when we exclude people who do not have income from the sample. Reporting bias also commonly occurs in income data due to job informality and missing data as some respondents do not agree to report their income.

As we are interested in studying the intergenerational expenditure elasticity, we aim at eliminating the lifecycle bias in household per capita expenditure of both children and their parents. As there are age differences between children and parent pairs, comparing their household per capita expenditure at different points of their life results in bias. In order to make them comparable, we predict permanent household per capita expenditure at age 40 years old, following Dustmann (2008). The method involves averaging per capita expenditure over several years. It also allows the inclusion of individuals with a minimal number of expenditure data points (Dustmann, 2008).

$$Ln(Y_{1i,t}) = \alpha_1 + \alpha_2 Age_{i,t} + \alpha_3 Age^2_{i,t} + v_i + ui, t \tag{3.5}$$

We then predict equation 3.5 at the age of 40 years old. Haider and Solon (2006) suggest that current income from the early thirties to mid-forties generally provides an unbiased estimate of lifetime income. By fixing the age at a certain point, we can compare the children and their parents at the same point in their life.

The endogeneity of the migration comes from the non-randomness of migration. The endogenous treatment regression allows us to capture the self-selection to migrate. The concept of selection variables is similar to instrumental variables, where there should be at least one variable affecting the self-selected decision to migrate but not the outcome variables.

We based the choice of the selection variables on the information from our exploratory qualitative survey that undertaken in 2017. The main determinant of the decision to migrate is the network in the destination; more people living outside the migrants' districts of origin will pull others to move. This is similar to the findings of Hare (1999) in her work on migration in China. We used the out-migration rate in the province when parents were 12 years old as a proxy for the peer effect as well as the migration network. The weather in the origin areas is also one of the push factors of migration where people from areas with low precipitations are pushed to migrate. This was true of the migrants interviewed in Bitung. Many had come from the Talaud Islands, where drought had often occurred. We used the number of negative precipitation shocks in the district when the parents were 12 years old. Precipitation shock is a push factor as the weather shock may push people to migrate. We calculate the precipitation shock using the method used by Amare et al. (2018).

In addition to external factors such as the weather and migration network, individual differences affect parents' decisions to migrate, such as age (Hare, 1999) and birthplace. Being born in an urban or a rural place correlates with their propensity to migrate. van Lottum and Marks (2012) highlight the importance of urban primacy as a determinant of internal migration in Indonesia. We rely on parents' reported information in the survey to distinguish the status of their birthplace as rural or urban at the time they were born.

We also include the gender of the children and their age in the selection equation as determinants of parental migration. Children's age contributes to the decision to migrate, since parents, where the family has children of school age, are less likely to migrate (Nivalainen, 2004; Antman, 2012). Having daughters in the household lead to a smaller increase of propensity to return to the origin, whilst having a son increases the propensity to stay in the destination (Dustmann, 2003).

The exclusion restriction in the selection equation is likely to be valid as the variables we chose do not directly affect the children's household per capita expenditure. Parents' birthplace, weather shock and out-migration rate at the parents' place of origin are not affecting the children's household per capita expenditure in adulthood but affect the parental migration selection. The exclusion restriction of the outcome variables in the selection equation is also valid as the children's outcomes should not determine parents' past migration.

3.6 Findings

3.6.1 All Samples

We find that parents' migration has a significant positive impact on their children's future household per capita expenditure for both child-father and child-mother pairs (see Table 3.7). However, we find no significant differences in intergenerational mobility across children of the migrants and the stayers.

TABLE 3.6: Intergenerational Elasticity Coefficient and Parental Migration

Dep.Var: children's ln household per capita expenditure	dy/dx	Std. Err.	[95% Conf.	Interval]
Intergenerational elasticity				
Father's log of per capita expenditure	0.586	0.0149	0.557	0.616
Mother's log of per capita expenditure	0.607	0.013	0.581	0.632
Migration				
Father migrated = 1	0.580	0.086	0.411	0.749
Mother migrated = 1	0.709	0.067	0.577	0.841

Source: Author's calculation, IFLS 1993–2014

The table shows average marginal effects of parents' log of per capita expenditure and migration on the children's log of per capita expenditure

As we interact the parents' migration variable with their log of per capita expenditure, we cannot directly interpret the impact of migration from the variables' coefficients in Table 3.7. We use margins to understand the average marginal transmission of parents' log of per capita expenditure on their children's log of per capita expenditure. The intergenerational elasticity coefficient, regardless of the parents' migration status, shows a slightly higher transmission of household expenditure in child-mother pairs than child-father pairs. The average marginal predictions of intergenerational elasticity for the child-father pairs is 0.586 and for child-mother pairs is 0.607 (see Table 3.6). The numbers are similar to the intergenerational elasticity in the endogenous treatment regression, given that the interaction variable with parental migration is not significant.

Our intergenerational expenditure elasticity coefficient is higher compared with other countries. The study by Chen, Ostrovsky, and Piraino (2017) in Canada found an intergenerational elasticity coefficient of 0.29. Solon (1999) listed intergenerational earnings elasticities from previous studies which range from 0.11 in Germany to 0.68 in the UK, whilst the only less developed country listed was Malaysia with a coefficient of 0.26 (Solon, 1999, Table 5, p.1768). The number, however, is not comparable because of different measurements of the earnings. Bruze (2018) suggests that intergenerational persistence from expenditure data is higher than from income data. Using the Danish Expenditure Survey (DES), he shows that intergenerational expenditure elasticity between parents and their children is at 0.418, a higher than intergenerational income elasticity at 0.208.

The Ordinary least square (OLS) result also suggests that parent's migration does not affect children's intergenerational mobility, even if it does not account for parents' self-selection into migration (see Table 3.7). We find that the interaction between the parents' migration and parents' household per capita expenditure is not statistically significant.

In order to understand better, Figure 3.4 shows, for the children whose parents migrated and stayed, the average differences in children's log of per capita expenditure over the distribution of the average changes in parents' log of per capita expenditure. The graphs show that the children of parents who migrated have better per capita expenditure than the children of parents who stayed. The parallel slopes, however, showing that both have similar intergenerational elasticity. This suggests that parental migration is unable to promote intergenerational mobility for all children in the sample. We found identical patterns for both child-father and child-mother pairs because the children of parents who migrated have higher per capita expenditure than those of the parents who stayed.

TABLE 3.7: Impact of Parents' Migration on Children's per Capita Expenditure and Intergenerational Expenditure Elasticity: Endogenous Treatment Estimations on Child-Father Pairs and Child-Mother Pairs

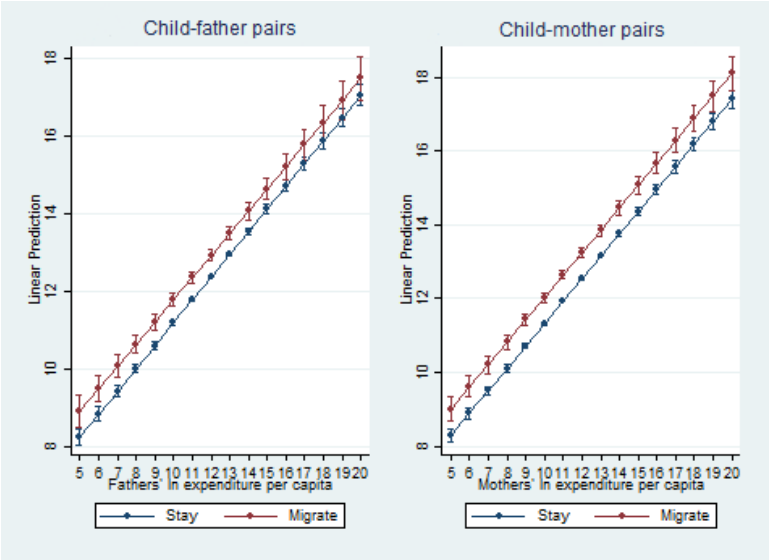
	(1)	(2)	(3)	(4)
	OLS		Selection	
Dep. var: children's ln household per capita expenditure	Father	Mother	Father	Mother
Parents' ln household per capita expenditure (excap)	0.597***	0.613***	0.589***	0.608***
	(0.015)	(0.012)	(0.016)	(0.014)
Parents' migration	0.380	-0.028	0.759*	0.722**
	(0.366)	(0.299)	(0.404)	(0.337)
Interaction: parents' migration and excap	-0.023	0.014	-0.016	-0.001
	(0.031)	(0.026)	(0.035)	(0.029)
Household size	-0.117***	-0.113***	-0.119***	-0.113***
	(0.004)	(0.004)	(0.005)	(0.004)
Household with child aged 6–10 years old	0.066***	0.065***	0.068***	0.065***
	(0.011)	(0.009)	(0.013)	(0.010)
Household with child aged 11–14 years old	0.073***	0.076***	0.068***	0.071***
	(0.011)	(0.009)	(0.012)	(0.010)
Male	0.003	-0.010	-0.011	-0.029*
	(0.016)	(0.014)	(0.018)	(0.016)
Age	-0.017***	-0.029***	-0.019***	-0.032***
	(0.004)	(0.003)	(0.005)	(0.003)
Age^2	-0.000	0.000**	-0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	6.079***	6.287***	6.152***	6.312***
	(0.189)	(0.149)	(0.214)	(0.175)
Selection to migration				
Parents' birthplace, urban = 1			0.229***	0.279***
			(0.058)	(0.046)
Negative weather shocks when parents' 12 y.o			0.023**	0.008
			(0.011)	(0.009)
Out-migration rate when parents' 12 y.o			0.002	0.002**
			(0.001)	(0.001)
Parents' age			0.037*	-0.012
			(0.022)	(0.015)
Parents' age^2			-0.000**	-0.000
			(0.000)	(0.000)
Male			0.106**	0.043
			(0.054)	(0.046)
Age			-0.007	0.049***
			(0.018)	(0.013)
Age^2			0.000	-0.000*
			(0.000)	(0.000)
Constant			-2.004***	-1.255***
			(0.508)	(0.327)
/athrho			-0.429***	-0.580***
			(0.088)	(0.077)
/lnsigma			-0.470***	-0.460***
			(0.016)	(0.016)
Year effects	yes	yes	yes	yes
Province effects	yes	yes	yes	yes
Observations	10,768	14,900	8,211	11,377
R-squared	0.555	0.581		
F	150.6	383.5	123.9	173.9
Lambda			-0.253	-0.330
Converged			1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at household level and all samples are weighted.

Variables definition refer to Table 3.5



Source: Own calculation from IFLS 1–5 data.
The figure shows predictive margins of parents' migration on children's log of per capita expenditure, averaged over distribution of parents' log of per capita expenditure

FIGURE 3.4: Intergenerational mobility and migration: all sample

3.6.2 Left-Behind Children

In this section, we use a subsample from the observations in our main regression. The subsample is of the children whose parents migrated at least once without any of the children and the children whose parents stayed. We exclude observations where parents are recorded as having migrated with children. In this case, we compare the left-behind children with the children whose parents did not migrate. We assume that the children are left behind if their father or mother migrated alone.[2] Table 3.8 shows the endogenous treatment regression results of child-father and child-mother pairs.

We find that the fathers' migration has a significant impact on the children left behind but not the mothers' migration. Further, the fathers' migration promotes intergenerational mobility for the children left behind. This is shown by the significant negative coefficient of interaction variable between parents' migration and parents' log of per capita expenditure in child-father pairs. The intergenerational elasticity is the same in the sub-sample and the full sample for child-father pairs, whilst slightly less in the subsample of left-behind children for child-mother pairs.

[2]This assumption is because IFLS provides information if the father or the mother migrate with children but does not give any specific information on which children.

TABLE 3.8: Impact of Parents' Migration on Left-behind Children's per Capita Expenditure and Intergenerational Expenditure Elasticity: Endogenous Treatment Estimations on Child-Father Pairs and Child-Mother Pairs

	1	2
Dep. var: children's ln household per capita expenditure	Father	Mother
Parents' ln household per capita expenditure (excap)	0.589***	0.604***
	(0.016)	(0.014)
Parents' migration	1.641***	0.767
	(0.598)	(0.508)
Interaction: parental migration and excap	-0.105*	-0.008
	(0.054)	(0.045)
Household size	-0.121***	-0.116***
	(0.005)	(0.004)
Household with child aged 6–10 years old	0.071***	0.069***
	(0.014)	(0.011)
Household with child aged 11–14 years old	0.070***	0.074***
	(0.013)	(0.011)
Male	0.013	-0.015
	(0.019)	(0.017)
Age	-0.019***	-0.031***
	(0.005)	(0.003)
Age^2	-0.000	0.000***
	(0.000)	(0.000)
Constant	6.192***	6.709***
	(0.215)	(0.331)
/lnsigma	-0.243***	-0.472***
	(0.077)	(0.081)
/athrho	-0.489***	-0.492***
	(0.016)	(0.014)
Province effects	Yes	Yes
Year effects	Yes	Yes
Selection equation	Yes	Yes
Observations	7,384	10112
F	1547	448.1
Lambda	-0.146	-0.269
Converged	1	1

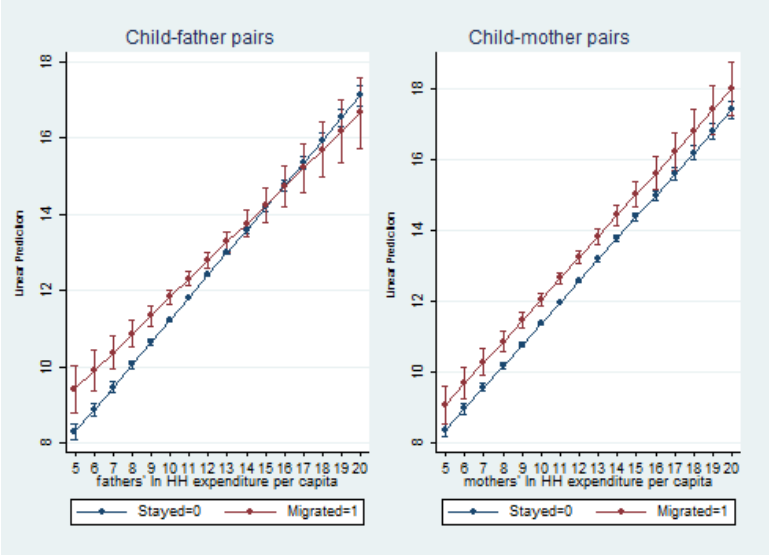
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at household level and all samples are weighted.

Variables definition refer to Table 3.5

Figure 3.5 shows more clearly the different intergenerational mobility for the children left behind when their father migrated and the children whose father stayed. It also shows that the left-behind children of a father with a lower household per capita expenditure benefited from migration but not the children of a father with a higher household per capita expenditure. Meanwhile, the parallel slopes for child-mother pairs show no significant impact of migration on intergenerational mobility, but it does show that the left-behind child from the migrated mother has better household per capita expenditure.



Source: Own calculation from IFLS 1-5 data.
The figure shows predictive margins of parents' migration on children's log of per capita expenditure, averaged over distribution of parents' log of per capita expenditure

FIGURE 3.5: Intergenerational mobility and migration: left-behind children

3.7 Heterogeneous Effects

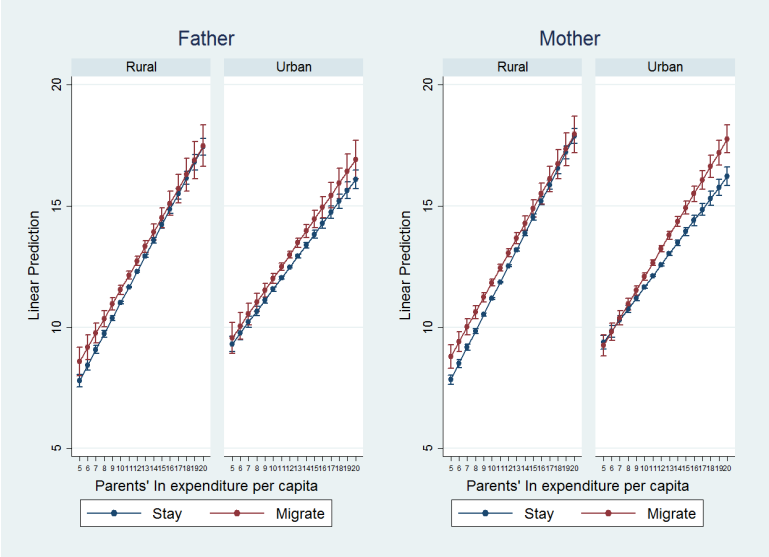
We introduce some heterogeneous effects by interacting parents' migration and parents' per capita expenditure (in logarithm) with dummy variables that define whether children as adults are living in urban areas, are living in Java, belong to different quantiles of household per capita expenditure, working in agricultural or non-agricultural sectors, and migrated as child. Table 3.9 and Table 3.10 show the regression results of each heterogeneous effects.

The results show that being in an urban area benefits children (see Table 3.9 column (1) and (2) and Figure 3.6). In rural areas, we find that both father's and mother's migration benefits children whose parents have lower household per capita expenditure but not children whose parents have higher household per capita expenditure. Conversely, in urban areas, children

of parents with lower per capita expenditure benefit less from parent's migration. Being in an urban area instead promotes higher intergenerational mobility for children regardless of parental migration.

Similarly, living in Java leads to the children being more intergenerationally mobile than residing outside Java (see Table 3.9 columns (3) and (4) of interaction being in Java and parents' household per capita expenditure). However, all the coefficients related to parents' migration are not statistically significant. The figure also shows a parallel line between children from parents who migrated and stayed showing that there is no difference in the impact of migration if we take into account the effect of children currently living in Java or outside Java (see Figure 3.7).

We find that children currently working in the agricultural sector have lower per capita expenditure and lower intergenerational mobility (see Table 3.9 columns (5) and (6)). But parental migration does not seem to explain this differential (see Figure 3.8). The result, however, is in line with grown-up children having higher household income when living in an urban area.



Source: Own calculation from IFLS 1–5 data.
The figure shows predictive margins at CI 95% of parents' migration by children being in urban or rural areas on children's log of per capita expenditure, averaged over distribution of parents' log of per capita expenditure

FIGURE 3.6: Heterogeneous effect: living in urban or rural areas as adults

TABLE 3.9: Effects by Children's Current Residence and Agriculture Work

	(1)	(2)	(3)	(4)	(5)	(6)
	Urban		Java		Agriculture work	
Dep. var: Children' ln Household per capita expenditure	Father	Mother	Father	Mother	Father	Mother
Parents' ln household per capita expenditure (excap)	0.643***	0.670***	0.640***	0.644***	0.438***	0.474***
	(0.020)	(0.017)	(0.023)	(0.022)	(0.026)	(0.022)
Parents' migration (migration)	1.039*	1.256***	0.671	0.714	1.028	0.568
	(0.578)	(0.483)	(0.556)	(0.483)	(0.658)	(0.563)
Interaction: parents migration × excap	-0.050	-0.060	-0.012	-0.001	-0.037	0.001
	(0.052)	(0.044)	(0.048)	(0.043)	(0.056)	(0.049)
Variable of interest	2.381***	2.577***	1.002***	0.732**	-1.636***	-1.562***
	(0.361)	(0.307)	(0.364)	(0.317)	(0.487)	(0.401)
Interaction: var. interest × excap	-0.189***	-0.215***	-0.070**	-0.050*	0.119***	0.117***
	(0.031)	(0.028)	(0.031)	(0.028)	(0.043)	(0.037)
Interaction: var. interest × migration	-0.959	-1.964***	0.291	0.111	-1.280	0.048
	(0.890)	(0.660)	(0.782)	(0.658)	(1.149)	(0.957)
Interaction: var. interest × excap × migration	0.086	0.173***	-0.019	-0.009	0.100	-0.005
	(0.077)	(0.059)	(0.068)	(0.058)	(0.102)	(0.087)
Constant	5.532***	5.626***	5.575***	5.918***	7.981***	7.872***
	(0.248)	(0.192)	(0.288)	(0.255)	(0.341)	(0.268)
/athrho	-0.373***	-0.481***	-0.437***	-0.584***	-0.403***	-0.438***
	(0.088)	(0.079)	(0.088)	(0.077)	(0.106)	(0.099)
/lnsigma	-0.501***	-0.500***	-0.470***	-0.459***	-0.447***	-0.458***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.021)	(0.021)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Province effects	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,175	11,310	8,176	11,311	4,324	6,281
k	62	62	62	62	62	62
F	127.9	175.0	122.6	162.6	149.4	209.6
rho	-0.356	-0.447	-0.411	-0.525	-0.382	-0.412
sigma	0.606	0.606	0.625	0.632	0.639	0.632
lambda	-0.216	-0.271	-0.257	-0.332	-0.245	-0.261
selambda	0.0271	0.0204	0.0245	0.0174	0.0421	0.0339
converged	1	1	1	1	1	1

Regression on working in agricultural sector is using sub-sample of employed observation. Hence much smaller number in the observations
Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
Standard errors are clustered in household level and all samples are weighted.
variables definition refer to table 3.5

TABLE 3.10: Effects by Expenditure Quantile and Individuals Who Migrated as Child

	(1)	(2)	(3)	(4)
	Quantile of expenditure		Migrated as child	
Dep. var: children's ln household per capita expenditure	Father	Mother	Father	Mother
Parents' ln household per capita expenditure (excap)	0.429***	0.502***	0.609***	0.618***
	(0.04)	(0.03)	(0.02)	(0.02)
Parents' migration (migration)	1.620**	0.693	0.426	1.134***
	(0.72)	(0.78)	(0.50)	(0.41)
Interaction: parents' migration × excap	-0.141**	-0.059	0.014	-0.041
	(0.07)	(0.08)	(0.04)	(0.04)
Interaction: being in quantile 2 × excap	-0.362***	-0.421***		
	(0.04)	(0.04)		
Interaction: being in quantile 3 × excap	-0.376***	-0.448***		
	(0.04)	(0.03)		
Interaction: being in quantile 4 × excap	-0.396***	-0.466***		
	(0.04)	(0.03)		
Interaction: being in quantile 5 × excap	-0.393***	-0.464***		
	(0.04)	(0.04)		
Interaction: being in quantile 2 × migration	-1.523*	-0.525		
	(0.78)	(0.83)		
Interaction: being in quantile 3 × migration	-1.782**	-0.644		
	(0.75)	(0.80)		
Interaction: being in quantile 4 × migration	-1.638**	-0.679		
	(0.74)	(0.79)		
Interaction: being in quantile 5 × migration	-1.853**	-1.107		
	(0.85)	(0.85)		
Interaction: being in quantile 2 × excap × migration	0.140*	0.051		
	(0.07)	(0.08)		
Interaction: being in quantile 3 × excap × migration	0.163**	0.064		
	(0.07)	(0.08)		
Interaction: being in quantile 4 × excap × migration	0.149**	0.067		
	(0.07)	(0.08)		
Interaction: being in quantile 5 × excap × migration	0.170**	0.104		
	(0.08)	(0.08)		
Interaction: migaschild × excap			-0.085**	-0.044
			(0.04)	(0.04)
Interaction: migaschild × parents' migration			1.063	-1.431
			(1.13)	(0.93)
Interaction: migaschild × parents' migration × expcap			-0.09	0.124
			(0.098)	(0.082)
Constant	7.371***	6.846***	6.026***	6.271***
	-0.375	-0.334	-0.572	-0.352
/athrho	-0.125***	-0.180***	-0.432***	-0.518***
	-0.043	-0.053	-0.093	-0.087
/lnsigma	-1.263***	-1.280***	-0.477***	-0.478***
	-0.025	-0.022	-0.017	-0.017
Year effects	yes	yes	yes	yes
Province effects	yes	yes	yes	yes
Control variables	yes	yes	yes	yes
Selection equation	yes	yes	yes	yes
Observations	8,211	11,377	6,991	9,847
F	976	1330	127	138.3
Lambda	-0.0351	-0.0495	-0.252	-0.295
Converged	1	1	1	1

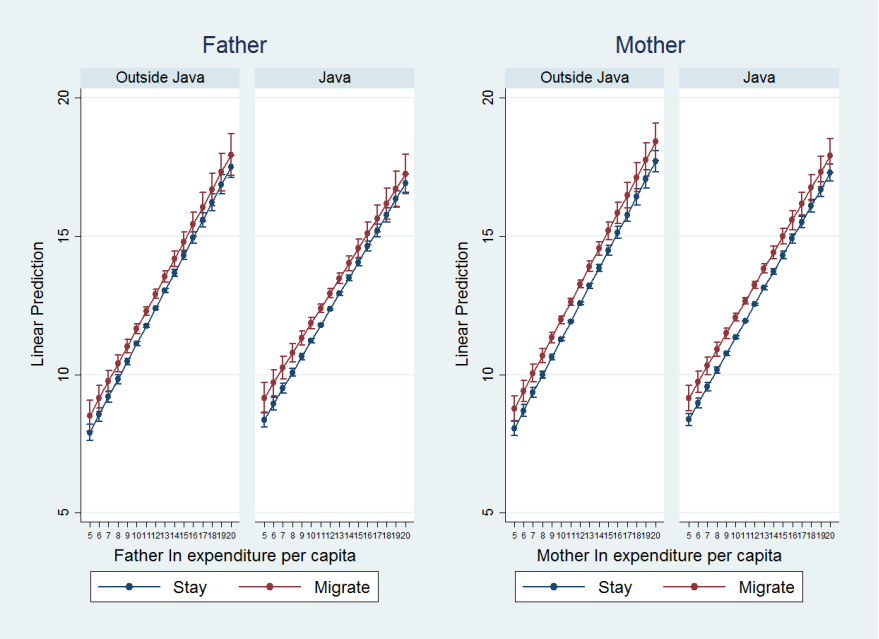
Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

The quantile is taken from the whole respondents in the survey for each wave, not only our matched children.

Children migrated is our adult observations for whom their birthplace is different to the place they lived in when they were 12 years old.

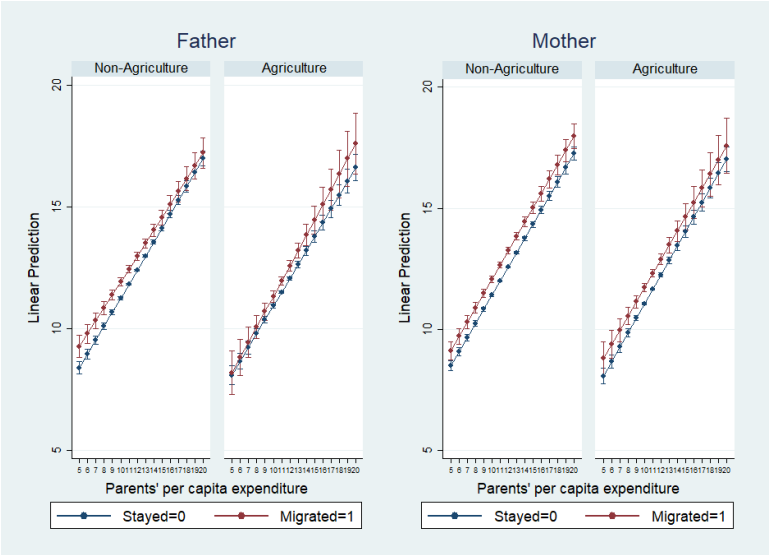
Standard errors are clustered at household level and all samples are weighted.

Variables definition refer to Table 3.5



Source: Own calculation from IFLS 1–5 data.
The figure shows Predictive margins at CI 95% of parents' migration by children being in Java and outside Java on children's log of per capita expenditure, averaged over distribution of parents' log of per capita expenditure

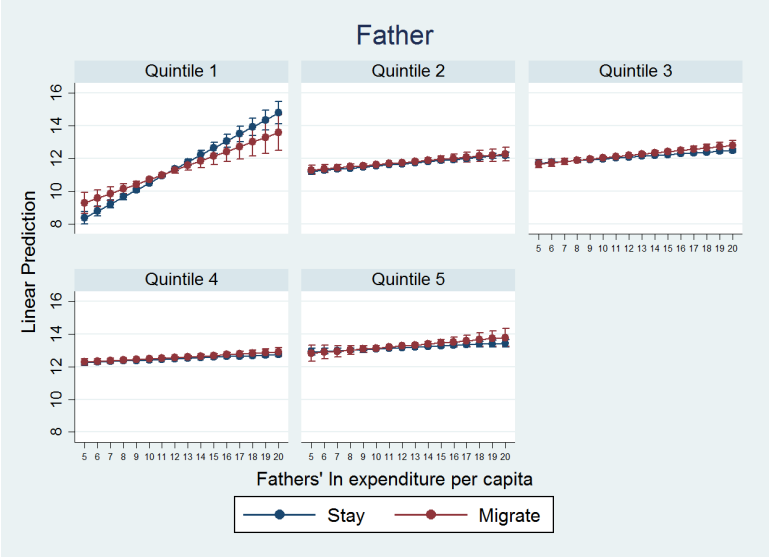
FIGURE 3.7: Heterogeneous effect: living in Java and outside Java as adults



Source: Own calculation from IFLS 1–5 data.
The figure shows predictive margins at CI 95% of parents' migration by children working in agricultural and non-agricultural sectors on children's log of per capita expenditure, averaged over distribution of parents' log of per capita expenditure

FIGURE 3.8: Heterogeneous effect: working in agricultural sector as adults

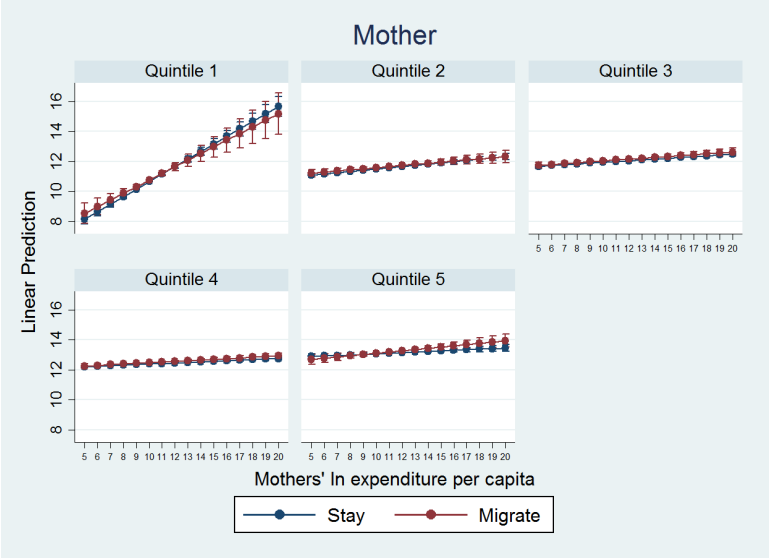
The different effects of parental migration by children's household expenditure quantile status only mattered when the father migrated. The differences in the first quantile mainly determine this difference. Figures 3.9 and 3.10 show that if the father migrated, the children from the poorest quantile have more intergenerational mobility compared with the children of non-migrant fathers from the same group. In the higher quantile groups, the lower slope shows more intergenerational mobility than the poorest quantile. However, overlay lines show that parental migration does not have any effect on intergenerational mobility and that there is even the same level of children's per capita expenditure regardless of parents' past migration for people from the second to the fourth quantile, the middle class. Children in the first quantile benefited from parental migration if their parents were also poor. The children from the wealthiest quantile slightly benefit from their parents' migration if their parents are also rich.



Source: Own calculation from IFLS 1–5 data.
The figure shows predictive margins at CI 95% of fathers' migration by children's expenditure distribution on children's log of per capita expenditure, averaged over distribution of fathers' log of per capita expenditure

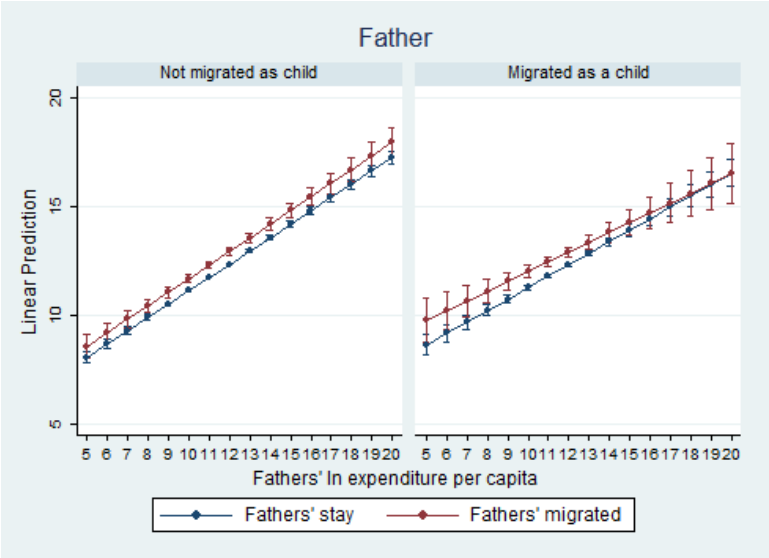
FIGURE 3.9: Heterogeneous effect on father's migration: position in expenditure distribution as adults

We also look at the migration of the children at the age of 0–12 years old as the IFLS provides the information. The children are coded as migrated during that age if the birth district is different from the district where they live at 12 years old. However, the children who stayed during the age of 0–12 years old and had parents who had migrated can be different from our children left behind. As we define children left behind if their father or mother migrated at least once without any of the children when the children were aged 0–14 years old. Hence, the



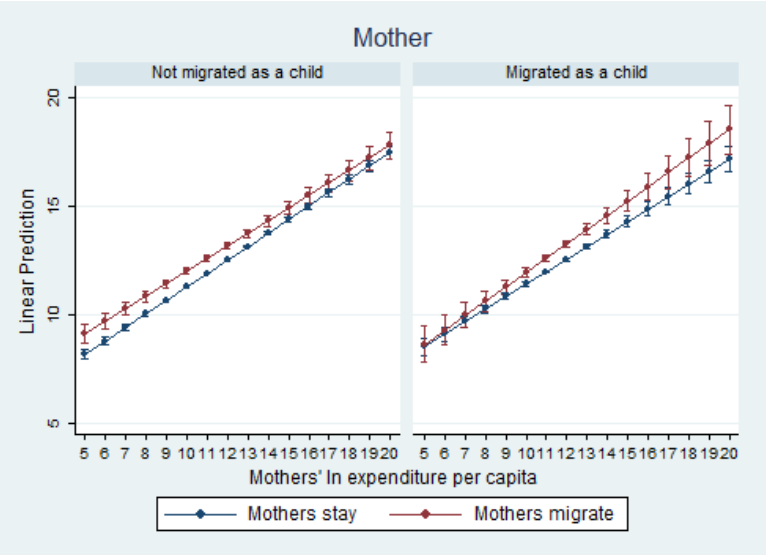
Source: Own calculation from IFLS 1–5 data.
The figure shows predictive margins at CI 95% of mothers' migration by children's expenditure distribution on children's log of per capita expenditure, averaged over distribution of mothers' log of per capita expenditure

FIGURE 3.10: Heterogeneous effect on mother's migration: position in expenditure distribution as adults



Source: Own calculation from IFLS 1–5 data.
The figure shows predictive margins at CI 95% of fathers' migration across children's migration status at age 0–12 y.o on children's log of per capita expenditure, averaged over distribution of fathers' log of per capita expenditure

FIGURE 3.11: Heterogeneous effect on father's migration: children's migration status at age 0–12 y.o



Source: Own calculation from IFLS 1–5 data.
The figure shows predictive margins at CI 95% of mothers' migration by children's migration at age 0-12 y.o on children's log of per capita expenditure, averaged over distribution of mothers' log of per capita expenditure

FIGURE 3.12: Heterogeneous effect on mother's migration: children's migration status at age 0–12 y.o

children who stayed but parents were identified as migrated along any of the siblings are not identified as children left behind.

We find that children who migrated at the age of 0–12 years old and had a father who also migrated are more intergenerationally mobile than those whose fathers did not migrate, although the benefit of fathers' migration is similar for children whose fathers have higher per capita expenditure (Figure 3.11). The mother-child pairs showed a similar story when children did not migrate when they were 0-12 years old. However, children who migrated and whose mother also migrated appear to be less mobile than if mothers stayed (Figure 3.12). The contrary is true when looking at father-child pairs.

3.8 Mechanisms

We test three mechanisms that can explain the impact of migration on children's per capita expenditure and their intergenerational mobility. The three mechanisms are parents' investment in education, the children's migration when adults, and the children working in agriculture when adults.

We found that children whose fathers migrated have on average four additional years of

education than those whose fathers stayed. Similarly, children whose mothers migrated have four additional years of education compared to the children whose mothers stayed (see Table 3.11). The educational attainment of children left behind is similar to the one with the whole sample with rounding to four years' more schooling than the children of stayers.

The finding on education is consistent with the results from previous studies. The magnitude of this finding is similar to the Resosudarmo and Suryadarma (2014) study that uses data from Rural-Urban Migration in China and Indonesia (RuMiCI). They found that permanently migrating as a child adds 4.5 years of schooling. Antman (2012) also found a positive relationship between parental migration and children's educational attainment. She discovered that the fathers' migration to the US from Mexico added a year of educational attainment of the left-behind girls.

Looking at the effect of parental migration on the propensity of children to migrate, children of a migrant father migrate twice as often in their adulthood than those whose father stayed. The mother's migration does not affect children's migration movements when adults. These findings can be explained within the context of the patriarchal Indonesian society. Even in adulthood, approval from the parents, especially their father, is important. This approval is even institutionalised for aspiring international migrant workers, as they need to provide a parental letter of approval to officials (Hugo, 1995).[3] Fathers who experienced migration tend to allow their children to migrate as well as to facilitate their children's migration network. Our semi-structured interviews confirm that migrant parents are more lenient regarding their adult children's migration than those who never migrated. Prejudice about destinations and migration risks were the reasons behind parents' negative responses. Hence, children migrated more if their father migrated as well.

Parental migration has also contributed to decreasing the probability that their children work in the agricultural sector compared to the children of the stayers. In this respect, the mothers' migration shows less impact than fathers' migration. These results are in line with our result on the children's completed years of education. Migrated parents invest more in their children's education, and they are more likely to encourage their children to migrate and, as a result, their children are less likely to work in the agricultural sector.

[3] In 2013 the government formalised a parental approval letter in Government Regulation no. 4 of 2013 which states that one of the required documents needed for an international migrant worker from Indonesia is letter of approval from their partners if they are married, and from their parents or guardian if they are not married.

TABLE 3.11: Mechanisms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Education				Migration as adult				Working in agriculture			
Variables	Father	Father LBC	Mother	Mother LBC	Father	Father LBC	Mother	Mother LBC	Father	Father LBC	Mother	Mother LBC
Parents' migration	4.296***	3.914***	4.547***	4.335***	1.705***	1.858***	0.037	0.090	-1.268***	-1.058*	-1.174***	-0.992***
	(0.431)	(0.664)	(0.378)	(0.613)	(0.056)	(0.061)	(0.074)	(0.345)	(0.286)	(0.547)	(0.162)	(0.345)
/lnatrho	-0.624***	-0.547***	-0.662***	-0.589***	-1.081***	-1.199***	0.031	-0.009	0.947**	0.569	0.804***	0.570**
	(0.074)	(0.108)	(0.069)	(0.106)	(0.074)	(0.075)	(0.036)	(0.173)	(0.421)	(0.417)	(0.186)	(0.257)
/lnsigma	1.275***	1.234***	1.277***	1.239***	0.125***	0.067***	0.005	0.001				
	(0.016)	(0.016)	(0.018)	(0.017)	(0.020)	(0.019)	(0.018)	(0.019)				
Province effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls on outcome equation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,039	7,255	11,035	9,855	8,241	7,441	11,410	10,194	8,241	7,441	11,410	10,194
F	50.33	137.9	77.26	165.7	72.48	141.4	35.03	134.9	223.3	115.0	244.1	163.5
Lambda	-1.984	-1.710	-2.079	-1.826	-0.900	-0.891	0.0307	-0.00884				
Converged	1	1	1	1	1	1	1	1	1	1	1	1

LBC is left-behind children

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Column (9)-(12) results using seemingly unrelated bivariate probit regression rather than endogenous treatment regression due to its bivariate outcome variable

Dependent Variable for (1)-(4) is children's complete years of schooling, column (5)-(8) is children's number of between district migration as adults, column (9)-(12) is children's working in agriculture as adults

Control variables are born in urban, age, being male, being in urban

Variables on selection equation is the same as the one in the main equation

Variables definition refer to Table 3.5

Standard errors is clustered in household level, samples are weighted

3.9 Robustness Checks

One concern we had was that being in the Indonesian capital of Jakarta and its most populous island Java could drive our results. To check for this, we run our estimates excluding people who live in Jakarta and Java and we found that the results are consistent with our main results, with a higher magnitude in the intergenerational elasticity coefficients (see Table 3.12, columns (1) to (4)). Another concern was that setting the predicted permanent per capita expenditure at the age of 40 years old may not reflect living conditions in Indonesia. We, therefore, estimate the same model specification with the log of permanent per capita expenditure at 30 years old and found a consistent result compared with our main result (see Table 3.12, columns (5) and (6)).

We also use individual income instead of household per capita expenditure. The number of observations is much smaller than using expenditure data because there is an issue of missing data as well as sample selection. The result is still consistent, although the intergenerational elasticity coefficients are much smaller than those with expenditure data, and the parental migration coefficients are not statistically significant (see Table 3.12, columns (7) and (8)).

We find similar consistent results in the interest variables of intergenerational elasticity coefficient and parental migration when adding parental education in the selection variables (see Table 3.12, columns (9) and (10)). We define parental education as father's or mother's years of schooling. The addition of parental education in the robustness check shows that excluding some parental variables in the selection to migrate will not affect our result. In our defence, it should be noted that the parental education data that we have is for the highest years of education at surveys but there is no information on the parental education before migration, especially if the parental migration happened before the survey years, then it may not precisely explain the self-selection to migrate.

We also use, as a robustness check, different definitions of migration. Instead of migration across districts, we check on migration across regions. We also redefine the across-districts migration by the type of origin and destination. We have a combination of across-districts migration from rural to urban, rural to rural, urban to rural and urban to urban. We use the information on urban and rural status at the place where the parents lived at age 12 years old as the place of origin, and the information of the place they migrated to as the destination.

TABLE 3.12: Robustness Check

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Excluding Jakarta		Excluding Java		Excap at 30 y.o		Income		Parental Education	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother	Father	Mother
Ln expenditure per capita (excap)	0.610***	0.626***	0.642***	0.651***	0.589***	0.722**			0.599***	0.630***
	(0.016)	(0.014)	(0.024)	(0.021)	(0.016)	(0.338)			(0.017)	(0.015)
Parents' migration (migration)	0.852**	0.886***	0.924	1.087**	0.754*	0.608***	0.093	0.452	1.310***	0.964***
	(0.403)	(0.333)	(0.566)	(0.473)	(0.394)	(0.014)	(0.624)	(0.686)	(0.436)	(0.369)
Interaction: migration × excap	-0.022	-0.012	-0.018	-0.015	-0.016	-0.001			-0.060	-0.025
	(0.036)	(0.030)	(0.049)	(0.043)	(0.035)	(0.029)			(0.037)	(0.032)
Ln income							0.112***	0.130***		
							(0.020)	(0.020)		
Interaction: migration × income							0.024	0.014		
							(0.041)	(0.049)		
Constant	5.874***	6.075***	5.335***	5.639***	5.781***	5.750***	13.721***	14.004***	5.969***	6.002***
	(0.211)	(0.171)	(0.317)	(0.265)	(0.209)	(0.175)	(0.467)	(0.440)	(0.222)	(0.189)
/athrho	-0.461***	-0.624***	-0.597***	-0.816***	-0.429***	-0.580***	-0.162*	-0.199***	-0.503***	-0.598***
	(0.084)	(0.060)	(0.156)	(0.071)	(0.088)	(0.077)	(0.098)	(0.066)	(0.071)	(0.079)
/lnsigma	-0.474***	-0.458***	-0.372***	-0.330***	-0.470***	-0.460***	-0.089***	-0.010	-0.479***	-0.484***
	(0.018)	(0.017)	(0.030)	(0.026)	(0.016)	(0.016)	(0.020)	(0.022)	(0.017)	(0.018)
Province effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls on outcome equation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,582	10,520	3,308	4,599	8,211	11,377	2,902	2,600	7,202	8,935
F	127.7	180.8	69.89	101.3	123.9	173.9	75.49	402.5	114.3	159.3
Lambda	-0.268	-0.350	-0.369	-0.484	-0.253	-0.330	-0.147	-0.194	-0.288	-0.330
Converged	1	1	1	1	1	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Dependent variable for estimation (1) to(4) is children's household per capita expenditure predicted at age 40 y.o, and 30 y.o for (5) and (6)

Dependent variable for (7) and (8) is log of income predicted at age 40 y.o and we add control variables of being in employment and have additional job(s)

Dependent variable for (9) and (10) is children's household per capita expenditure predicted at age 40 y.o but we add parental education in selection variables

Variables definition refer to Table 3.5

All estimation standard errors are clustered in household level and all samples are weighted

TABLE 3.13: Robustness Check: Different Definition of Migration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Across regions migration		Across districts: rural-urban		Across districts: urban-rural		Across districts: urban-urban	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
Parents' ln per capita expenditure (excap)	0.587***	0.604***	0.588***	0.611***	0.588***	0.620***	0.586***	0.612***
	(0.015)	(0.013)	(0.015)	(0.014)	(0.015)	(0.015)	(0.015)	(0.015)
Parents' migration (migration)	-1.536**	-0.878	0.874	0.424	-0.297	0.913	1.127	0.503
	(0.698)	(0.578)	(0.746)	(0.629)	(0.992)	(1.136)	(0.798)	(0.566)
Interaction: migration × excap	0.166***	0.056	-0.043	0.033	0.062	-0.036	-0.056	0.007
	(0.057)	(0.045)	(0.065)	(0.057)	(0.085)	(0.100)	(0.068)	(0.049)
Constant	6.245***	6.402***	6.212***	6.277***	6.222***	6.296***	6.232***	6.393***
	(0.198)	(0.164)	(0.199)	(0.166)	(0.198)	(0.181)	(0.200)	(0.185)
/athrho	-0.222**	0.249**	-0.164**	-0.523***	-0.306***	-0.349***	-0.293***	-0.399***
	(0.098)	(0.112)	(0.071)	(0.066)	(0.064)	(0.077)	(0.085)	(0.072)
/lnsigma	-0.500***	-0.509***	-0.501***	-0.497***	-0.499***	-0.537***	-0.499***	-0.535***
	(0.015)	(0.017)	(0.016)	(0.014)	(0.016)	(0.016)	(0.016)	(0.016)
Province effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls on outcome equation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,211	11,377	8,211	10,045	8,211	8,344	8,211	8,344
N	8211	11377	8211	10045	8211	8344	8211	8344
F	126.5	169.1	122.0	164.3	122.6	1063	122.3	762.2
Lambda	-0.132	0.147	-0.0987	-0.292	-0.180	-0.196	-0.173	-0.222
Converged	1	1	1	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

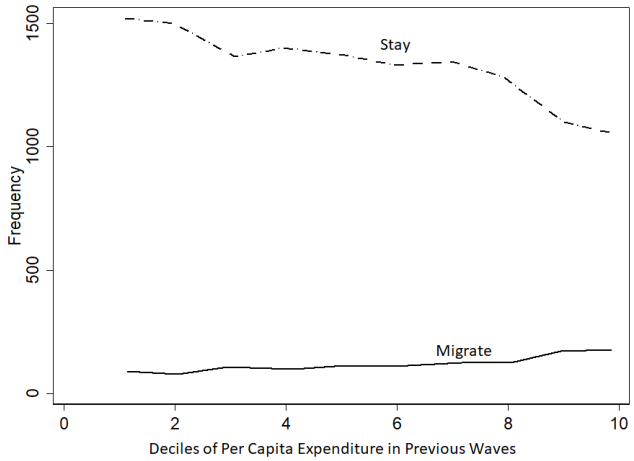
Variables definition refer to Table 3.5

All estimation standard errors are clustered in household level and all samples are weighted

The intergenerational elasticity coefficients in all estimations are still consistent with the main estimation (see Table 3.13). However, we find that if we redefine the migration dummy as between-regions migration, the migration coefficient switches to negative, and the interaction of fathers' migration and fathers' per capita expenditure is positive and significant. This suggests that fathers' migration out of their island leads to lower per capita expenditure for their children compared with the children from fathers who migrate in-island or stay. This also suggests that long-distance parental migration may not benefit the children. The interaction variable is positive and statistically significant, suggesting that migration out of an island leads to more intergenerational persistence (see Table 3.12, column (1)).

According to other definitions of migration, the sign of other migration coefficients is consistent except for migration from urban to rural areas, which is negative. However, all of the migration coefficients are not statistically significantly different from our main estimation. The interaction variables are consistently non-significant as in our main estimations, although the signs are mixed.

Migration is an investment and some poor people may have not enough means to embark on the migration, which may be affecting our results. Our data shows that migrants have higher per capita expenditure than the non-migrants (see Table 3.3). We use the migration data between survey waves and per capita expenditure in the previous waves as the IFLS does not have retrospective data on expenditure or income before each migration. We see that more people in the higher deciles migrate. The poorest also migrate but not as many in number as the richer, and they tend to stay more in their place of origin (see Figure 3.13).



Source: Own calculation from IFLS 1–5 data.

FIGURE 3.13: Number of migrants and non-migrants between survey waves and per capita expenditure deciles in previous wave, the IFLS 1–5

In order to see whether differences in per capita expenditure before migration are affecting our result, we introduce permanent per capita expenditure at 20 years of age in the selection equation. We predict the per capita expenditure at 20 years of age with the same procedure as we predict per capita expenditure at 40 years old, only the prediction is for the parents. The reason to set 20 years old as a benchmark of per capita expenditure before migration is that people tend to just start their family and their career at this point. We check for our main equation on intergenerational mobility and the children's completed education equation. Table 3.14 shows that per capita expenditure at the point of pre-migration positively affects parental migration, however, the effect is very small. By controlling parental income before migration, this would not change our main findings. The coefficients are slightly higher in particular for the one matched with the mothers, but the rest have similar results as our main findings.

TABLE 3.14: Robustness Check: Adding Parent's per Capita Expenditure at 20 y.o in the Selection Variable

	(1)	(2)	(3)	(4)
Dependent Variable	Children's education	Children's education	Children's excap at 40	Children's excap at 40
Matched with	Father	Mother	Father	Mother
Parents' migration	4.386***	5.296***	0.871**	0.929**
	(0.315)	(0.267)	(0.418)	(0.363)
Ln per capita expenditure at 40 y.o (Expcap)			0.583***	0.595***
			(0.016)	(0.014)
Interaction: migration × Expcap			-0.027	-0.019
			(0.035)	(0.030)
Added to selection variable				
Ln per capita expenditure at 20 y.o	3.35e-06***	3.51e-06***	1.48e-06***	2.15e-06***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	4.240***	5.961***	6.221***	6.447***
	(0.560)	(0.431)	(0.212)	(0.171)
/athrho	-0.729***	-0.841***	-0.420***	-0.593***
	(0.055)	(0.052)	(0.099)	(0.083)
/lnsigma	1.247***	1.308***	-0.471***	-0.458***
	(0.015)	(0.015)	(0.016)	(0.017)
Province effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Controls on outcome equation	Yes	Yes	Yes	Yes
Selection equation	Yes	Yes	Yes	Yes
Observations	8,038	11,035	8,176	11,311
k	46	46	51	51
F	57.06	88.25	125.2	174.0
Rho	-0.622	-0.686	-0.397	-0.532
Lambda	-2.166	-2.537	-0.248	-0.337
converged	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered in household level and all samples are weighted.

3.10 Related Findings From Exploratory Study

Our quantitative analysis results are positive towards migration but show no differences in intergenerational mobility. Our interviews with people from five different districts in Indonesia may be able to explain this phenomenon (see Chapter 2 for details).

According to the interview feedback, the reason for undergoing internal migration, moving from one district to another within the country, is primarily to get a better income and/or due to a lack of available jobs at the place of origin. However, people will not migrate with neither job security nor any contacts at the destination place. Migration is risky, and the presence of contacts and job security at the intended destination before migration lessen this risk. This is important in the discussion, as the children of migrants will have a well established social network that leverages their social mobility better than the children of stayers. Borjas (1992) and subsequently many others have studied and explained that the skills of the parents' social networks determine the children's skills in adulthood. Different accumulations of these skills influence more socially mobile migrants' children.

Other than the ethnic capital at the destination, the norm, culture and customs at the place of origin also determine who are the stayers. In all interview sites, both rural and urban, there was an expectation that children should take care of their parents. In some places such as Muara Enim and Selayar, society formalises this into a set of rules regulating property inheritance, that can help explain some of the persistence for stayers. The custom in Perapau, Muara Enim is known as "Tunggu Tubang" where the eldest daughter and her husband are responsible for taking care of the field and inheriting the parents' profession. A similar custom also applies in Selayar with the eldest child as the one who inherits the parents' occupation.

Besides these inheritance norms, in Bekasi and Ciamis, West Java, we found a strong persistence regarding fathers' and sons' profession. People in Ciamis express this sentiment by proverbs such as "fruit falls not far from the tree", which demonstrate the intergenerational social persistence in their society. However, for some children of the migrants interviewed, their parents' migration allowed them to escape poverty at their parents' place of origin. One of the children of migrants who is a migrant himself in Bekasi explained that if his parents had stayed, he would be a farmworker as are his uncles, aunts and cousins who remain at their place of origin in Cirebon. Even if the origin is an urban area, the children of stayers will likely follow in their parents' footsteps.

We do not include the norm and social pressure to inherit a profession from parents in the

quantitative analysis. However, the quantitative findings of no significant differences in intergenerational mobility between children of migrants and non-migrants may indicate profession persistence between parents and children.

3.11 Conclusions

In this chapter, we try to understand whether parental past migration at the time when the children were aged 0–14 years has a long-term impact on the children's per capita expenditure as adults and therefore the intergenerational mobility. Our findings show that parental migration increasing the education level of the children and their per capita expenditure, it increases intergenerational mobility of the children as adults compared with non-migrants' children when they live in urban areas as adults, come from the poorest parents, or had migrated as a child. The left-behind children have more intergenerational mobility than the children of non-migrants only when their father migrated, and there is no significant impact when the mother migrated. The results are robust when we exclude the children living in Java, living in Jakarta, use individual income and use a different definition of migration, although migration across regions leads to intergenerational persistence.

Future research may want to look more into the reasons why parental migration failed to break intergenerational persistence and investigate the impact of professional persistence from parents to children. Also, it might be appropriate to explore the heterogeneous effects across migration locations. Our robustness checks suggest that changing the parental migration from between districts to between islands, which implies a costlier migration, results in negative impacts on the children when adults.

Chapter 4

The Children of the Asian Financial Crisis in Indonesia

4.1 Introduction

Indonesia experienced a monetary crisis that started in 1997 as part of the Asian financial crisis (AFC). During that period, inflation was as high as 58%, the highest level since the macroeconomic crisis in 1973 (The World Bank, 2019). This increased the portion of the population living in poverty from 34% in 1996 to 49.50% in 1998 (Statistics Indonesia, 2019). In addition to the financial crisis, Indonesia experienced climate disruptions in the form of a long drought because of El-Nino from April 1997 to April 1998. The economy only started to recover in June 1999 when inflation came down (IMF, 2000). However, Ravallion and Lokshin (2007) suggest that the impact of the crisis on poverty was long-lasting. It contributed to a large share of those living in poverty in 2002.

Macroeconomic shocks, such as the AFC, create financial pressure on families' ability to keep their children at school. The families consider not only the cost of schooling but also the opportunity cost if the children were not in school. Suryahadi, Priyambada, and Sumarto (2005) use survey data on 100 village showing that the primary reasons for school dropouts during 1998 and 1999 were because of the cost of schooling (50–80%) and the need for children to support the parents' work (8–17%). Further, they argue that poverty forced children to drop out of school, but severe poverty motivated parents to send children to work. Jones and Hagul (2001) emphasise the importance of the return to schooling. They argue that parents, in particular, those in poverty, decide to keep their children in school based on the cost of education (availability of scholarships and school fees) and employment opportunities for graduates of higher levels of education. Further, the temporary disturbance or permanent

displacement from schools can have a severe impact on the formation of human capital and the future labour outcomes of the affected children.

This chapter examines how the AFC in 1997–1998 affected human capital investment in children during that period. It also examines the consequences of school dropouts and the future labour market outcomes for those children. We analyse the cohort born between 1981 and 1991 as they were of school age during the period of the financial crisis. Specifically, we examine the long-term educational attainment, the probability of employment in the agricultural sector and their permanent earnings in adulthood in 2014. Further, in the analysis, we also consider the role of migration and the intergenerational educational mobility of this cohort.

The chapter contributes to the vast literature on the long-term well-being of the children exposed to shocks. The existing literature has extensively discussed the short-term impact of the financial crisis whilst largely ignoring the long-term perspective. The next section describes the relevant literature on the impact of household shocks and the crisis on children. We present the theoretical framework in section three before section four provides information on data and the empirical strategy. The findings in section six include its heterogeneous effects and several robustness checks. The last section provides a conclusion.

4.2 Relevant Literature

4.2.1 Crises, Household Shock and Impact on Children

The literature includes research on different types of shocks, e.g. war (Jürges, 2013), famine (Dercon and Porter, 2014), orphanhood (Beegle, de Weerdt, and Dercon, 2006), weather-related shocks (Shah and Steinberg, 2017; Del Ninno and Lundberg, 2005; Jensen, 2000), and economic crises (Shafiq, 2010; Duryea, Lam, and Levison, 2007). The findings of these studies echo the same sentiment that shocks create a disturbance in the short-term and may have negative implications for the children in the long-term. The subsequent paragraphs discuss the findings in more detail.

Shocks are not unique to low-income economies. One example was the food crisis in Germany in the aftermath of World War II, which adversely affected education and the employment status of the cohort born between November 1945 and May 1946 (Jürges, 2013). Specifically, the author finds that the proportion of children achieving more than a basic education dropped from 30% to 25% for the affected cohort, as compared to both children born just before and

just after the food crisis. Furthermore, Jürges (2013) provides evidence that the percentage of people in blue-collar occupations (both men and women) was significantly higher in that cohort and fell to pre-war levels for the cohorts born after May 1946. The author argues that these differences are attributed to that cohort's exposure to malnutrition in utero against other potential drivers, such as flight and expulsion from the East, selective mortality, and selective fertility. Similarly, Dercon and Porter (2014) provide evidence for the negative long-term impact of the Ethiopian famine in 1984. The exposure to malnutrition during the famine in the early years of childhood (12–36 months) is associated with height deficiency of approximately 5 cm, which in long-term lowered the children's annual incomes by 5% over their entire lifetimes.

There also exists a relationship between health shocks and educational attainment. For instance, Beegle, de Weerdt, and Dercon (2006) studied the HIV/AIDS pandemic in Tanzania that led to widespread orphanhood. Their findings suggest that there is a strong long-term effect from maternal and paternal orphanhood on education. Children who became a maternal orphan between the ages of 7–15 years, on average received one year less education, whilst being a paternal orphan led to a 0.4-year education loss. The results depend on household characteristics, i.e. wealthier orphans are more protected from loss of schooling and children who have been fostered before the death of their mother or father have higher educational attainment.

According to Jensen (2000), volatility in agricultural incomes, both on-farm and off-farm (e.g. due to droughts), are responsible for up to 50% variation in school enrolment rates. He also suggests that this agricultural volatility forces households to send their children to be fostered elsewhere, yet the negative impact on the schooling of these fostered children is negligible compared to non-fostered children. Considering the adverse long-term impact of reduced investment in education, the author calls for the state to use governmental interventions to mitigate the shocks on the household to put households in a position to maintain their level of investment in their children's education.

The negative impact on schooling investment is not only a result of adverse weather shocks. A positive weather shock, such as a period of higher rainfall, increases the gap in school enrolment of 5–16-year-olds between rural and urban areas in India (Shah and Steinberg, 2017). The lower enrolment in rural areas is because of the substitution effect, which lets children shift, voluntarily or forced, from schooling to work (in the labour market or at home) when increasing wages follow higher rainfall in a rural area. This effect is particularly

pronounced for low-skill and low-education jobs, which produces the (counter-intuitive) negative effect on school-age children by getting them out of schools and into work (Shah and Steinberg, 2017). However, the effect of high rainfall is not uniform across all age levels. So, children affected in their early childhood (in utero to two years old) receive better nutrition in early childhood associated with improved cognitive abilities as indicated by their higher test scores, as opposed to children who did not experience positive rainfall shocks in early life.

Whilst Shah and Steinberg (2017) emphasise that higher wages motivate adolescents to discontinue schooling and to join the low-skilled labour force, Duryea, Lam, and Levison (2007) argue that economic downturns which force the head of a household out of work have a similar impact on children. The latter authors show that a four-month unemployment period for the household head increases the probability that 16-year-old girls, living in the household, drop out from school permanently and enter the labour force by 24% to 37% (Duryea, Lam, and Levison, 2007). However, it is hard to distinguish the persistence effect of the shock from the general economic impact. Thus, the long-term impact of the shock is hard to determine (Duryea, Lam, and Levison, 2007). Shafiq (2010) argues that a macroeconomic crisis may also have some positive effects by dragging down wage rates for children. In consequence, children are less likely to substitute schooling with work. Further, and since a crisis often affects lower-skilled and less-educated labour more strongly, parents have a greater incentive to keep their children in school due to the higher return from investment in education (Shafiq, 2010). Against this, the reduction in parental wage income makes consumption of schooling more costly and increases the need for children to contribute to the family, known as the income effect. At the same time, the opportunity costs of child labour reduce (Duryea, Lam, and Levison, 2007). Whether income or substitution effects are greater remains an empirical question.

In line with this, Ferreira and Schady (2009) discuss that, theoretically, in aggregate, the effect of a macroeconomic crisis can be ambiguous because of the interaction between the income and substitution effect. They see a household's resource availability for human capital investment and consumption as the key determinants of the income effect, whilst the change in wage rates, reflecting the opportunity cost of schooling for children, creates the substitution effect. In addition, schooling as an investment in future consumption generates indirect utility in a dynamic setting. This creates a trade-off between first-period consumption, which increases working and decreases schooling, and second-period consumption, which benefits from higher investment in schooling. Hence, the optimal level of a child's schooling will depend on the child wage rate and household income in period one and expected return from

schooling in period two (Ferreira and Schady, 2009).

4.2.2 The AFC and Its Impact on Education in Indonesia

Macroeconomic shocks, such as a financial crisis, affect the household through four main channels (Ferreira, Prennushi, and Ravallion, 1999): the change in relative prices of goods and services, changes in aggregate labour demand, losses from the return of physical assets, e.g. the decrease of land price, and the reduction of public transfers and remittances. The shock to the household will result in changes in intra-household resource and time allocation away from pre-crisis levels. A child's schooling is a direct function of the opportunity cost to be in school. During a crisis, these costs increase as children can bring income to the household by providing paid labour off-farm or unpaid labour at home. However, they may also decrease because wages, including child wages, decline during an economic slowdown. Whether the income effect dominates the substitution effect, remains an empirical question and may differ for different households with the perceived size of the shock. In this study, we will examine this for the case of the financial crisis of 1997 in Indonesia. During and after the financial crisis, some studies have examined its immediate impact on children's schooling. We have used three different datasets for this purpose: the Indonesian Family Life Survey (IFLS) (Frankenberg, Thomas, Beegle, et al., 1999; Thomas et al., 2004; Sharma, 2015; Kharisma, Satriawan, and Arsyad, 2017), the 100 villages survey (Cameron, 2001) and the National Social and Economic Survey (SUSENAS). The basis for most of the analysis is the IFLS which is a long-term panel set capturing approximately 7,224 original households in 1993. In addition, the regular survey in 1997, an additional survey was conducted in 1999 (IFLS 2+) using a subsample of the IFLS 2 in 1997; however, the data are not publicly available. The report from the survey shows a decline in the household budget share spent on education, in particular for the poorest quantile (Frankenberg, Thomas, Beegle, et al., 1999). It also records that the proportion of out-of-school children has increased by 3% for the 13–19-year-old age group and the dropout rate tripled for children aged 7–12 years (Frankenberg, Thomas, Beegle, et al., 1999). Thomas et al. (2004) using the IFLS 2 (1997) and IFLS 3 (2000) found that there was a decline in spending on education and school enrolment among poor households, in particular for relatively younger children. The authors concluded that parents invest in education for older children at the expense of taking younger children out of school. They argue that the reason for this phenomenon is the higher return of secondary school compared with primary school. Moreover, stopping the older children's education typically renders their permanent move to the workforce, whilst holding younger children back from starting or keeping them

out of primary school for a year is unlikely to prevent their future enrolment or re-enrolment. In another paper, Cameron (2001) argues that there is little evidence substantiating that the financial crisis has made a dramatic impact. Using data from a survey sponsored by UNICEF and conducted by the Statistics Bureau (BPS), (the 100 villages survey, which started in May 1997 in 100 villages), she found that the crisis did not have a long-term impact despite some decline in school attendance during the crisis, enrolment bounced back after the crisis. This might be a sign of the success of the Jaring Pengaman Sosial (JPS) scholarship programme, a social security net programme launched in 1998 as a response to the crisis (Kharisma, Satriawan, and Arsyad, 2017; Sparrow, 2007). However, unlike the present work, the authors of these studies do not model the parents' decision to take children out of school as a response to the financial crisis. They instead compare pre-crisis, crisis, and post-crisis enrolment levels.

Closely related to the study at hand, Sharma (2015) looks at the 1997–1998 Asian financial crisis in Indonesia and analyses the short-term and long-term effects of the economic shock on children's school dropouts and school attendance. She finds that there was only a small negative impact on school enrolment in the short-run and no adverse effects on educational attainment in the long run. The author uses the change in the rice price for the identification of the financial crisis based on the assumption that the rice prices rise and real wage deterioration are highly correlated. In detail, the results indicate only a slight reduction in enrolment for children below 13 years and no change for children between 12–17 years. The participation of older children in the labour market declines with rising rice prices suggesting that the substitution effect was stronger than the income effect. In the same vein, higher rice prices are associated with increased enrolment in the long run.

In contrast to Sharma (2015), this study does not use the rice price shock as the identifying factor marking the financial crisis. Instead, we use a two-step approach modelling the school dropouts in the first stage and the outcome on long-term educational attainment in the second stage. This allows us to identify the long-term impact of school drop-out on the formation of human capital and earnings. Using rice price changes for identification is based on two strong assumptions. First, the financial crisis affects households only through the change in rice prices; hence, lower household earnings with constant rice prices do not affect school enrolment. Second, the effect of rice price hikes on schooling is unambiguous, namely, social safety net programmes in schools, such as school feeding programmes, do not affect school attendance. Both assumptions are debatable. The latter assumption must be heavily scrutinised as the national school-feeding programme served 8.1 million children in 53,000 schools in 1998—1999 (Lisa J. Studdert and Habicht, 2004). Thus, it cannot be ruled out

that children were sent to schools to receive meals when rice prices increased. To relate the school dropout decision to the financial crisis, we use the change in food expenditure between 1997 and 2000 as an instrument. By doing this, we miss out on separating the income and substitution effects, but we identify the real impact of the financial crisis on human capital formation.

4.3 Theoretical Framework

This chapter's focus is not only on the AFC short-term impacts but also the long-term impact on children's education. The long-run impact relates to the human capital investment theory, which considers education as an investment with returns in the future (Becker, 1993). The long-term returns from education is a reflection of the long-run impact of dropping-out during the AFC. Becker (1993) suggested that the decision to invest in schooling is based on the optimisation of the expected present value of lifetime earnings subject to the cost of schooling. The optimum level of schooling is reached when the present value of lifetime earnings and cost of schooling up to the optimum level is equal (Becker, 1993). The direct link between the level of human capital accumulation and life earnings was first empirically explained by the Mincer earnings functions. Specifically, Mincer (1974) incorporates working experiences as part of skills accumulation. In this chapter, we analyse how the financial crisis changed the probability of continuing schooling due to its effect on the opportunity cost of schooling. In addition, we assess how the reduction in years of schooling has translated into today's earnings.

4.3.1 Schooling and Its Opportunity Costs

To mimic the decision of the parents, we assume they maximise the utility from their inter-temporal earnings (E_{hp}):[1]

$$maxU(E_{hp}) = E_{hp,t} + \frac{1}{1+\delta} E_{hp,t+1} \tag{4.1}$$

where $0 < \delta < 1$ is the discount factor, h stands for household and p for parents.

[1] In the absence of the possibility to save, maximising earnings is equivalent to maximising consumption.

The current earnings of the household are approximately a combination of the income of the parents and the shadow revenue from the children:[2]

$$E_{hp,t} = w_p L_{hp} + w_c(L^T - C_{hc}) \tag{4.2}$$

For simplification, w_p is the agricultural and non-agricultural wage rate, including the unit value of own consumption of the household, and L_{hp} is the labour input of the parents. w_c is the opportunity cost of children's schooling C or the shadow wage rate of child labour. This includes the contribution of a child c to household earnings coming from employment off-farm in the agricultural or non-agricultural sector at the market wage rate and on-farm at a shadow wage rate and the actual costs of schooling (e.g. school uniforms and transportation). L^T is the total time children can allocate to either schooling or labour. Hence, the larger C_{hc} and the lower the costs of schooling w_c, the lower the contribution from child c to the household earnings.

In the second period $t+1$, parents do not receive their own earnings, but rely on their children for support. Thus, their earnings are a proportion α of the earnings of their children:

$$E_{hp,t+1} = \frac{\alpha}{1+\delta} E_{hc} = \frac{\alpha}{1+\delta} r_{hc}(C_{hc}) \tag{4.3}$$

Parents choose the optimal level of child schooling so that the costs of not utilising one unit of child labour equal the discounted earnings of the parents from the child in the next period:

$$-w_c = \frac{\alpha}{1+\delta} r'_{hc}(C_{hc}) \tag{4.4}$$

Thus, the optimal level of schooling $C^*_{hc} = f(w_c, \alpha, \delta, r'_{hc})$ is a function of the opportunity cost of schooling, the discount rate, the portion of child earnings the parents receive in $t+1$, and the marginal returns from education. It is worth noticing that the optimal level of schooling is independent of the parent's income in t. However, unless we make an assumption about the specific functional form of $r_{hc}(C_{hc})$, we cannot solve for C^*_{hc}. To allow for both diminishing and increasing returns without loss of generality, we specify $r_{hc}C_{hc} = bC^r_{hc}$. Thus,

$$r'_{hc}(C_{hc}) = brC^{r-1}_{hc} \tag{4.5}$$

[2]For simplicity, we use a single child only in the example.

Given that, an additional unit of schooling will always lead to additional earnings, though at varying rates, $r'_{hc}(C_{hc}) < 0$ can be ruled out. Thus, $b, r > 0$ with $r \in \{\mathbb{N}_+, 0.5\}$. Inserting equation 4.5 into equation 4.4, gives us:

$$C^*_{hc} = \left(-\frac{w(1+\delta)}{\alpha b r} \right)^{\frac{1}{1-r}} \tag{4.6}$$

Opportunity Costs of Schooling and Enrolment

The general notion is that the economic shock increases the opportunity costs of schooling, for example as supported by the study by Shah and Steinberg (2017). Hence, the main interest is to understand how the change in opportunity costs affects the optimal level of schooling and not whether the income or substitution effect prevails. In the theoretical model, this means the 0.4-year side of (equation 4.4) reduces. It can easily be seen that larger opportunity costs force C_{hc} to go down as long as $r'_{hc}(C_{hc})$ is positive. Accordingly, children are pulled out of school and pushed into labour to support the family income (Duryea, Lam, and Levison, 2007; Sharma, 2015).

Interestingly, the extent of the change, which is the partial derivative of the optimal level of schooling C^*_{hc} with respect to w_c, is a function of the other variables in the model. In order to illustrate the interplay of the opportunity costs of schooling with the other variables in the model, we look at the derivative of the optimal level of schooling with respect to the opportunity costs:

$$\frac{\partial C^*_{hc}}{\partial w} = \frac{1}{1-r} \left(-\frac{1+\delta}{\alpha b r} \right)^{\frac{r}{1-r}} \tag{4.7}$$

From here we can see that the higher δ, the lower α and r, the stronger is the negative impact of a change in the opportunity costs of schooling on the level of schooling C_{hc}. The stronger the parental preference for a child's schooling, the lower the adjustment made by parents. In conclusion, an economic shock, which reduces the opportunity costs of schooling, will have a smaller effect on educational attainment if the returns from schooling are high, the parents expect to receive a larger share of the child's earnings in the future, and the lower they discount the future.

The Other Factors

It is both easy and intuitive to see how the other variables affect the level of schooling. The respective first derivatives are given below:

$$\frac{\partial C^*_{hc}}{\partial \alpha} = \frac{1}{1-r}\left(\frac{w(1+\delta)br}{(\alpha br)^2}\right)^{\frac{r}{1-r}} > 0 \tag{4.8}$$

The greater the proportion parents receive from their child α, the higher the level of schooling.

$$\frac{\partial C^*_{hc}}{\partial r} = \frac{1}{1-r}\left(\frac{w(1+\delta)\alpha b}{(\alpha br)^2}\right)^{\frac{r}{1-r}} > 0 \tag{4.9}$$

The higher the marginal returns from schooling r, the higher the level of schooling.

$$\frac{\partial C^*_{hc}}{\partial \delta} = \frac{1}{1-r}\left(-\frac{w\alpha br}{(\alpha br)^2}\right)^{\frac{r}{1-r}} < 0 \tag{4.10}$$

The lower the discount rate δ, the higher the level of schooling.

The Effect of Poverty

In reality, the wealth of a household is one of, if not the major determinant for children dropping out of school. This can only partly be explained by greater discount rates among poor households in our model. In addition, we could think of the parents' decision to have children out of school $L^T > C_{hc}$ as a two-stage decision. For instance,

$$L^T - C_{hc} = \begin{cases} 0, & \text{if } w_p L_{hc} > \hat{E}_{hp,t}. \\ > 0, & \text{otherwise.} \end{cases} \tag{4.11}$$

As long as the parents' earnings are greater than a certain threshold ($\hat{E}_{hp,t}$), children are always in school and do not contribute to the earnings of the household.

The Effect of Migration

Household migration during the economic shock could be a way of maintaining the parents' earnings above the threshold ($\hat{E}_{hp,t}$). In addition, the spatial effect of migration plays a role in changing the opportunity cost of schooling. Although migration could minimise the household wealth shock, it may well increase the opportunity cost of schooling by increasing the cost of schooling and the child's contribution to earnings.

4.4 Data

The primary source of the data for this chapter is the Indonesian Family Life Survey (IFLS) conducted in 1993, 1997, 2000, 2007 and 2014. The interview period of the 1997 IFLS was from August 1997 to March 1998, just after the Asian financial crisis begin in July 1997. The 2014 National Social Economics Survey (SUSENAS) is used for some district-related explanatory variables. Table 4.1 explains each variable used in the models.

TABLE 4.1: Variables Description

Variables	Description	Data Source
YoS14	Complete years of schooling in 2014	IFLS5
Dropouts9798	Dummy variable for dropping out in 1997–1998 (=1) and not drop out (=0)	IFLS2–IFLS5
Dropouts9700	Dummy variable for dropping out in 1997–2000 (=1) and not drop out (=0)	IFLS2–IFLS5
Parents' edu14	Maximum year of schooling between the children's father and mother in 2014	IFLS5
Parents' edu97	Maximum year of schooling between the children's father and mother in 1997	IFLS2
Age	Age of the children in 1997 for selection equation and 2014 for main equation	IFLS2 & IFLS5
Age^2	Age squared of the children in 1997 for selection equation and 2014 for main equation	IFLS2 & IFLS5
Male	Sex of the children	IFLS2
Weather shock	Mean of precipitation shock in the district where the children lived in 1997 (ln((prcp_normal-prcp_lag1)/prcp_sd))	NOAA
JPS00	Dummy of the children receiving JPS scholarship during 1997-2000	IFLS3
Food exp. shock	Continuous variable of the difference of log of household's food expenditure between the year 2000 and 1997. Negative shock is when the difference between food expenditure in year 2000 and 1997 is negative.	IFLS2 & IFLS3
Parents' time preference	Maximum of parents' time preference (father and mother) in 2007 and 2014 as a proxy to 1997 time preference, 3 being the most impatient	IFLS4&IFLS5
Returnsch97	Fathers' natural log of the average income of all individuals grouped by year of schooling in 1997 as a proxy to rate of returns of education	IFLS2
Birthorder97	Birth order of all children under 15 years old in the household in 1997	IFLS2
Gapfin97	Year gap to completion of a school level. The minimum is zero which means the children are in the last grade of one particular school level (primary, secondary or high school)	IFLS2
Repsd97	Number of grade repetition in primary school	IFLS2
Numchild97	Number of children in the household in 1997	IFLS2
Urban97	Dummy for living in the urban area in 1997	IFLS2
Java97	Dummy for living in Java in 1997	IFLS2
Province	Province where the children lived in 1997	IFLS2
Expcap_quint97	Quintile position of household per capita expenditure in 1997	IFLS2
Mincer equation variables		
Income14	Natural log of income in 2014	IFLS5
Experience	Number of years of work experience above 15 years old	IFLS2-IFLS5
Experience2	Quadratic number of years of work experience above 15 years old	IFLS2-IFLS5
Agrkab14	Share of people working in agriculture in the district where the children lived in 2014	SUSENAS '14
Agrwrk14	Children when adult working in the agricultural sector in 2014	IFLS5
Migration Variables		
Migration00	Dummy of the household moving between 1997 and 2000	IFLS2&IFLS3
Migaru	Categorical variable where 0=household not migrated during 1997–2000, 1=household migrated to the urban area, and 2=household migrated to the rural area	IFLS2&IFLS3

The selected children were born in 1981–1991 to match the schooling period in 1997–2000. The

oldest child was 16 years old in 1997, just beginning high school, and the youngest was six years old in 1997, just starting their elementary school. Also, we selected the children who appeared in all five waves of the IFLS and who were still at school during the financial crisis period. The reason for this selection is that we need information from the 1993, 1997 and 2014 surveys. In total, there were 4,472 children, with approximately 45% of all the children in the 1981–1991 cohort appearing in IFLS 2000. The exclusion of individuals in the cohort is because no parental information was available and there was different IFLS sampling design since IFLS 2000. It is only since IFLS 2000 that all members of the household have been interviewed. We use the IFLS longitudinal weight of being in the year 1993–2014 to capture this exclusion.

The IFLS and SUSENAS surveys are compared to show that the IFLS does not underestimate or overestimate the dropouts. Table 4.2 shows the permanent displacement from school in the years 1997 and 1998 for the IFLS and SUSENAS data. There is only a slight difference in the dropout percentage in both the years 1997 and 1998 between the IFLS and SUSENAS data. Using four years (2011, 2012, 2013, and 2014) from the SUSENAS data, all children from the 1981–1991 cohort who dropped out of school are identified using the information on the last school grade. As in the IFLS data, we only used data from the 2000 survey and the dropouts were identified from information on the year of displacement from school and whether children remain at school.

TABLE 4.2: Permanent School Dropouts of Cohort 1981–1991 in the Years 1997 and 1998

	SUSENAS				IFLS			
	1997		1998		1997		1998	
	in School	Dropouts	In School	Dropouts	In School	Dropouts	In School	Dropouts
In number	661,032	35,810	625,666	35,366	3,370	145	3,727	195
Percentage	94.86	5.14	94.65	5.35	95.87	4.13	95.03	4.97

Source: Author calculation using SUSENAS 2011, 2012, 2013, 2014 and IFLS 2000

Table 4.3 shows the mean comparison for dropouts and non-dropouts from our endogenous treatment regression (ETR) subsample. The dropouts are the children who dropped out in 1997 and 1998. Columns (1) and (2) show two rows of mean and standard deviation in the brackets on each variable for non-dropouts and dropouts, respectively. Meanwhile, column (3) shows the difference between the two sub-samples and its associated standard errors in the brackets by regressing each of the variables on the dropouts variable. It shows that in 2014, children who dropped out in 1997–1998 have about four years less completed schooling, lower-income, and are more likely to work in the agricultural sector. Their parents had less schooling than the parents of non-dropouts, but there are no significant differences in their parents' time preference. On average, parents of both dropouts and non-dropouts are impatient, the average

being 2.8: the time preference is in categories one to three, with the most impatient being the third category.

The children who dropped out on average are about three years older, have more older siblings, are closer to finishing their level of schooling, experienced more class repetition during their schooling, and are more concentrated in the rural area and in Java island than the children who did not drop out in 1997–1998. Although the dropouts experience more negative food shock, on average, the difference is not significant. This is because of the spread of the AFC to all layers of society. Similarly, there are no significant differences in JPS scholarship receivers, although there are more non-dropouts receiving the scholarships (1.6%) than the dropouts group (0.6%). There are also no significant differences in terms of household migration during the crisis periods between the two groups. There is about 1% more migration for dropouts than for non-dropouts. It should also be noted that there are only a few household migrations recorded in the IFLS data during the crisis, about 1.4% for the non-dropouts and 2.4% for the dropouts.

TABLE 4.3: The Mean Comparison of Dropouts and Non-Dropouts (ETR Sample)

	(1) Non-dropouts	(2) Dropouts	(3) Difference
Observations	2,740	340	3,080
YoS14	11.670	7.435	-4.235***
	(3.146)	(2.513)	(0.177)
Income14	15.826	15.280	-0.546***
	(0.983)	(0.861)	(0.063)
Agrwrk14	0.136	0.248	0.111***
	(0.343)	(0.433)	(0.026)
Parents' edu14	8.409	5.662	-2.748***
	(4.048)	(2.858)	(0.226)
Parents' edu97	7.716	4.982	-2.734***
	(3.917)	(2.841)	(0.219)
Weather shock	-1.049	-1.125	-0.075**
	(0.656)	(0.747)	(0.038)
JPS00	0.017	0.006	-0.011
	(0.130)	(0.077)	(0.007)
Food exp. shock	-0.069	-0.147	-0.078
	(0.889)	(0.970)	(0.052)
Parent's time preference	2.772	2.803	0.031
	(0.533)	(0.503)	(0.030)
Returnsch97	13.163	13.181	0.018
	(0.253)	(0.265)	(0.015)
Birthorder97	1.456	1.821	0.364***
	(0.698)	(0.879)	(0.041)
Gapfin97	2.885	1.506	-1.379***
	(1.504)	(1.216)	(0.085)
Repsd97	0.194	0.385	0.191***
	(0.454)	(0.653)	(0.028)
Numchild97	1.945	2.026	0.082
	(0.928)	(0.929)	(0.053)
Urban97	0.493	0.450	-0.043
	(0.500)	(0.498)	(0.029)
Java97	0.534	0.600	0.066**
	(0.499)	(0.491)	(0.029)
Age14	27.878	30.885	3.007***
	(2.908)	(1.828)	(0.162)
Male	0.494	0.476	-0.017
	(0.500)	(0.500)	(0.029)
Migration00	0.014	0.024	0.010
	(0.118)	(0.152)	(0.007)

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Author calculation using IFLS 2-5

4.5 Empirical Strategy

This chapter aims to find the long-term impact of dropping out during the Asian financial crisis in 1997–1998 by looking at its impact on the complete years of schooling and determine the income and employment in the agricultural sector when adult. It is argued that the crisis changed the probability of continuing school for some children by changing the opportunity cost of the children remaining in school. Against the background of the AFC, this chapter examines the endogeneity of dropping out from 1997 to 1998. It also explores whether household migration during this period helped to keep children at school.

Dropping out is a non-random event and an endogenous treatment model is used to capture the endogeneity of being dropouts in 1997–1998. The structured equation of the endogenous treatment model is provided below:

$$\begin{aligned} C_j &= \tau D_j + \lambda X_j + \alpha + \epsilon_j \\ D_j &= \begin{cases} 1, & \text{if } \gamma Z_j \lambda X_j + \theta H_j + \mu_j < 0. \\ 0, & \text{otherwise.} \end{cases} \end{aligned} \tag{4.12}$$

where, C_j is equal to the complete years of schooling in 2014, D_j is a dummy variable of the dropouts in 1997–1998, X_j is equal to the individual characteristics, H_j is equal to household characteristics in 1997 and Z_j is equal to the instrument variables. The individual characteristics are children's birth order in the household, their sex and their age. The household characteristics are the parents' education, the number of children in the household, whether the children were living in an urban area in 1997 and were living in Java in 1997. In the selection equation to capture dropouts in 1997–1998, we include the province where the household lived in 1997. The interest variables in Z_j are the difference in the natural log of food expenditure between 2000 and 1997 as a proxy of the households' shock during the financial crisis and its interaction with the migration variable.

We predict the C_j from the structured equations above and fit it into the model looking at the impact of years of schooling on income and the likelihood of being an agricultural worker in 2014. Following the Mincer (1974) model:

$$(Y_j) = r_j \widehat{C}_j + \beta exp_j + \gamma exp_j^2 + \theta X_j + \lambda D_j + \alpha + \epsilon_j \tag{4.13}$$

where the (Y_j) are the outcomes we observed, natural log of income and working in

agriculture in 2014. The $\widehat{C}_j$ is equal to the predicted years of schooling after controlling for the dropouts and the shock from the financial crisis. The exp_j is equal to working experience and the exp_j^2 is equal to the quadratic of working experience to capture the concavity of earning-experience features. The X_j is equal to the individual characteristics, the D_j is equal to district characteristics.

4.5.1 Selection to Drop Out

We identify the dropouts during the crisis as all the children who dropped out between 1997 and 1998. The reason for this is to strictly identify the shock in children's schooling only during the period of the financial crisis. Later, in the robustness check, we use a period extended until 2000 to show whether the shock from the AFC determines the dropouts only after the financial crisis period.

In order to capture the endogeneity of dropping out during the AFC, the main shock variable is the difference in food expenditure in 2000, two years after the crisis, compared with that of 1997, just before the crisis. We interact the shock with the migration variable to see the combined effect of migration and the food expenditure shock on dropping out. We include the average weather shock of the districts where the children lived in 1997 to account for the extent to whic the area was prone to weather shock. During the crisis period some Indonesians were also experiencing drought because of El-Nino.

In addition, we use parents' time preference as a proxy for the discount rate. We acquired time preference in later surveys (2007 and 2014) as a proxy for their discount rate in 1997. We include the mean income by the father's education year to see the expected return of schooling in the selection equation. Other variables affecting whether children drop out are added to the selection equation, for example, whether the children were receiving the social security programme (JPS) scholarship, had repeated classes during their primary school, and how close they were to graduation from their current school level.

4.6 Findings

4.6.1 Completed Years of Schooling and Selection to the Dropouts

Table 4.4 shows the difference specification of a simple ordinary least square (OLS1), OLS with an interaction (OLS2), a two-stage least square with a probit model of dropping out in 1997–1998 (TSLS), and the endogenous treatment regression (ETR) that captures the selection

of dropping out in the crisis period. The table shows that the OLS overestimates the impact of dropping-out in the 1997–1998 period where dropouts in 1997–1998 completed on average about three years less schooling than the non-dropouts, whereas the TSLS reports less than a year's less schooling.

The ETR reports a smaller impact of dropping-out in the crisis period than OLS, but slightly above the TSLS with probit. It reports about 1.4 years less schooling for the dropouts compared with non-dropouts in 2014 when most of the children in our cohort of 1981–1991 finished their schooling.

A slight difference in educational attainment for the dropouts and non-dropouts in our cohort may indicate that some children in our cohort who dropped out during the crisis period had returned and were advancing their schooling. As those older than 13 years had a more permanent break from schooling, the younger children are the ones who returned to school. Also, we find that the larger the gap before graduating, the less likely children are to drop out. In the later section, we confirmed that the joint effect of birth year and dropping out during the crisis had a different effect on the completed years of schooling between the older and younger children in our cohort.

In the ETR, the households' positive food expenditure shock and the social safety network to keep children in school (JPS programme) are significantly lowering the probability of children dropping out during the crisis, but weather shocks did not. However, in the mean comparison in the previous section, there are no significant differences in JPS recipients between dropouts and non-dropouts. The significance of the JPS scholarship programme in keeping children in school confirms the previous finding (Jones and Hagul, 2001; Sparrow, 2007; Suryahadi, Priyambada, and Sumarto, 2005; Cameron, 2009).

Household migration between the years 1997 and 2000 significantly contributed to children dropping out during the crisis period of 1997–1998. Although this seems counter-intuitive, the reason behind it may relate to the high cost of moving children into school in a new destination. Government law requires new students to pay to enrol in a new school.[3] The join effect of migration and food expenditure shock, however, does not have a significant impact on the children dropping out. This supports other findings from Sandi (2018) that suggest that the effect of household migration during the crisis is insignificant to household consumption

[3] At that time schools were still following the Government Law number 28 of the year 1990. The law stated that schools are responsible for their own funding, which includes the building and operation of schools' (art.26). Meanwhile, the students have the responsibility to contribute to school funding (art.17). A new student will bear some part of funding school building

TABLE 4.4: Dropout Impacts on Complete Years of Schooling

Dep.var: YoS in 2014	(1) OLS	(2) OLS2	(3) TSLS	(4) ETR
Dropouts9798	-3.082***	-3.180***	-0.780***	-1.353**
	(0.172)	(0.172)	(0.136)	(0.654)
Dropouts9798 Food exp. shock	-0.075			
		(0.172)		
Interaction: dropouts9798 × migration2000		0.680		
		(0.509)		
Interaction: dropouts9798 × migration2000 × Food exp. shock		0.632		
		(0.938)		
Parents' edu14	0.429***	0.429***	0.392***	0.459***
	(0.016)	(0.016)	(0.023)	(0.018)
Male	-0.239**	-0.239**	-0.326***	-0.217*
	(0.108)	(0.108)	(0.116)	(0.111)
Age14	-1.710***	-1.709***	-0.552	-1.304***
	(0.360)	(0.360)	(0.373)	(0.375)
Age^2_14	0.032***	0.032***	0.014**	0.024***
	(0.006)	(0.006)	(0.006)	(0.007)
Selection eq. Dropouts9798				
Weather shock			-0.078	-0.030
			(0.065)	(0.065)
JPS00			-1.511***	-1.181***
			(0.319)	(0.339)
Food exp. shock		-0.021	-0.071	-0.086*
		(0.066)	(0.051)	(0.047)
Migration00		-0.264	0.679***	0.555**
		(0.560)	(0.244)	(0.247)
Interaction: migration00 × Food exp.shock		-0.743	0.011	-0.169
		(0.667)	(0.370)	(0.355
1. Parents' TP: very patient (based 3=Impatient)			-0.031	-0.113
			(0.179)	(0.200))
2. Parents' TP: patient (based 3=Impatient)			-0.236	-0.262*
			(0.147)	(0.147)
Returnsch97			-0.390**	-0.214
			(0.162)	(0.199)
Birthorder97			0.044	-0.004
			(0.101)	(0.098)
Gapfin97			-0.238***	-0.316***
			(0.057)	(0.056)
Repsd97			0.250***	0.149
			(0.074)	(0.095)
Parents' edu97			-0.119***	-0.120***
			(0.014)	(0.014)
Age97			-0.013	-0.149
			(0.187)	(0.191)
Age^2_97			0.009	0.013*
			(0.007)	(0.007)
Male			-0.173**	-0.135
			(0.083)	(0.082)
Numchild97			-0.009	0.017
			(0.081)	(0.080)
Urban97			-0.078	0.000
			(0.094)	(0.101)
Java97			0.013	0.053
			(0.182)	(0.174)
Constant selection ETR			3.797	2.626
			(2.568)	(2.864)
Constant	30.207***	30.180***	11.219**	25.543***
	(5.020)	(5.023)	(5.377)	(5.138)
/athrho				-0.447***
				(0.171)
/lnsigma				0.979***
				(0.024)
Province differences in 1997	Yes	Yes	Yes	Yes
Observations	3,080	3,080	3,150	3,080
R-squared	0.411	0.412	0.333	
F	103.0	79.64	213.3	213.6
Rho	.	.	.	-0.419
Sigma	.	.	.	2.662
Lambda	.	.	.	-1.116
SElambda	.	.	.	0.205
Converged	.	.	1	1

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
All estimation standard errors are clustered at household level and all samples are weighted.
Variables definition refer to Table 4.1

both in the short and long run. We suggest that the insignificance of migration is because of a lack of differentiation regarding the destination of migration. Hence, we underestimate the effect of migrating to urban areas on the dropouts and complete years of schooling. Later, we will show the variation from different migration destinations.

In the selection equation, we include the parents' time preference variable as a proxy for the discount rate. Being more patient, which means attributing more value to the future, contributes to a lower probability of children dropping out compared with parents in the most impatient category. However, the proxy for expectation of the return to schooling does not show any significant effect. These two findings imply that in keeping children in school, parents do not necessarily think about the longer term.

Other individual characteristics such as birth order, repeating a class in primary school and gender do not affect the probability of dropping out. Similarly, household characteristics such as the children's location in 1997, in an urban area or Java island and the number of children in the household do not affect children being out of school.

Parental Education Effect

The empirical model above included parents' education as a covariate determining the complete years of education and the selection of dropouts in the crisis period.[4] In the models the parents' education not only determines the completed years of education in 2014 but also the probability of a child being out of school during the crisis period in 1997–1998.

In four different model specifications, the intergenerational education coefficients are ranging from 0.40 to 0.46 (see Table 4.4). It means that an increase of a year of education attainment by the parent increases 0.40–0.46 years of children education. It is much lower than the average intergenerational education coefficients for all cohorts obtained by Hertz et al. (2007) at 0.78. The difference may be due different definitions of parents' education,[5] inclusion of migration and crisis, and the younger cohort in our analysis.

The higher the parents' education in 1997 the lower the probability of the children being out of school during the crisis. Both probit specifications in the first stage of TSLS and ETR show

[4]The definition of parents' education is the highest education attained between mother or father, with the assumption that the partner with more completed years of schooling will have more influence and play a greater role in their children's education.

[5]We use the more educated parent's education while Hertz et al. (2007) use the average between both parents.

a similar magnitude of parents' education effect on the children dropping out during the financial crisis.

Migration Effect

The differences in migration destination may play a role in the selection to drop out. The IFLS recorded whether a household moved between different years of the survey. The definition of moving to an urban or rural area follows the record whether the household in our sample was living in either an urban or rural area in 2000. Besides the destination, we also look at the difference between father's and mother's migration.

Table 4.5 shows four estimations where the first is our main estimation, which considers the migration variable as all migration regardless of the destination. The base comparison for all the migration variables is the non-migrants. Our main variables of dropping out during the crisis, the food shock and JPS scholarship status are consistent in all models.

As we differentiate between migration destination, we find that when the household migrates to an urban area, children are more likely to drop out if the household experiences negative food expenditure shock than if they stayed or migrate to a rural area (see Figure 4.1). The reverse happens when the household experiences a positive food expenditure shock during the crisis. Hence, if the household had a negative food shock, moving to a rural area is better than staying in or moving to an urban area.

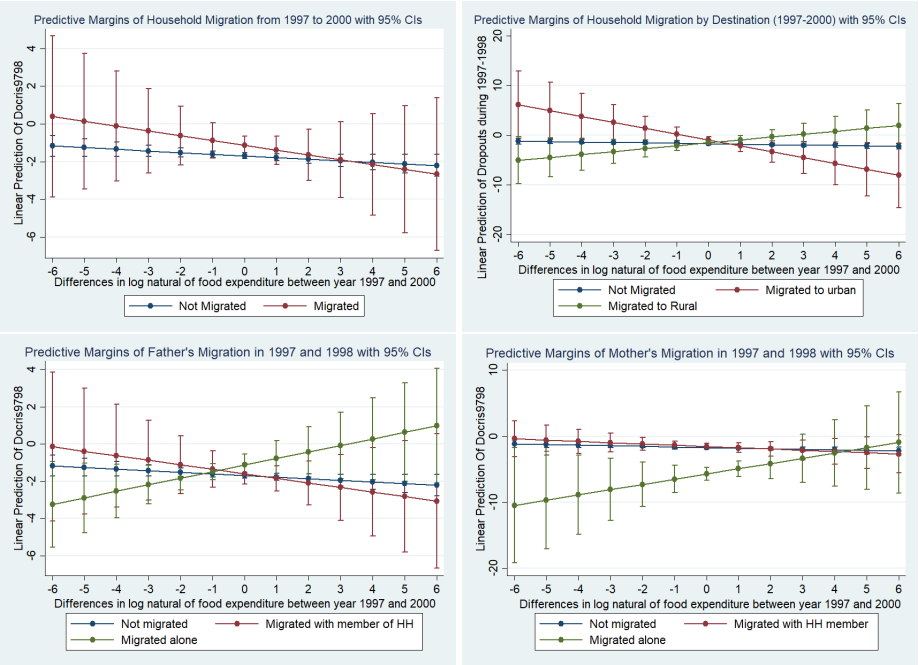
In the father's and mother's migration, we also determine whether they migrated alone, which implies they left their children behind. The mothers' migration, leaving the children behind, decreases the probability of dropping out. However, the joint effect of mother's migration with food expenditure shock is not significant. Figure 4.1 shows that left-behind children from a household that experienced negative food expenditure shock received much more benefit, and are less likely to drop out, as a result of their parents' migration than those who joined the migration or whose parents did not migrate.

TABLE 4.5: Dropout Impacts on Complete Years of Schooling: Different Migration Criteria

Dep.var: YoS in 2014	(1) All	(2) Destination	(3) Father's	(4) Mother's
Dropouts9798	-1.353**	-1.220**	-1.333**	-1.587**
	(0.654)	(0.487)	(0.637)	(0.783)
Parents' edu14	0.459***	0.462***	0.459***	0.457***
	(0.018)	(0.017)	(0.018)	(0.019)
Male	-0.217*	-0.217*	-0.217*	-0.170
	(0.111)	(0.111)	(0.111)	(0.114)
Age14	-1.304***	-1.353***	-1.299***	-1.366***
	(0.375)	(0.368)	(0.374)	(0.394)
Age^2_14	0.024***	0.025***	0.024***	0.025***
	(0.007)	(0.007)	(0.007)	(0.007)
Constant	24.964***	24.995***	24.901***	25.672***
	(5.201)	(5.196)	(5.185)	(5.443)
Selection equation				
Weather shock	-0.030	-0.027	-0.029	-0.035
	(0.065)	(0.066)	(0.065)	(0.070)
JPS00	-1.181***	-1.189***	-1.172***	-1.175***
	(0.339)	(0.339)	(0.335)	(0.357)
Food exp. shock	-0.086*	-0.087*	-0.088*	-0.090*
	(0.047)	(0.047)	(0.047)	(0.049)
Migration00	0.555**			
	(0.247)			
Interaction: migration00 × food exp. shock	-0.169			
	(0.355)			
Base 0. not migrated				
1. Migrated to urban		0.767**		
		(0.307)		
2. Migrated to rural		0.191		
		(0.274)		
Interaction: 1. migrated to urban × Food exp. shock		-1.099*		
		(0.564)		
Interaction: 2. migrated to rural × Food exp. shock		0.672*		
		(0.387)		
Base 0. not migrated				
1. Migrated			0.085	0.170
			(0.279)	(0.243)
2. Migrated alone			0.558*	-4.004***
			(0.315)	(0.484)
Interaction: 1. migrated × food exp. shock			-0.156	-0.099
			(0.324)	(0.239)
Interaction: 2. migrated alone × food exp. shock			0.440*	0.881
			(0.230)	(0.697)
/athrho	-0.447***	-0.445***	-0.451***	-0.407**
	(0.171)	(0.171)	(0.166)	(0.206)
/lnsigma	0.979***	0.979***	0.980***	0.967***
	(0.024)	(0.024)	(0.024)	(0.025)
Selection Equation's controls	Yes	Yes	Yes	Yes
Province differences	Yes	Yes	Yes	Yes
Observations	3,080	3,080	3,080	2,939
k	44	46	46	46
F	213.6	213.8	213.7	209.0
Rho	-0.419	-0.418	-0.423	-0.386
Sigma	2.662	2.662	2.663	2.630
Lambda	-1.116	-1.112	-1.126	-1.015
SElambda	0.205	0.205	0.202	0.232
Converged	1	1	1	1

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at the household level and all samples are weighted. Variables definition refer to Table 4.1



Source: Own calculation from IFLS 1–5 data.

FIGURE 4.1: Predictive margins of likelihood to drop out: different migration criteria

4.6.2 Income and Working in Agriculture in Adulthood

This section of the chapter examine how the change in the number of years of schooling completed by children who dropped out during the crisis affects their incomes and their probability of working in the agricultural sector in adulthood. We look into the difference in the impact of predicted complete years of schooling on labour outcomes between dropouts and non-dropouts. We also look at how ignoring food expenditure shock and education shock during the crisis may have underestimated the impact of an additional year of schooling on the incomes and probability of working in the agricultural sector.

Table 4.6 shows that there is no long-term impact of education shock during the crisis on income and agricultural work in adulthood. We ran seemingly unrelated regression with a restriction on the sample of dropouts and non-dropouts using the same model specification for both. Then, we performed a Chow test of predicted years of education and work experience. The Chow test shows that the coefficients of predicted years of schooling have no significant differences between the dropouts and non-dropouts, either for income or for work in agriculture. However, in the job experience variable, an additional year of job experience for the dropouts contributes 16% more income than for non-dropouts, although it makes no difference to the probability of working in agriculture.

These findings may occur due to the difference in the completed years of schooling being only 1.2 years less for dropouts than for non-dropouts. The small magnitude of the effect of dropping-out on complete years of schooling indicates a negligible effect in the long term on children's income and employment.

TABLE 4.6: Income and Working in Agriculture in 2014: Dropouts and Non-dropouts

	(1)	(2)	(3)	(4)
	Income		Agrwrk	
	Dropouts	Non-dropouts	Dropouts	Non-dropouts
Edupred	0.142***	0.116***	-0.317	-0.341***
	(0.050)	(0.015)	(0.280)	(0.054)
Exp14	0.214***	0.052*	0.235	-0.118
	(0.076)	(0.029)	(0.388)	(0.082)
$Exp14^2$	-0.008**	-0.001	-0.010	0.008*
	(0.003)	(0.002)	(0.016)	(0.005)
Age_14	-1.609**	0.103	-5.822	-0.177
	(0.681)	(0.190)	(4.002)	(0.692)
Age^2_14	0.028**	-0.002	0.097	0.003
	(0.012)	(0.003)	(0.066)	(0.012)
Male97	0.167	0.598***	1.159**	0.901***
	(0.191)	(0.059)	(0.502)	(0.233)
Urban_14	0.234	0.261***	-1.323**	-1.519***
	(0.160)	(0.064)	(0.530)	(0.230)
Java_14	-0.168	0.298**	-0.125	-0.763**
	(0.364)	(0.146)	(1.122)	(0.363)
Agrkab14			-1.151	2.603**
			(2.801)	(1.193)
Constant	34.068***	10.384***	87.674	4.625
	(10.099)	(2.666)	(60.991)	(9.853)
Provincial differences	Yes	Yes	Yes	Yes
Observations	201	1,806	201	1,806
	Chow test		Chow test	
	Income		Agrwrk	
Edupred	F(1,1552) =0.25		F(1,1432)=0.01	
	Prob > F =0.6142		Prob > F =0.9316	
Experience14	F(1,1552) = 4.12		F(1,1432) =0.81	
	Prob > F = 0.0426		Prob > F = 0.3679	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at the household level. All samples are weighted

Income is a natural log of permanent income

Agrwrk is a binomial variable of working in agriculture = 1 and not working in agriculture = 0

Variables definition refer to Table 4.1

TABLE 4.7: Income and Working in Agriculture in 2014: Predicted and Reported Years of Schooling

	(1)	(2)	(3)	(4)
Dep. var	Ln Income		Agrwrk	
	Pred.YoS	Rep.YoS	Pred.YoS	Rep.YoS
YoS14	0.130***	0.091***	-0.029***	-0.019***
	(0.012)	(0.007)	(0.004)	(0.002)
Experience14	0.052**	0.062***	-0.011	-0.010
	(0.021)	(0.020)	(0.007)	(0.007)
Experience2_14	-0.001	-0.001	0.001**	0.001**
	(0.001)	(0.001)	(0.000)	(0.000)
Age_14	0.044	-0.072	-0.042	-0.004
	(0.153)	(0.133)	(0.055)	(0.046)
Age^2_14	-0.001	0.001	0.001	0.000
	(0.003)	(0.002)	(0.001)	(0.001)
Male	0.595***	0.555***	0.092***	0.081***
	(0.047)	(0.046)	(0.015)	(0.014)
Urban	0.234***	0.204***	-0.195***	-0.192***
	(0.051)	(0.049)	(0.021)	(0.020)
Java	-0.155	-0.016	-0.376	-0.427*
	(0.594)	(0.572)	(0.255)	(0.246)
Agrkab_14			0.209**	0.186**
			(0.081)	(0.078)
Constant	11.492***	13.558***	1.470*	0.869
	(2.253)	(1.928)	(0.814)	(0.688)
Provincial differences	Yes	Yes	Yes	Yes
Observations	3,159	3,159	2,911	2,911
	Chow test		Chow test	
	Income		Agrwrk	
Edupred	14.94***		8.58***	
	0.0001		0.0034	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at the household level. All samples are weighted.

Income is natural log of permanent income

Agrwrk is binomial of working in agriculture = 1 and not working in agriculture = 0

Variables definition refer to Table 4.1

We ran a seemingly unrelated estimation comparing the same model with a different education variable, using predicted years of education from our main endogenous treatment regression and reported years of education. The seemingly unrelated estimation uses a stacking method that enables us to test whether the effect of predicted years of education on the children's income as adults is similar to the reported years of education. We use a similar method to see differences between predicted and reported years of schooling in determining whether the children are working in the agricultural sector or not in 2014. As suggested by Mood (2010), we use the linear probability model for working in agriculture to enable us to compare the years of schooling variable, before stacking them using the seemingly unrelated estimation.

Table 4.7 shows that an additional year of the predicted years of schooling results in 4% more income than the reported years of schooling. The adjusted Wald test is testing the difference between the predicted and reported years of schooling, showing that the coefficients are statistically different. Hence, we can say that an additional year of schooling with respect to dropping out during the financial crisis increased income by 4% more than without considering the crisis.

Similarly, the probability of working in the agricultural sector is much less for the predicted years of schooling than the probability associated with the reported one. For each additional predicted year of schooling, there is a 1% smaller probability of working in the agricultural sector compared to the reported years of schooling.

Although both differences between reported and predicted years of schooling are small, they are significant, as they indicate that without considering dropping out during the financial crisis, we will underestimate the return to schooling.

4.7 Heterogeneous Effects

In this section, we look at the different effects of pre-crisis conditions on the complete years of education of dropouts and non-dropouts. We interact with the household expenditure quintile position in 1997, age category in 1997, household location in 1997, and gender of the children. Table 4.8 shows the drop-out variables during the crisis, the respective heterogeneous variables that we want to see and their interaction. The drop-out variables are significant, except for the birth year effect, but the magnitude is slightly different.

Children who lived outside Java island in 1997 lost more years of schooling than those who lived in Java pre-crisis. Also, the interaction of those dropping out during the crisis and living in Java pre-crisis is significantly positive, indicating a lower likelihood of being a dropout than if they lived outside the island in 1997. In contrast, although living in an urban area pre-crisis led to more years of schooling, the interaction with dropouts is not significant. The sex of the children and the wealth status of their households in 1997 do not explain the different effects of dropping out on complete years of schooling.

The age of the children pre-crisis shows the different effects of dropping out on completed years of schooling, with the highest impact being on the children who were ten years old in 1997. It also shows that it barely affected the oldest and the youngest children in our cohort in the long run.

TABLE 4.8: Heterogeneous Effects

Dependent variable: years of schooling (YoS) in 2014	(1) Quintile	(2) Age	(3) Male	(4) Java	(5) Urban
Dropouts9798	-1.802**	-0.394	-1.410**	-2.170***	-1.236**
	(0.785)	(1.024)	(0.650)	(0.828)	(0.613)
Male97	-0.191*	-0.230**	-0.235*	-0.214*	-0.228**
	(0.111)	(0.112)	(0.121)	(0.112)	(0.110)
Interaction: dropouts9798 × male97			0.146		
			(0.292)		
Java97				-0.281**	
				(0.131)	
Interaction: dropouts9798 × Java97				0.965***	
				(0.310)	
Urban97					0.687***
					(0.135)
Interaction: dropouts9798 × urban97					-0.377
					(0.315)
2. Expcap_quint97 (base 1. Expcap_quint97)	0.299				
	(0.256)				
3. Expcap_quint97	0.579**				
	(0.230)				
4. Expcap_quint97	0.804***				
	(0.231)				
5. Expcap_quint97	1.201***				
	(0.248)				
Interaction: dropouts9798 × 2. Expcap_quint97	0.490				
	(0.452)				
Interaction: dropouts9798 × 3. Expcap_quint97	0.497				
	(0.430)				
Interaction: dropouts9798 × 4. Expcap_quint97	0.454				
	(0.495)				
Interaction: dropouts9798 × 5. Expcap_quint97	0.303				
	(0.498)				
7. Age97 (base 6. Age97)		-0.324			
		(0.290)			
8. Age97		-0.607**			
		(0.297)			
9. Age97		-0.462			
		(0.306)			
10. Age97		-0.161			
		(0.288)			
11. Age97		-0.849***			
		(0.301)			
12. Age97		-0.440			
		(0.309)			
13. Age97		-0.026			

Continue to the next page

Dep.var: YoS in 2014	(1) Quintile	(2) Age	(3) Male	(4) Java	(5) Urban
		(0.329)			
14. Age97		-0.180			
		(0.342)			
15. Age97		0.259			
		(0.382)			
16. Age97		-0.242			
		(0.435)			
Interaction: dropouts9798 × 7. Age97		0.944			
		(1.411)			
Interaction: dropouts9798 × 8. Age97		1.792			
		(1.461)			
Interaction: dropouts9798 × 9. Age97		-0.170			
		(1.525)			
Interaction: dropouts9798 × 10. Age97		-3.978***			
		(1.206)			
Interaction: dropouts9798 × 11. Age97		-1.039			
		(0.665)			
Interaction: dropouts9798 × 12. Age97		-1.074			
		(0.669)			
Interaction: dropouts9798 × 13. Age97		-1.992***			
		(0.480)			
Interaction: dropouts9798 × 14. Age97		-1.286***			
		(0.483)			
Interaction: dropouts9798 × 15. Age97		-0.809			
		(0.492)			
Interaction: dropouts9798 × 16. Age97		0.000			
		(0.000)			
Constant	22.899***	7.894***	24.844***	25.476***	23.549***
	(5.140)	(0.341)	(5.207)	(5.262)	(5.157)
Selection equation	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes
Provincial differences	Yes	Yes	Yes	Yes	Yes
Observations	3,080	3,080	3,080	3,080	3,080
k	59	75	49	50	50
F	87.45	58.91	178.6	153.9	161.6
Rho	-0.398	-0.405	-0.422	-0.397	-0.414
Sigma	2.631	2.633	2.663	2.650	2.644
Lambda	-1.046	-1.066	-1.123	-1.053	-1.095
SElambda	0.218	0.280	0.205	0.221	0.201
Converged	1	1	1	1	1

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
All estimation standard errors are clustered at the household level
All samples are weighted.
Variables definition refer to Table 4.1

4.8 Robustness Check

In order to check the robustness of the model, we exclude some of our main variables affecting dropouts and extend the dropout period from 1997–1998 to 1997–2000. We slightly change the specification model by excluding variables such as migration, food shock and weather and scholarship programme variables. The changes in model specification show no effect on the significance and impact of dropping out during the crisis on completed years of schooling. There is only a slight difference in the impact's magnitude (see Table 4.9).

However, when we extend the period of dropouts, the food expenditure shock becomes non-significant in explaining the dropouts. The higher difference in the impacts of dropping out may be due to the children in our sample who finished high school in 1999 and 2000, not continuing to university regardless of the economic shock experienced by the household.

TABLE 4.9: Robustness Check

	(1) Without migration	(2) Only food shock	(3) Without food shock	(4) Dropouts in '97–'00
Dropouts9798	-1.319**	-1.051**	-0.917*	
	(0.635)	(0.507)	(0.535)	
Dropouts9700				-4.978***
				(0.460)
Parents' edu14	0.460***	0.464***	0.468***	0.362***
	(0.018)	(0.017)	(0.017)	(0.018)
Male	-0.216*	-0.211*	-0.135	-0.376***
	(0.111)	(0.112)	(0.102)	(0.111)
Age14	-1.296***	-1.234***	-1.375***	-2.575***
	(0.374)	(0.366)	(0.342)	(0.413)
Age^2_14	0.024***	0.023***	0.025***	0.051***
	(0.007)	(0.007)	(0.006)	(0.008)
Constant	24.859***	24.066***	26.097***	40.835***
	(5.187)	(5.095)	(4.765)	(5.664)
Selection eq. dropouts9798				
Weather shock	-0.028		-0.025	-0.018
	(0.065)		(0.056)	(0.051)
JPS00	-1.177***		-1.127***	-0.322
	(0.334)		(0.315)	(0.199)
Food exp. shock	-0.086*	-0.088**		-0.017
	(0.046)	(0.045)		(0.037)
Migration00		0.528**	0.250*	0.375*
		(0.240)	(0.128)	(0.192)
Interaction: migration00 × food exp. shock		-0.201		0.097
		(0.343)		(0.354)
1. Parents' TP (based 3=Impatient)	-0.117	-0.122	-0.308*	0.018
	(0.199)	(0.199)	(0.185)	(0.135)
2. Parents' TP (based 3=Impatient)	-0.249*	-0.259*	-0.159	-0.046
	(0.144)	(0.143)	(0.126)	(0.102)
Returnsch97	-0.206	-0.191	-0.096	-0.405***
	(0.196)	(0.184)	(0.158)	(0.134)
Birthorder97	-0.001	-0.016	-0.064	0.130*
	(0.097)	(0.095)	(0.085)	(0.072)
Gapfin97	-0.316***	-0.326***	-0.334***	0.092**
	(0.055)	(0.051)	(0.044)	(0.044)
Repsd97	0.154*	0.131	0.097	0.234***
	(0.093)	(0.087)	(0.079)	(0.062)
Parents' edu97	-0.120***	-0.118***	-0.114***	-0.083***
	(0.014)	(0.013)	(0.012)	(0.011)
Age97	-0.141	-0.177	-0.150	0.218
	(0.191)	(0.184)	(0.160)	(0.135)
Age^2_97	0.013*	0.014**	0.012*	0.003
	(0.007)	(0.007)	(0.006)	(0.005)
Male	-0.139*	-0.125	-0.125*	-0.200***
	(0.082)	(0.081)	(0.071)	(0.064)
Numchild97	0.015	0.024	0.077	-0.115**
	(0.079)	(0.079)	(0.072)	(0.057)
Urban97	0.009	0.016	0.001	-0.229***
	(0.100)	(0.095)	(0.088)	(0.071)
Java97	0.019	0.060	-0.014	-0.057
	(0.173)	(0.169)	(0.140)	(0.127)
Constant selection	2.510	2.558	1.332	2.035
	(2.849)	(2.754)	(2.373)	(1.924)
/athrho	-0.454***	0.987***	0.997***	0.521***
	(0.166)	(0.023)	(0.024)	(0.120)
/lnsigma	0.980***	26.097***	40.835***	0.976***
	(0.024)	(4.765)	(5.664)	(0.026)
Provincial differences	Yes	Yes	Yes	Yes
Observations	3,080	3,080	3,727	3,079
k	40	42	41	44
F	213.6	211.5	245.4	240.3
Rho	-0.426	-0.482	-0.509	0.478
Sigma	2.664	2.682	2.709	2.653
Lambda	-1.134	-1.292	-1.380	1.269
SElambda	0.201	0.172	0.161	0.175
Converged	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at the household level and all samples are weighted.

Variables definition refer to Table 4.1

These children survived to stay at school during the crisis period. Other variables, including the JPS scholarship and migration, are less significant and have less magnitude in determining the dropouts during 1997–2000. It suggests that the base model specification was suitable for the dropouts during the crisis period, but not for the extension of the crisis period.

4.9 Conclusion

We studied the impact of household shocks during the Asian financial crisis in the 1997–1998 period on dropouts during that period and complete years of schooling in 2014 when the school-age children from 1997–1998 had already completed their schooling. Our sample is the children in the cohort 1981–1991, who were between the ages of 6–16 years old in the year 1997. Using an endogenous treatment model, we model dropping out as the function of an opportunity cost that will decrease if the difference in food expenditure before and after the crisis is less positive and parents are less impatient expressing a lower discount rate. In the selection to drop-out equation, we also control for the weather shock in the district in which the children lived in 1997, whether the children were receiving the JPS scholarship, some individual's and the household's characteristics in 1997, and the differences in provinces in 1997.

We found that the children who dropped out during the Asian financial crisis period have 1.35 fewer complete years of schooling in 2014 compared with those who remained in school. This little difference in education translates into no significant differences in income and probability of working in the agricultural sector between dropouts and non-dropouts. The impact of dropping out on completed years of schooling also does not differ across gender, being in an urban area, or due to wealth status. However, it is more prominent among the children who lived outside Java before the crisis. It has the highest impact on the children who were ten years old in 1997, whereas the oldest and the youngest children in our cohort were barely affected.

Household migration during the crisis period did not help to lessen the probability of dropping out. However, if the household experienced a negative food shock, moving to a rural area was better than staying put or moving to an urban area. The mother's migration, and leaving the children behind, helped to keep children in school. Moreover, left-behind children from a household that experienced negative food expenditure shock received much more benefit from their parents' migration than those that either joined the migration or did not migrate at all.

We show that the impact of the financial crisis on education is small and not long-lasting and parents' migration have impact whilst the household migration during the period is not, however, some aspects can be explored more in future studies. First, there are many scenarios of migration. This study covers household migration, meaning the household moving from the district in which they lived in 1997, and parental migration. However, one could study the impact of partial out-migration or in-migration to the household and differentiate between internal and international migration. Second, different government strategies to keep children in school in response to a systemic macroeconomic crisis could be examined. As the IFLS does not specify government assistance during the crisis, we could not analyse it. Finally, if one has long enough longitudinal data, the life course and different career paths of the children who are impacted by a shock in their childhood could be explored.

Chapter 5

Ethnicities and Intergenerational Occupational Mobility

5.1 Introduction

In chapter 3, we found that parental migration fails to promote intergenerational expenditure mobility. We consider that one of the reasons for this may be the high transmission of occupation between parents and their children. Furthermore, the ethnic influence on occupation choices leads to exclusive skills transfer for particular ethnic groups which results in intergenerational persistence. This chapter examines the interplay between migration and ethnicities and its influence to promote or withhold intergenerational occupational mobility.

The Indonesian population census in 2010 listed 1,331 different ethnic categories in the Indonesian population (Ananta et al., 2015). There are, however, about 15 main ethnic groups that dominate the country. Later in our analysis, we reduce ethnic categories into seven groups. Some ethnic groups have been known to hold a specific occupation that runs through generations, in particular for the ethnic migrants, which is known as the ethnic employment niche in the migration literature. We are unable to examine the ethnic employment niche in this research. However, we analyse occupational-educational matched due to migration in different ethnic groups to shows an indication to this employment niche.[1]

There are three primary questions that we try to answer in this study. First, how important is intergenerational occupational transmission in a different ethnicity? Second, how does a common ethnic root relate to matching skills and its interaction with migration? Third, how will migration affect human capital formation and the probability of getting a higher-skilled job? Hence, our analysis starts with one generation analysis on their occupational skills level,

[1]The IFLS does not have consistent specific occupation titles across the waves and in later waves the occupational titles and explanation of the task of the occupation are missing from the data.

and its matches with education level. We then assess the impact of parental migration on intergenerational occupational skills mobility as well as the intergenerational transmission of self-employment. This study contributes to the literature on migration and intergenerational occupational mobility, in particular, for different ethnicities in Indonesia.

This chapter consists of eight sections and the next section covers relevant literature. The chapter continues with the theoretical framework, data, and empirical strategy sections. This is followed by the findings and discussion that will answer the questions and finally a conclusion.

5.2 Relevant Literature

5.2.1 Ethnicity, Migration, and Intergenerational Mobility

In Indonesia, certain ethnicities have a different culture of migration. This migration culture also defines occupation resulting in an ethnic employment niche. Furthermore, the ethnic employment niche is transferred from one generation to the next. This section explores the interplay of ethnicity, migration and intergenerational mobility.

In the Indonesian context, ethnic refers to different ethnic groups. The channel to ethnic employment is the chain of migration where people from the same village origin sponsor the migration of their ethnic group. Graves (2009) suggested that a successful Minang ethnic migrant pioneer would open the way to a particular profession and transmitted the skills to their children and their extended relatives' children. In some ethnic groups, i.e. Minang, the process had been passed down through generations, resulting in a specific profession held by an ethnicity.

A study in Makassar city, eastern Indonesia, found an embedded ethnic group in the informal networks of small-scale self-employment (Turner, 2007). It found that the non-family labourers relied on employment from small business owners, e.g. food producers who are patrons in the destination area and recruit from the same ethnic group which creates ethnic employment specialisation. The self-employed traders who relied on family labour, such as gold and silver handicraft producers, opt to train their children and close relatives to engage in their business. The reason behind this is their use of an expensive raw material which needs high trust between patron and the clients (Turner, 2007). Similarly, van Klinken (2003) suggests that in the lower end of the employment market, certain ethnicities tend to have a particular job due to ethnic dependent patron-client relationships. Stark and Wang (2002), in their theoretical

paper, prove that high-skilled migrants sponsor low-skilled migrants as it is optimal for them to subsidise the low-skilled migrants. The proof supports chain migration, and that migration is an event for cross generations.

The ethnic embedded patron-client relationship relies highly on the trust between the patron and clients. The ethnic exclusivity is mainly due to less trust in individuals from other ethnic groups. Migration changes the ethnic composition and diversity in the destination area, which in turn, affects the trust between different ethnic groups (Mavridis, 2015). Both Turner (2007) and van Klinken (2003) agreed that the system is exclusionary to other ethnic groups. The exclusivity of this ethnic dependent patron-client relationship reflects between ethnic inequality as well as the intergenerational persistence within ethnic groups. Suryadarma et al. (2006) suggest a greater inequality between four ethnic groups of Chinese, Malays, Bugis and Javanese than within the ethnic group. Although, van Klinken (2003) suggests that the ethnic groups in Indonesia are unranked, i.e. on average the ethnic Javanese are not necessarily richer than other Indonesians, despite being an ethnic majority.

In economic literature, Borjas (1992) suggests the concept of this ethnic employment specialisation as ethnic capital. He defines it as externalities where parents' skill and the skills of the ethnic group of the parents determine the children's skill accumulation. He suggested that the ethnic capital is significantly affecting the intergenerational mobility of the immigrants in the US with a more considerable significance for the second than the third generation. In much earlier years, Becker and Tomes (1979) suggest a difference of intergenerational mobility through the different influence of the degree of inheritability and the propensity to invest in a closed and open society.

Study on the occupational mobility of migrants in Indonesian cities finds a mixed result. Kong and Effendi (2011) suggest a high degree of migrants' occupational mobility in the four cities of Medan, Tangerang, Samarinda and Makassar, although most are in connection with downward mobility to a more unskilled occupation rather than upward mobility. In contrast, Manning and Pratomo (2013) argue that migrants do not become trapped in an informal sector and have better earning compare to their first job in the destination area. The authors of both studies agree that education is a crucial mechanism to promote occupational mobility and, further, Kong and Effendi (2011) suggest that this occupational mobility extends to parental education and occupation.

5.2.2 Intergenerational Transmission of Self-employment

Kwon, Heflin, and Ruef (2013) suggest that ethnic relations support self-employment. The higher level of social trust leads to a higher probability of being self-employed for individuals. They also emphasise the importance of a highly connected group to a larger society on incubating the self-employment. The entrepreneurial incubation not only relates to the skills but also to get access to finance. In the Indonesian context, Okten and Osili (2004) suggest that family and community networks are important to know where the funds are available, and in increasing loan approval from credit institutions.

Empirical evidence shows the transmission of parental self-employment to the children. Lindquist, Sol, and Praag (2015) suggest that there is a 60% increase in the probability of becoming an entrepreneur for the biological children of an entrepreneur compared with the children from non-entrepreneurial parents in Sweden. The intergenerational transmission is even further to the third generation of immigrants in Sweden (Andersson and Hammarstedt, 2010). Similar findings are also found in Finland (Niittykangas and Tervo, 2002), Denmark (Sørensen, 2007) and in the USA (Dunn and Holtz-Eakin, 2000). Also, the self-employment relates to three times more family members who also become an entrepreneur (Djankov et al., 2006).

5.3 Theoretical Framework

Following Borjas (1992), we assume that the human capital k of individual i is a combination of the human capital children inherit from their parents k_p and the average human capital stock of the social group $\bar{k_s}$ affecting the children's human capital accumulation:

$$k_i = (\alpha_p k_p)^{\beta} (\bar{k_s})^{1-\beta} \tag{5.1}$$

where $0 < \beta < 1$ shows the relative importance of the human capital endowment received from the parents and the societies and $0 < \alpha < 1$ represents the parents' level of investment in children's human capital. The α is the decision variable.

The accumulated human capital will translate into the occupational skill level s_i of each individual:

$$s_i = f(k_i) + \epsilon_i \tag{5.2}$$

where $f'(k_i) > 0$ and $f''(k_i) < 0$. ϵ_i is a random component which introduces luck and randomness into the determinations of the skill level of i.

For simplicity, we assume that there are two distinct but hierarchical types of jobs requiring different skill levels, e.g. low skilled and high skilled. The skill level is, however, no guarantee that individuals find a job j, which corresponds to their skill level. Instead, getting a job that matches education and occupational skills depends, among other factors, on the individual's social capital sc_i. The probability of getting a low-skilled or high-skilled job can be expressed by a latent variable function: $j' = X'\gamma + u_i$.

$$j_i = \begin{cases} 1, & \text{if } \gamma_0 + \gamma_1(f(k_i) + \epsilon_i) + \gamma_2 sc_i + u_i \leq 0 \\ 2, & \text{if } \gamma_0 + \gamma_1(f(k_i) + \epsilon_i) + \gamma_2 sc_i + u_i > 0 \end{cases} \tag{5.3}$$

The ethnicity and its employment niche are embedded in the individual's social capital sc_i, which may change due to their migration behaviour. On the other hand, parental migration changes the parents' level of investment in children's human capital ($0 < \alpha < 1$) and the average human capital stock of the parents' and children's ethnic group ($\bar{k_s}$).

Migration that can result in intergenerational occupational mobility or persistence depends on the ethnic influence on the probability of getting a similar skill level job to their parents. If the ethnic influence is strong enough across generations, it will affect the children's human capital accumulation $f(k_i)$ by the domination of ethnic groups' average human capital stock $\bar{k_s}$ over the parents' human capital investment. When the ethnic employment niche persists over generations, the individual's social capital sc_i will dictate the probability of getting certain jobs, instead of their human capital accumulation.

5.4 Data

We use all the five waves of the Indonesian Family Life Survey (IFLS). The IFLS represents 80% of the Indonesian population. It provides us with retrospective data on migration and employment. It also enables us to match children and their parents to examine the intergenerational effect of migration. We also utilise weather data from the National Oceanic and Atmospheric Administration (NOAA) of the United States and provincial out-migration rate from Statistics Indonesia publications based on census and inter-census data.

We have two different sets of data, all adult individual data and all adult matched with parents' data. We track the employment and migration history of individuals aged 15–65 years old. This individual data set is the base for our regressions to match with parental data. The matching is based on the age of the individuals and their parents. We joined the mother's and father's information, getting the highest specification between them, for example, if the mother's occupational skill is higher than the father's then we use the mother's data. Because not all individuals can be matched with their parents, we are left with around 21% of all individual.

The following sub-sections show descriptive data of ethnicity, occupation and the mean differences of variables that we use in the empirical model.

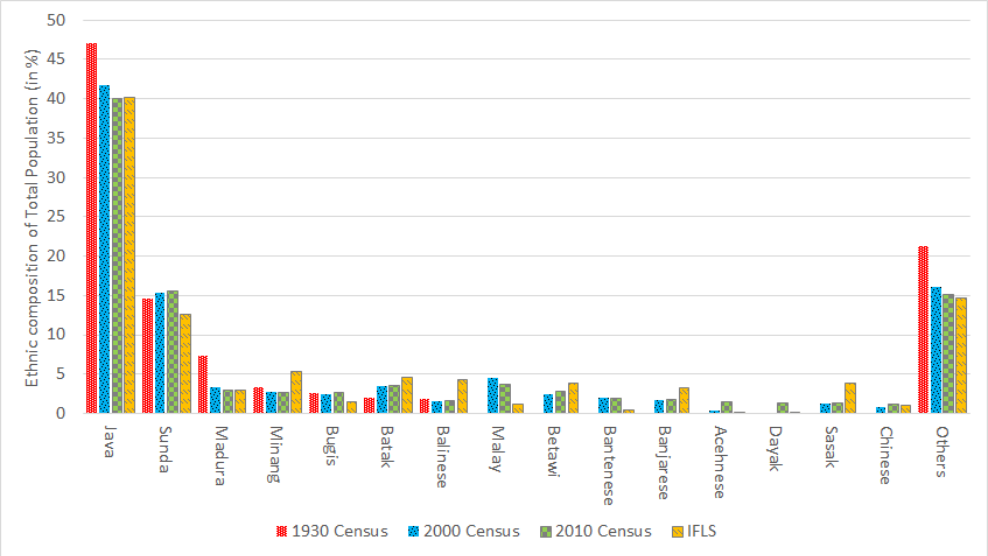
5.4.1 Ethnicities in Indonesia

The IFLS questionnaire includes ethnicity question in two modules, the individual module by each individual and the household roster module by the head of household or spouse. In the individual adult module, four ethnic related questions can be used to determine ethnicity: self-reported ethnicity, the father's ethnicity, the mother's ethnicity and the ethnic group that is primarily influential on the individual's daily activities. We define an individual's ethnicity from their self-reported ethnicity. As some respondents report two or more ethnicities, we then define the primary ethnicity as the self-reported ethnicity that follows the father's ethnicity and if they are Minang then from their mother's ethnicity. If the individuals did not report any ethnicity in their individual module, we use reported ethnicity in the household roster. If both are not available, we use ethnic influences.

Figure 5.1 shows the composition of the ethnic groups from the 1930, 2000, 2010 census and our sample using the IFLS data. Javanese, in the IFLS, as the ethnic majority in Indonesia, is representative of the population, although some are under-represented (i.e. Bugis) or over-represented (i.e.Batak and Balinese). The changes in ethnic composition are due to changes in fertility (Javanese, Sundanese, Madurese, and Chinese) and re-classification of the ethnic group (Malay) (Ananta et al., 2015). Arifin et al. (2015) calculate the ethnic fractionalisation[2] and the polarisation[3] index in Indonesia. They suggest that Indonesia has more ethnically fractionalised individuals but less polarised groups in a region. On another note, the 2010 population census also shows that local ethnic groups dominate their origin regions, with Javanese being prominent non-local ethnic groups in Sumatra and Kalimantan

[2]The probability of having two random different ethnic individuals in a region.
[3]The concentration of two or few equal sized ethnic groups in a region

(Statistics Indonesia, 2011). It also supports our finding in chapter 3 that most Indonesians do not migrate too far.



Source: The 1930 census is from van Klinken (2003) and the 2000 and 2010 census are from Ananta et al. (2015).
Notes: The IFLS data on ethnicity is from individuals aged 15–65 years old. The first list of ethnic categories in Indonesia is the first complete census of pre-independence Indonesia in 1930. In this population census there are 137 ethnic groups, which mostly reside outside Java, whilst Java is more homogeneous with only three primary ethnic groups of Javanese, Sundanese, and Madurese (van Klinken, 2003). Later in 2000, the first post-independence census that includes ethnic questions listed 1,072 ethnic groups (van Klinken, 2003). In 2010, the census list 1,331 ethnic, sub-ethnic and sub-sub-ethnic groups where the 15 largest ethnic groups covered 84.89% of the total population (Ananta et al., 2015).

FIGURE 5.1: Ethnic composition in Indonesia

Ethnic Fluidity and Ethnic Influence

Although ethnicity is attached to a person at birth and in a paternalistic society follows the father's ethnicity, an individual can change their ethnic identity later on (Ananta et al., 2015). The fluidity of ethnicity in Indonesia happens through migration and inter-ethnic marriage. Although we realise that there may be ethnic fluidity over time, for our analysis, we need ethnic consistency. We then decided to use the most current ethnic identification in 2014 for consistency as there are only 4.7% of ethnic fluid individuals.

The children of migrants may also identify a different ethnicity from their parents and affiliate themselves with their adopted society in the migration destination. However, we find that most respondents identify their ethnic group as their parents' ethnic group, even if they self-assign themselves a different ethnicity as their ethnic influence. Table 5.1 shows that about 97–98% identify the same ethnicity as their parents. A bigger discrepancy happens with regard to ethnic influence. The percentage column shows that 51% of respondents have identified their ethnic influence as a different ethnicity than their self-reported ethnicity. In the

case that an individual is more connected to their influential ethnic group than their parents' ethnic group, then the ethnic employment niche may be underestimated.

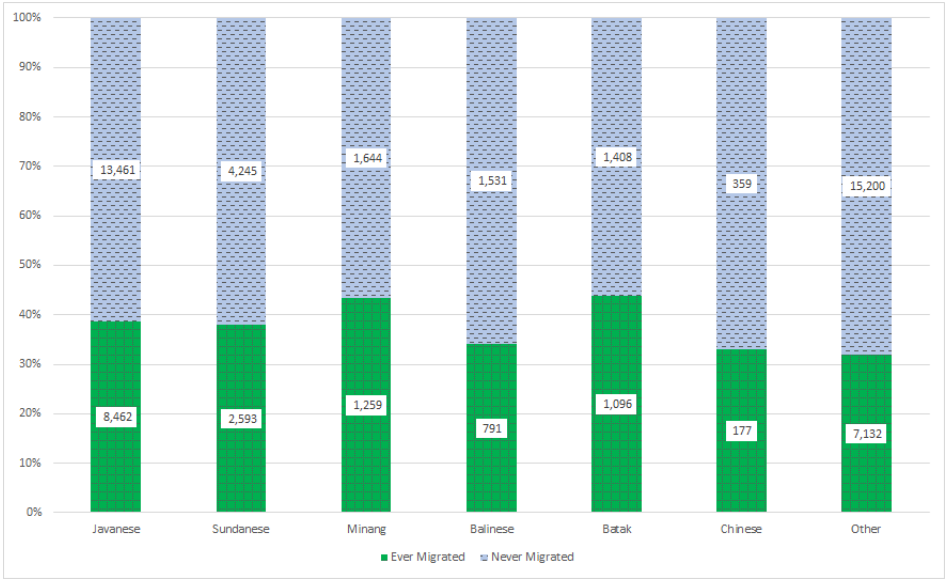
TABLE 5.1: Self-reported Ethnicity Matched to Parent's Ethnicity and the Ethnic Influence

	Father's ethnicity		Mother's ethnicity		Total row	%Row
	Different (%)	Similar (%)	Different (%)	Similar (%)		
Ethnic influence						
Different	2.26	97.74	3.29	96.71	29,906	51.34
Similar	3.36	96.64	3.54	96.46	28,341	48.66
Total	1,626	56,621	1,986	56,261	58,247	
%Column	2.79	97.21	3.41	96.59		

Different and similar refers to self-reported ethnicity different to respective variables
Author calculation from IFLS 1–5.

Ethnic Migration

Figure 5.2 shows people who have ever migrated from different ethnic groups with the most prominent are the Minang, as expected. Although, the Batak ethnic group seems to have nearly similar figures as the Minang. The Sundanese and Javanese figure are almost the same but less than Minang and Batak. The Chinese ethnic group as an ethnic minority has a smaller number of individuals than others but did not migrate as much as we expected.



Source: The data is from all individuals data of the IFLS 1–5. Notes: Ever migrate means that the individual has ever migrated at least once in all the years. Total Individuals is the individuals that identified for a particular ethnicity.

FIGURE 5.2: Migration by ethnicity

5.4.2 Occupational Skills

The IFLS does not identify the skill level but has detailed categories of occupation. To classify the skill level, we use the International Standard Classification of Occupations (ISCO-08) from the International Labour Organisation. ISCO-08 has four skill levels, which are measured based on the task involved and types of skill required. The guidance for classifying the skill level also includes the type of occupations (the detailed skill level classification for each occupation category is in Appendix A.1). We also create a variable of matching education with individual's occupational skill based on three categories: a downward movement is made if their education is higher than required by their occupational skill, matched if it is the same, and upward if it is lower.

The occupational skills data from the employment history of occupations that an individual have ever worked shows that almost half are in the lowest skills, and only about 9% in the upper and highest occupational skill level. About two-thirds of the individual with lowest occupational skilled jobs have education-occupation skills matched. Meanwhile, for the higher occupation skill level, more people have an occupation where the skills are lower than their education (downward).

TABLE 5.2: Skills-Education Matched

	(1)	(2)	(3)	(4)	(5)
		Skills-education matching (%)			
Skills	% of Skills	Downward	Matched	Upward	Total
1	48.98	-	71.75	27.18	100
2	41.22	54.86	34.31	10.21	100
3	6.98	53.04	20.65	25.77	100
4	2.42	79.57	20.20	-	100
Total	100	28.24	51.21	19.32	100

Author calculation from IFLS 1–5.

Ethnic Concentration in Occupations

The IFLS categorises occupation into a hundred different categories (see the table in Appendix A.1). The grey shade shows the top ten occupations that respondents have ever worked of seven different ethnic groups. We have 70,937 occupations individuals[4] where some individuals may work in two or more different jobs during their career life. Table 5.3 shows the list of all occupations that included in the top ten proportion for each ethnic group. The number in the table shows the percentage of occupations individuals in a particular ethnic group, i.e. 16.88% of Javanese working as agriculture and husbandry workers.

[4]Occupation individuals refer to every occupations that an individual have ever worked

Table 5.3 also shows that most of the respondents are working in low-skilled jobs (skill 1 and 2). The top two occupations are agriculture and retail jobs. However, the Chinese are an exception as they are working more in retail than agriculture. Looking at the shaded area in the table, we can see that Chinese and Balinese are a little different from the other ethnic groups. The Chinese are doing more managerial jobs. The Balinese are working as proprietors in catering and lodging services. Meanwhile, there are similarities between Javanese and Sundanese, and Minang and Batak, as they are from neighbouring regions. The figure for Minang and Batak ethnic groups confirms some known stereotypes of them: the Batak as transport operators (4.11%) and the Minang as working proprietors in the wholesale and retail trade (5.33%). Although the Sundanese are similar to Javanese, they have two occupations that are not included in the Javanese top ten occupations, which are cooks, waiters, and related workers and labourers not else classified.

TABLE 5.3: Top 10 Occupations Have Ever Worked by Ethnic Groups (percentage)

Skill	Occupation	Java	Sunda	Minang	Batak	Balinese	Chinese	Other	All
1	Agricultural and animal husbandry workers	16.88	10.39	13.10	25.25	14.62	2.10	20.83	17.40
2	Salesmen, shop assistants and related workers	13.50	14.48	15.57	13.28	16.65	24.39	14.58	14.31
1	Bricklayers, carpenters and construction workers	5.06	5.13	4.57	3.45	4.70	2.75	4.63	4.79
1	Maids and related service workers NEC	5.35	5.07	3.25	3.16	3.83	3.39	4.20	4.64
2	Working proprietors (catering and lodging)	3.98	4.48	4.29	3.34	6.36	3.23	3.30	3.89
2	Food and beverage processors	4.18	3.18	2.78	2.20	1.96	4.68	3.44	3.57
2	Transport equipment operators	2.80	3.90	4.29	4.11	2.76	1.78	4.02	3.47
3	Teachers	2.34	2.56	4.01	3.41	3.33	2.75	2.75	2.68
2	Working proprietors (wholesale and retail trade)	3.07	1.90	5.33	3.82	2.80	3.23	1.66	2.58
2	Tailors, dressmakers, and related workers	2.56	3.66	3.62	0.77	2.20	2.75	1.78	2.39
1	Service workers not elsewhere classified	2.12	2.54	2.50	2.46	3.30	2.75	2.34	2.33
1	Cooks, waiters, bartenders and related workers	2.07	2.92	2.24	1.61	3.30	1.13	1.80	2.11
1	Laborers not elsewhere classified	1.97	2.69	3.37	2.02	2.03	1.78	1.88	2.10
2	Clerical and related workers not elsewhere classified	2.01	2.31	1.82	2.06	1.76	4.20	1.87	2.00
1	Material handling and related equipment (i.e freight)	1.57	1.88	1.35	2.17	2.83	2.42	2.06	1.85
1	Fishermen, hunters, and related workers	1.33	1.29	0.87	1.54	4.00	0.81	2.42	1.80
2	Bookkeepers, cashiers, and related workers	1.61	2.09	1.57	1.69	1.70	4.20	1.49	1.65
2	Machinery non-electrical workers	1.26	1.69	1.04	1.21	0.50	3.39	1.02	1.20
2	Production supervisors and general foremen	0.96	1.26	1.26	0.95	0.43	3.39	1.20	1.09
1	Planters and farmers	0.96	0.24	1.46	2.79	2.76	-	0.74	0.97
3	Managers	0.47	0.36	0.39	0.47	0.37	3.07	0.42	0.45

Author calculation from IFLS 1-5.

The percentage is column percentage, where a 100% is on the ethnicity not the occupations ever worked.

5.4.3 Self-employment

The IFLS classifies the working status of each working individual into eight categories. Based on this classification, we grouped all self-employed individuals into one category as self-employed. Table 5.4 shows the working status of our top five occupations. In all occupations, the self-employed entrepreneur makes up about 25.47% with almost half of our observed individuals working as private workers (48%).

We also examine the occurrence of self-employment in the top five occupations. The self-employed pople are, in particular, in sales workers (47.18%) and working proprietors

(45.98%). Meanwhile, for agriculture and animal husbandry workers, the occupation in which most people have ever worked, the workers are primarily unpaid family workers (42.59%), and the self-employed are about 27.38%. Further, maids and related housekeeping service workers and construction workers are mainly employees working for private employers.

TABLE 5.4: Work Status and Top Five Occupations

	All occupation		Agricultural		Sales and related		Maids		Construction		Proprietors*	
	Total	Percentage	Total	%	Total	%	Total	%	Total	%	Total	%
1:Self-employed	11,189	15.68	1,699	13.21	3,471	34.46	363	9.94	193	5.78	629	23.63
2:Self-employed unpaid workers	6,255	8.77	1,759	13.68	1,182	11.73	168	4.60	124	3.71	544	20.44
3:Self-employed paid workers	730	1.02	63	0.49	100	0.99	24	0.66	22	0.66	51	1.92
4:Government workers	4,866	6.82	235	1.83	85	0.84	340	9.31	78	2.33	22	0.83
5:Private workers	34,489	48.33	2,751	21.40	3,622	35.95	2,141	58.64	2,010	60.16	943	35.42
6:Unpaid family workers	9,581	13.43	5,476	42.59	1,316	13.06	226	6.19	121	3.62	371	13.94
7:Casual workers (agriculture)	1,136	1.59	757	5.89	17	0.17	24	0.66	26	0.78	12	0.45
8:Casual workers (non-agriculture)	3,110	4.36	118	0.92	281	2.79	365	10.00	767	22.96	90	3.38
Total	71,356	100	12,858	100	10,074	100	3,651	100	3,341	100	2,662	100

Author calculation from IFLS 1–5.

*Working proprietors for food and lodging.

5.4.4 Variable Definition

Table 5.5 defines each variable that we use in our model. A more detailed explanation of the empirical strategy will be provided in the next section.

TABLE 5.5: Variable Definition

Variable	Definition
Migration	A dummy variable of migration out of district (Kabupaten). Migrated = 1 and non-migrated = 0
Parental Migration	A dummy variable of parental migration out of district (Kabupaten) when their children below 15 y.o
Outmigration rate	Continues variable of provincial out-migration rate from census and inter census data
Weather_shock	Continues variable of average of negative weather shock in the origin district
Skills	Categorical variable of occupational skill, the lowest skill is 1 and the highest is 4
Parents' skills	Categorical variable of parental occupational skill, the lowest skill is 1 and the highest is 4
Skills-education matching	Occupational skill matching with education, under-matched = 1, matched = 2 and over-matched = 3.
Self-employment	A dummy variable of self-employment for the children. Self-employed = 1 and non-self-employed = 0
Parents' self-employment	A dummy variable of self-employment for the parents. Self-employed = 1 and non-self-employed = 0
Ethnicity	Categorical variable of ethnicity, consist of seven groups of ethnicity.
Occupational status	Categorical variable of occupational status
Number of migration	Continues variable of number of migration of individuals
Age	Continues variable of the age
Age^2	Continues variable of the age squared
Age at first job	Continues variable of the age at the first job
Agricultural	A dummy variable of working in agricultural sector
Risk	Categorical variable of risk preference from 2007 and 2014 survey, highest risk taker is 4
Female	A dummy variable of sex
Eduyear	Continues variable of years of education
Parents' eduyear	Continues variable of parents' years of education - the highest between father and mother
Urban	A dummy variable for being in the urban area at a particular year, being in urban area = 1
Married	A dummy variable for marital status, married = 1
HH with children under 10 y.o	A dummy variable for household who has children age 10 years old and less
Employed	A dummy variable for respondents who work, employed = 1
P_age	Continues variable of parents' age
P_age^2	Continues variable of parents' age square

5.4.5 Migrants and Non-Migrants Profile

Table 5.6 shows the mean of the variables that we use in our models and it is divided by migrants and non-migrants for both individual sets and parental sets. It shows three different sets of data on our analysis on the impact of individual migration and parental migration.

The parental migration part consists of the sample used for looking at children's occupational skills and children self-employment. The smaller observation number for parental migration is because some individuals do not have any parental matched data.

The occupation skills are significantly higher for individual migrants than the non-migrants. The means also confirm our previous suggestion that the respondents mostly are in the first and second occupational skill level. In terms of education-skills matching, on average, both migrants and non-migrants rounded to education-skills matched. But, the migrants have more people who are upwardly matched.

There is no significant difference in the children's occupational skill regarding their parents' migration status. Parents' self-employment status also has no differences between parents who migrated or stayed. A similar figure is true for children's self-employment status.

For our migrants subsample compared with the non-migrants, we have less female, more educated people, more people living in an urban area, fewer people with children under ten years old, more people being employed and more people from the provinces with a high out-migration rate, both individual and parental. More of the individual migrants are single compared to the non-migrants, but more of the children from migrated parents are married. Also, the parents who migrated are more educated and on average about 2.5–2.7 years older than non-migrated ones.

TABLE 5.6: Mean Differences of the Variables for Migrants and Non-Migrants

	Individual Migration			Parental Migration and occupational skill			Parental Migration and Self-employement		
	Non-Migrants	Migrants	Difference	Non-Migrants	Migrants	Difference	Non-Migrants	Migrants	Difference
Skills	1.553	1.663	0.110***	1.593	1.617	0.023			
	(0.718)	(0.756)	(0.015)	(0.718)	(0.752)	(0.027)			
Skills-education matching	1.859	2.008	0.149***						
	(0.639)	(0.717)	(0.014)						
Self-employment							0.291	0.302	0.011
							(0.454)	(0.459)	(0.016)
Parents' skills				1.536	1.793	0.257***			
				(0.632)	(0.763)	(0.025)			
Parents' self-employment							0.427	0.442	0.015
							(0.495)	(0.497)	(0.016)
Number of migration				0.163	0.135	-0.027	0.158	0.136	-0.023
				(0.673)	(0.586)	(0.020)	(0.663)	(0.578)	(0.018)
Age	38.767	28.862	-9.905***	32.053	34.795	2.742***	32.277	35.205	2.928***
	(14.342)	(10.763)	(0.201)	(9.459)	(8.549)	(0.288)	(9.567)	(8.609)	(0.273)
Age at first job	26.538	22.565	-3.973***						
	(12.259)	(7.451)	(0.167)						
Agricultural							0.269	0.247	-0.022
							(0.443)	(0.431)	(0.015)
Risk							3.580	3.508	-0.072**
							(0.892)	(0.972)	(0.030)
Female	0.264	0.190	-0.075***	0.211	0.172	-0.039***	0.196	0.168	-0.028**
	(0.441)	(0.392)	(0.007)	(0.408)	(0.378)	(0.013)	(0.397)	(0.374)	(0.012)
Eduyear	7.159	9.474	2.315***	9.659	10.096	0.437***	9.525	10.101	0.576***
	(4.526)	(3.921)	(0.074)	(3.699)	(3.827)	(0.125)	(3.701)	(3.760)	(0.116)
Urban	0.509	0.561	0.052***	0.536	0.572	0.036**	0.533	0.571	0.038**
	(0.500)	(0.496)	(0.009)	(0.499)	(0.495)	(0.016)	(0.499)	(0.495)	(0.015)
Married	0.745	0.583	-0.162***	0.628	0.734	0.106***	0.637	0.756	0.119***
	(0.436)	(0.493)	(0.008)	(0.483)	(0.442)	(0.015)	(0.481)	(0.430)	(0.014)
HH with children under 10 y.o	0.187	0.154	-0.033**	0.089	0.044	-0.045***	0.078	0.043	-0.036***
	(1.154)	(0.971)	(0.016)	(0.513)	(0.347)	(0.013)	(0.473)	(0.335)	(0.011)
Employed	0.758	0.775	0.017**	0.754	0.817	0.063***	0.782	0.839	0.057***
	(0.428)	(0.418)	(0.007)	(0.430)	(0.387)	(0.013)	(0.413)	(0.367)	(0.012)
Weather_shock	0.224	0.218	-0.006	0.258	0.303	0.046***	0.260	0.300	0.040***
	(0.417)	(0.413)	(0.007)	(0.437)	(0.460)	(0.015)	(0.439)	(0.458)	(0.014)
Outmigration rate	28.682	30.978	2.296***	28.474	31.848	3.374***	28.395	31.960	3.565***
	(24.797)	(27.721)	(0.508)	(21.049)	(26.025)	(0.827)	(21.291)	(26.379)	(0.787)
Parents' eduyear				5.505	6.476	0.972***	5.369	6.390	1.021***
				(3.637)	(4.167)	(0.134)	(3.605)	(4.057)	(0.123)
Parents' age				35.932	38.398	2.466***	35.875	38.579	2.703***
				(9.487)	(9.047)	(0.301)	(9.532)	(9.069)	(0.284)
Observations	71,637	3,999	75,636	4,516	1,155	5,671	5,088	1,313	6,401

*** p<0.01, ** p<0.05, * p<0.1

The table shows the mean and standard deviation of the variables for each variable on migration sub-samples (migrants and non-migrants).
and then regressing on the migration variable to calculate the difference and its standard error.

5.5 Empirical Strategy

In the theoretical framework section, we showed that ethnicity is embedded in the intergenerational mobility mechanism. Migration may affect the intergenerational mobility by severing or tightening the migrants' ethnic employment niche. We will start the empirical work with the impact of individual migration on the probability of landing a higher-skilled occupation and its match with education. We will see the differences in the impact on different ethnic groups as they have different ethnic employment niches. Later, we explore the impact of parental migration on intergenerational occupational mobility. Also, we give a further example of the intergenerational transmission of self-employment for each different ethnic group.

We model the problems with ordered probit with endogenous treatment and endogenous selection regression. In this way, we incorporate endogeneity of the migration variable and add a sample selection of being employed as the unemployed are excluded from the occupational variables. The ordered probit regression of outcome y_i on covariates x_i with endogenous treatment t_i with levels v_{tj} and endogenous sample selection s_i is as follows:

$$\begin{aligned} y_{ji} &= v_h \quad iff \quad k_{(h-1)j} < x_i\beta_j + \epsilon_{ji} < k_{hj} \\ y_i &= \sum_{j=0}^{T} 1(t_i = v_{tj}) y_{ji} \\ t_i &= 1(z_{ti}\alpha_t + \epsilon_t i > 0) \\ s_i &= 1(z_{si}\alpha_s + \epsilon_s i > 0) \end{aligned} \tag{5.4}$$

The y_{ji} is a discrete ordered outcome variable associated with our binomial treatment value $j = 1, ..., T$. The v_h is the real number where $v_1, ..., v_h$. The occupational skills variable have four ordered values of the lowest of skills level one to the highest skills of level four $(v_1, ..., v_4)$. Meanwhile, on the education-skills match there are three categories of v_1 (downward match), v_2 (exact match) and v_3 (upward match). The binary self-employment is 1 for being self-employed and 0 for being non-self-employed and probit is used instead of ordered probit.

The covariates x_i include our variables of interest and control variables. In looking at the intergenerational occupational mobility, the parents' occupation is our variable of interest along with the ethnicity. The control variables are occupational status based on private workers' category, age, gender, education and being in an urban area. We control for the number of the children's migration in the model of intergenerational occupation transmission.

Also, in the self-employment transmission model, we add the children's risk preference category.

5.5.1 Treatment and Selection Identification

The z_{ti} are instruments for endogenous treatment variables of migration. In chapter 3, there was more discussion on the selection bias of the migrants. Our main variables for the treatment equation is the average weather shock and out-migration rate. The average weather shock is from the origin district where the respondents lived when they were 12 years old. Similarly, the out-migration rate is from census and inter-census data from the province the respondents lived in at 12 years old. The out-migration rate represents a migration network from the origin. If the origin province has a higher migration rate, then the people from that province are more likely to migrate. The out-migration rate does not explain the ethnic groups' movement but people's movements out of the province. Besides the two main instruments, we also include the respondent's age, sex and education. In parental migration, we use the instrument variables from the parents' data and each individual's data.

The outcome variable in our models is the respondent's occupational skills derived from their occupational title category in the IFLS. Hence, it excludes the unemployed, and it creates a sample selection bias. We model the sample selection as the probability to be employed. The z_{si} are explanatory variables for employment which includes age, sex, marital status, education and the number of children aged 0–10 years.

5.6 Findings

5.6.1 Migration and Occupational Skill

We hypothesise that migration may have a different impact on occupation for each ethnic group. The differences are striking for some but quite similar for others. Migration has a positive impact where the migrants, compared to non-migrants, have less probability of being in the lowest-skilled jobs but more probability of being in higher-skilled jobs (see Table 5.7, columns (1)-(4)). The migrants also have less probability of being in an occupation in which their skills are matched with their education level. The migrants are 4% more likely to work in an occupation where the skills needed for the job required less education than their current education level (downward), but 5% more likely to be upwardly matched (see Table 5.7, columns (5)-(7)).

As the migrants are less likely to have an occupation in which skills are matched with their education, it suggests that an ethnic network may play a role for differences in the probability. We will explain these ethnic differences in three ways: (1) the predictive margins, (2) income differences, and (3) the raw coefficients to see its differences compared to the based category, ethnic Java.[5] As we cannot interpret the magnitude of the impact from the raw coefficients, we predict the marginal effect of migration for each outcome for all samples and each ethnic group.[6] We also show ETR without and with the selection, which shows that including selection to employment in the model slightly increases the precision of the estimations, with smaller standard errors.

TABLE 5.7: Predictive Margins on Occupational Skills and Education-occupational Skills Match: Migration and Ethnicity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Occupational Skills				Occupational skills-education match		
	1	2	3	4	Downward	Match	Upward
(Migrated vs non-migrated)							
All	-0.117***	0.032***	0.046***	0.039***	0.039***	-0.094***	0.055***
	(0.021)	(0.010)	(0.011)	(0.011)	(0.014)	(0.010)	(0.009)
Migration by ethnicity							
(Migrated vs non-migrated)							
Javanese	-0.111***	0.035***	0.043***	0.033***	0.037***	-0.094***	0.058***
	(0.023)	(0.010)	(0.011)	(0.011)	(0.016)	(0.010)	(0.011)
Sundanese	-0.121***	0.023***	0.051***	0.046***	0.063***	-0.099***	0.036***
	(0.025)	(0.010)	(0.013)	(0.015)	(0.025)	(0.014)	(0.014)
Minang	-0.164***	0.015	0.068***	0.081***	0.061**	-0.100***	0.039***
	(0.026)	(0.011)	(0.014)	(0.020)	(0.032)	(0.015)	(0.020)
Balinese	-0.133***	0.030***	0.053***	0.050***	0.062	-0.106***	0.045
	(0.039)	(0.011)	(0.017)	(0.022)	(0.043)	(0.015)	(0.031)
Batak	-0.100***	0.038***	0.037***	0.025	0.019	-0.106***	0.087***
	(0.041)	(0.014)	(0.016)	(0.016)	(0.039)	(0.010)	(0.037)
Chinese	-0.095***	-0.034**	0.049***	0.079**	-0.082	-0.032	0.113
	(0.040)	(0.020)	(0.021)	(0.040)	(0.126)	(0.039)	(0.092)
Other	-0.117***	0.036***	0.045***	0.036***	0.034**	-0.091***	0.057***
	(0.023)	(0.010)	(0.011)	(0.011)	(0.018)	(0.011)	(0.011)

*** p<0.01, ** p<0.05, * p<0.1

Looking at the impact of migration on occupational skills over different ethnicities in Table 5.7, columns (1)-(4), we can see that the other ethnic groups are mimicking the average migration effects. Hence, the impact of migration for ethnic Chinese and Minang is the highest for the top occupational skills level (around 8% more probable than the non-migrants). Meanwhile, the Batak migrants have the highest impact on the second occupational skills level.

The skills-education match in Table 5.7, columns (5)-(7), shows how migration affects the probability of being in an occupation that requires skills that match with individuals' education. The migrants from all ethnic groups are less likely to have an exact skills-education

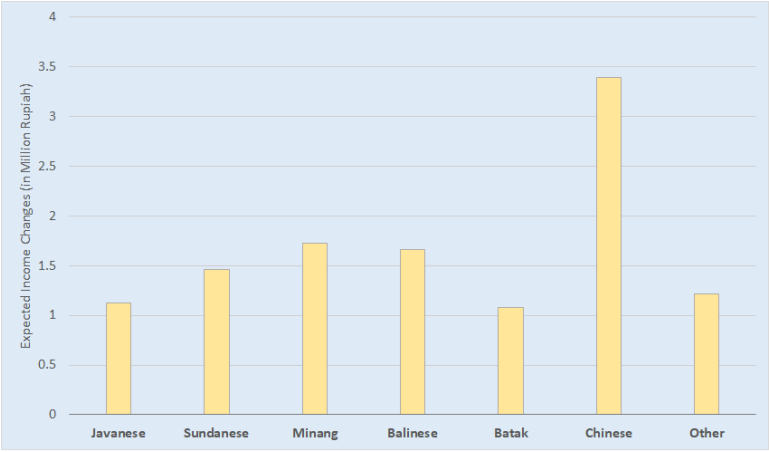
[5] Table 5.8 shows the raw coefficient of the ordered probit endogenous treatment with sample selection regression.

[6] Table 5.7 shows the average migration effect for each occupational skill level and its matched with education level

match than the non-migrants. The Balinese and Batak migrants are about 10% less likely to be in jobs with an exact match than the non-migrants, but there are no significant differences for upward and downward matched. Further, the Chinese have no differences in all skills-education matched categories regarding their migration status. It seems migration for the ethnic Chinese group has no impact on their education-occupational skills matching.

The fact that the migrants are less likely to work in a job that requires skills that match their education level suggests that migration leads to a skills-education mismatch. The ethnic employment niche may set the migrants to be in a job where the skills needed are lower or higher than their education level.

In order to see if the different probabilities for the migrants to get into different skills levels have an actual economic impact, we look at how it affects the expected income changes following migration. Figure 5.3 shows that between ethnic groups, the impact is more prominent for the Chinese and Minang. It is expected that for the Chinese, irrespective of their occupational skill, there will be 3.5 million Rupiah income changes, whilst for Minang 1.7 million Rupiah. The Javanese have less expected income changes than Sundanese and Balinese. Meanwhile, the Batak have the least benefit from migration. These findings are in line with the previous findings on the effect of migration on the probability of having a particular occupational skill which highlights the migration benefits for the Chinese and Minang ethnic groups.



Source: Author calculation from IFLS 1-5 data. Notes: We take the sum of average income of each occupation level for each ethnic group and multiply by the probability of gaining a particular job following migration as in the Table 5.7. As we do not have income information for each employment year, we use the available income data from each survey wave.

FIGURE 5.3: The average expected income changes when migrated

TABLE 5.8: Migration and Ethnicity: Occupational Skills and Education Match

	(1)	(2)	(3)	(4)
	Occupational skills		Skill-education match	
	ETR	ETR no-selection	ETR	ETR no-selection
Ethnicity × migration (interaction)				
Javanese as a base				
Sundanese × non-migrated	0.073***	0.091***	-0.117***	-0.131***
	(0.023)	(0.028)	(0.027)	(0.030)
Sundanese × migrated	0.133**	0.161**	-0.202***	-0.227***
	(0.061)	(0.073)	(0.068)	(0.075)
Minang × non-migrated	0.073**	0.088**	-0.001	0.006
	(0.033)	(0.040)	(0.042)	(0.046)
Minang × migrated	0.269***	0.328***	-0.087	-0.096
	(0.072)	(0.083)	(0.088)	(0.097)
Balinese × non-migrated	0.003	0.010	0.132***	0.146***
	(0.038)	(0.047)	(0.042)	(0.046)
Balinese × migrated	0.098	0.101	0.056	0.075
	(0.112)	(0.136)	(0.122)	(0.134)
Batak × non-migrated	-0.190***	-0.223***	0.284***	0.309***
	(0.046)	(0.055)	(0.046)	(0.050)
Batak × migrated	-0.222**	-0.293**	0.312**	0.353***
	(0.112)	(0.133)	(0.123)	(0.137)
Chinese × non-migrated	0.335***	0.414***	-0.261**	-0.276**
	(0.052)	(0.062)	(0.107)	(0.116)
Chinese × migrated	0.364**	0.483**	0.021	0.020
	(0.151)	(0.196)	(0.374)	(0.417)
Other × non-migrated	0.060***	0.070***	-0.067***	-0.076***
	(0.017)	(0.020)	(0.018)	(0.020)
Other × migrated	0.079*	0.101*	-0.055	-0.069
	(0.045)	(0.053)	(0.048)	(0.052)
cut values				
Non-migrated × cut 1	-0.058	1.639	0.622	-0.569
	(0.090)	(0.069)	(0.116)	(0.062)
Migrated × cut 1	0.082	1.697	1.354	0.272
	(0.189)	(0.209)	(0.210)	(0.208)
Non-migrated × cut 2	1.196	3.133	2.194	1.131
	(0.105)	(0.070)	(0.200)	(0.063)
Migrated × cut 2	1.281	3.112	2.588	1.619
	(0.198)	(0.213)	(0.203)	(0.208)
Non-migrated × cut 3	1.919	4.032		
	(0.119)	(0.076)		
Migrated × cut 4	2.001	4.008		
	(0.215)	(0.225)		
corr(e.employed,e.Y)	-0.784***		0.655***	
	(0.022)		(0.050)	
corr(e.migration,e.Y)	-0.155***	-0.154***	0.038***	0.055***
	(0.024)	(0.027)	(0.010)	(0.015)
corr(e.migration,e.employed)	0.095***		0.078***	
	(0.013)		(0.013)	
Observations	75636	57407	75,840	57,407
N_selected	57407	.	57407	.
N_nonselected	18229	.	18433	.
K	65	56	59	51
Chi2	6409	5518	2444	1639
Converged	1	1	1	1

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

All estimation standard errors are clustered at household level.

Variables definition refer to Table 5.5.

Full estimation in the Appendix, Table A.3 and Table A.4.

In looking at the ethnic employment, Table 5.8 shows the ethnic and migration coefficient compared with the base category of Javanese. All other ethnic groups except for Batak have more probability of being in higher-skilled occupation than the Javanese. However, for the Balinese, there is no significant difference to the Javanese. The Sundanese, Minang, Chinese and other ethnics group share similar features. They have more probability of gaining a higher-skilled occupation than the Javanese but less likely to have an occupation that matches with their education level. Reversely, the Batak ethnic group in our sample is less likely to be in a higher-skilled occupation. The Bataks compared to Javanese are more likely to gain an occupation where the skills required for the job match with or even higher than their education. In the next section, we explore the intergenerational occupational skills transmission from the parents to their children.

5.6.2 Parental Migration and Intergenerational Occupational Mobility

In comparison to the parents with the lowest occupational skills, the children of higher-skilled parents have more probability of obtaining higher-skilled occupations (see Table 5.10). The parental migration has a positive impact on the probability of the children getting higher skills. The children of the migrated parents are 23% less likely to work in the lowest-skilled occupations compared to children with non-migrated parents (see Table 5.9[7]). There is about 5% more probability for the children of the migrated parents to be in the third occupational skills level and 16% of obtaining jobs with the highest skills. However, there are no differences in the probability to be in second-level occupational skills between children of the migrated and non-migrated parents.

When we look at the impact of parental migration over parents' occupational skills, the result implies upward occupational mobility. The children of the lowest-skilled migrated parents have stronger upward mobility than the others, but they still have the lowest probability of being in the fourth occupational skills level compared to the children from higher-skilled migrated parents. The probability of getting to the fourth occupation level is highest for the children of the third skill level parents. The migrated parent with a second occupational skills level also has 5% more probability of having children in the third skill level than the non-migrated one.

Although we find that there is an indication that parental migration promotes occupational mobility, it still cannot break the persistence for some. We expect that a fully intergenerational

[7]The predictive margins in Table 5.9 show the magnitude of parental migration impact on intergenerational occupational mobility and its impact on different ethnicities.

upward occupational mobility will have a significant positive relationship for the children to be in jobs with occupation skills higher than their parents, but a significant negative relationship for a lower and similar one. However, parental migration, for children of the higher-skilled parents, cannot significantly determine there will be less probability of their children being in jobs with lower skills level than their parents. For example, for the third and fourth skill level parents, regardless of their migration status, their children are more likely to stay at the same skill level as theirs. All of the above suggests that parental migration shows intergenerational upward mobility for the children of the lowest-skilled parents, but does not break intergenerational persistence for higher-skilled parents.

The highest impact from parental migration of being in the lowest skill level is shown in the Sundanese. The probability difference is about seven percentage point to the impact on Javanese. The Chinese experience the highest impact from parental migration, and the impact mimics the individual migration impact. Chinese children of the migrated parents have the highest probability of being in the top skill level than other ethnic children with migrated parents. The difference is about two percentage points to the Sundanese and 10 percentage points to the Javanese. Meanwhile, the Batak ethnic group experience the least parental migration impact than the others.

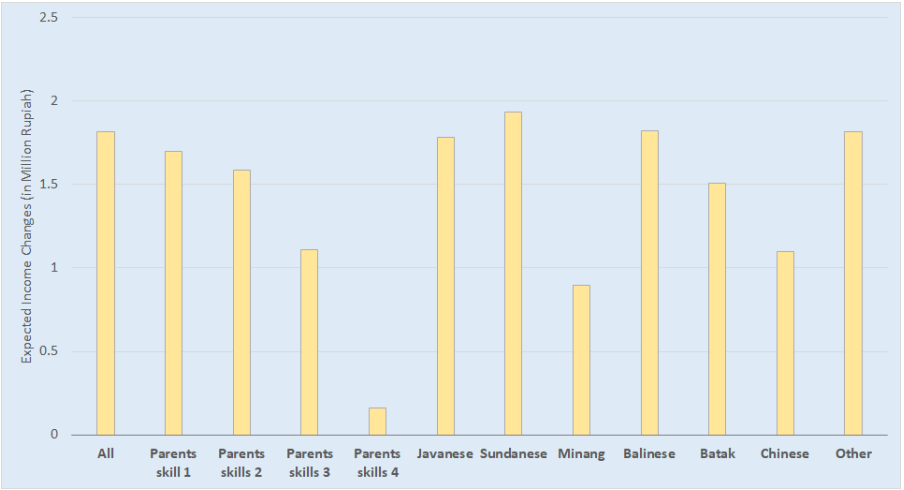
There are some insignificant differences across ethnicities regarding parental migration at the middle-skills level (the second and the third). Parental migration significantly increases the probability of the children being in the second skill level for Javanese and Batak, but negatively for the Chinese. Meanwhile, for the third level, it significantly increases the probability for Javanese, Sundanese and the other ethnics group. This phenomenon suggests that parental migration helps to determine the children to be less likely in the lowest and more likely at the top, but for some ethnicities, it is rather ambiguous to be in the middle-skills level.

As before, we want to see if the different probabilities of getting into different skills level have an actual economic impact, so we look at how it affects the average expected income changes (see Figure 5.4). Irrespective of children's different skill levels, as the parental skills level increases, the children's average expected income decreases if the parents migrated. Between ethnic groups, Sundanese shows the top parental migration impacts more than the other groups. Differently from individual migration, the intergenerational impact of migration is less prominent for Minang and Chinese ethnics group. The Minang children have the least benefit from their parents' migration.

TABLE 5.9: Predictive Margins on Children's Occupational Skills: Parental Migration

	Children's occupational skills			
	1	2	3	4
Migrated parents vs non-migrated parents				
All	-0.231***	0.022	0.050***	0.159***
		61.41***		
Parental migration & Parents' skills				
Migrated parent vs non-migrated parent				
Parents' skill level 1	-0.240***	0.049***	0.055***	0.136***
	(0.038)	(0.019)	(0.018)	(0.037)
Parents' skill level 2	-0.219***	-0.001	0.046***	0.175***
	(0.030)	(0.022)	(0.020)	(0.039)
Parents' skill level 3	-0.256***	-0.04	0.048***	0.247***
	(0.040)	(0.026)	(0.024)	(0.044)
Parents' skill level 4	-0.167***	-0.02	0.026	0.162***
	(0.077)	(0.029)	(0.031)	(0.059)
Parental Migration by ethnicity				
Migrated parent vs non-migrated parent				
Javanese	-0.218***	0.032**	0.047***	0.139***
	(0.035)	(0.019)	(0.018)	(0.036)
Sundanese	-0.289***	0.007	0.069***	0.213***
	(0.034)	(0.024)	(0.021)	(0.043)
Minang	-0.199***	-0.022	0.033	0.187***
	(0.055)	(0.029)	(0.024)	(0.062)
Balinese	-0.243***	0.025	0.056***	0.161***
	(0.051)	(0.023)	(0.022)	(0.043)
Batak	-0.18***	0.045**	0.037	0.099***
	(0.075)	(0.026)	(0.025)	(0.043)
Chinese	-0.135***	-0.103***	0.002	0.236***
	(0.049)	(0.043)	(0.027)	(0.080)
Other	-0.235***	0.017	0.051***	0.166***
	(0.037)	(0.021)	(0.02)	(0.042)

*** p<0.01, ** p<0.05, * p<0.1



Source: Author calculation from IFLS 1–5.
We take the sum of average income of each occupation level for each ethnic group and multiply by the average marginal effect of migration that we have in the table 5.9. As we do not have income information for each employment year, we use the available income data from each survey wave.

FIGURE 5.4: The parental migration effect on children's income

TABLE 5.10: Parental Migration and Intergenerational Occupational Mobility

Dep.var: children's occupational skills	(1) ETR	(2) ETR no selection
Parents' skill × parental migration (interaction)		
Parents' skill level 2 × non-migrated	0.190***	0.283***
	(0.036)	(0.030)
Parents' skill level 2 × migrated	0.199**	0.324***
	(0.079)	(0.065)
Parents' skill level 3 × non-migrated	0.177**	0.306***
	(0.084)	(0.068)
Parents' skill level 3 × migrated	0.393***	0.463***
	(0.115)	(0.114)
Parents' skill level 4 × non-migrated	0.328*	0.146
	(0.183)	(0.122)
Parents' skill level 4 × migrated	0.259*	0.466***
	(0.157)	(0.147)
Ethnicity × parental migration (interaction)		
Javanese as a base		
Sundanese × non-migrated	0.031	0.006
	(0.048)	(0.045)
Sundanese × migrated	0.250***	0.351***
	(0.091)	(0.089)
Minang × non-migrated	0.227**	0.105
	(0.102)	(0.073)
Minang × migrated	0.304**	0.292***
	(0.148)	(0.104)
Balinese × non-migrated	-0.002	0.031
	(0.074)	(0.063)
Balinese × migrated	0.076	0.088
	(0.123)	(0.134)
Batak × non-migrated	-0.044	-0.092
	(0.112)	(0.078)
Batak × migrated	-0.139	0.140
	(0.166)	(0.139)
Chinese × non-migrated	0.367***	0.452***
	(0.111)	(0.123)
Chinese × migrated	0.258	0.509***
	(0.192)	(0.156)
Other × non-migrated	-0.048	-0.160***
	(0.039)	(0.032)
Other × migrated	0.031	0.095
	(0.080)	(0.069)
cut values		
Non-migrated parents × cut 1	-0.619	-0.020
	(0.134)	(0.092)
Migrated parents × cut 1	-1.874	-0.793
	(0.270)	(0.242)
Non-migrated parents × cut 2	0.552	1.438
	(0.146)	(0.095)
Migrated parents × cut 2	-0.777	0.503
	(0.283)	(0.264)
Non-migrated parents × cut 3	1.183	2.266
	(0.158)	(0.104)
Migrated parents × cut 3	-0.302	1.209
	(0.296)	(0.280)
Corr(e.employed,e.Skills)	-0.786***	
	(0.035)	
Corr(e.Parental Migration,e.Skills)	-0.431***	-0.516***
	(0.055)	(0.051)
Corr(e.Parental Migration,e.employed)	0.040	
	(0.029)	
Selection to employment	Yes	Yes
Selection to parental migration	Yes	Yes
Control Variables	Yes	Yes
Observations	5,671	8,269
N	5671	8269
N_selected	4351	.
N_nonselected	1320	.
K	70	61
Chi2	1247	6849
Converged	1	1

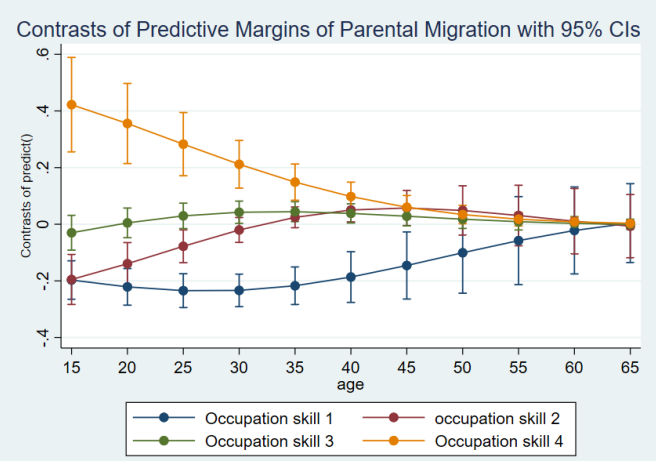
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at household level

Variables definition refer to Table 5.5. Full estimation in the Appendix, Table A.5

As ethnicity interacts with parental migration, Sundanese, Minang, and Chinese are significantly different from the Javanese (see Table 5.10). They have a higher probability of being in a higher occupational skill level than Javanese. However, for the Chinese, it is only significant for children of non-migrated parents. Also, including the selection to employment in this model shows slightly less precision than the one without that may due to the correlation error between parental migration and children's employment status being insignificant.

In addition the ethnicity, we can look at the differences in parental migration by the children's age. As the children are getting older, the contrast converges to a zero. It means that parental migration has a higher impact in the early career but reduced impact later on. The convergence of the contrast probability seems to start from 40 years old, at least for middle and top occupational skills, whilst for the lowest occupational skills, the contrast of predictive probability starts to converge with others from 50 years of age.



Source: Own calculation from IFLS 1-5 data.
Contrast of predictive margins of parental migration on different children's occupational skill averaged over children's age

FIGURE 5.5: Parental migration impact in different children's occupational skill level by age

The impact of parental migration is the highest on the children with the highest occupational skills. The effect converge to zero as the age of the children increases. The pattern of the contrast of predictive margins of parental migration for the second and the third level of occupational skills is almost similar in the early career, with less probability of being in the second occupational skills level. The pattern converges at 40 years of age. Parental migration

is beneficial in a way that it leads to less probability to be in the lowest occupational skills level. However, the impact is reduced from the age of 40 years old onward.

5.6.3 Parental Migration and Transmission of Self-employment

Children with parents who are self-employed are more likely to be self-employed. The predictive margins show that the children who have self-employed parents are 6.6% more likely to be self-employed than if they have non-self-employed parents (see column (2), Table 5.11). Moreover, the likelihood is higher when the parents migrated. Children of migrated parents are 32% more likely to be self-employed than their counterparts (see column(1), Table 5.11). Meanwhile, the children of non-self-employed migrated parents have 3.5 percentage point more probability of being self-employed than children of self-employed migrated parents. The result shows that parental migration, in general, promotes self-employment in the children. The impact is even higher on the children of non-self-employed parents. It indicates that parental migration has more influence on the children's self-employment than the transmission of self-employment from parents to their children.

Between different groups of ethnicities, Sundanese, Minang, Balinese, Batak and the other ethnics group have more probability of being self-employed than the Javanese (see Table 5.12). However, it is only the group of the other ethnicities that has significant differences from the Javanese if their parents migrated. There is also similarity between ethnicities of about 6–7% more probability of being self-employed for children who have self-employed parents than the children of non-self-employed parents. The difference between ethnicities is notable for the parental migration impact where Chinese children of migrated parents are 53% more likely to be self-employed. Meanwhile, the other ethnicities, except the Batak ethnic group, are about 30% more likely to be self-employed if their parents migrated. There is no significant impact of parental migration on children being self-employed for the Batak. The predictive margins are in line with the results from ETR estimation where the interaction coefficients between ethnicity and parental migration are mainly not significant.

TABLE 5.11: Predictive Margins on Self-employed Children

Predicting self-employed children	(1) Parental Migration	(2) Self-employed Parents
Migrated vs Non-migrated parents	0.316*** (0.136)	
Self-employed parents		0.066*** (0.013)
Parental migration & Self-employed parents		
Non-Self-employed	0.331*** (0.140)	
Self-employed	0.296*** (0.132)	
Impact by ethnicity		
Javanese	0.305*** (0.143)	0.064*** (0.013)
Sundanese	0.289*** (0.143)	0.066*** (0.013)
Minang	0.294** (0.154)	0.071*** (0.014)
Balinese	0.271** (0.147)	0.069*** (0.013)
Batak	0.232 (0.145)	0.07*** (0.014)
Chinese	0.527*** (0.243)	0.07*** (0.017)
Other	0.358*** (0.130)	0.068*** (0.013)

*** p<0.01, ** p<0.05, * p<0.1

5.7 The Source and Implications of Ethnic Differences in the Impact of Migration

In this section, we discuss the possible reasons and implications for ethnic differences in our findings. For example, we found some similar patterns between Chinese and Minang. Both are more likely to be at the top level of occupational skills. They also have better benefits from migration and parental migration than the others. The Chinese, in particular, are in the top position for benefits from parental migration on being self-employed.

The Chinese and Minang have a strong culture as migrants and famous for their entrepreneurial skills. One of the reasons the Minang and Chinese have more benefits from migration than others may due to this strong migration network. Even so, there is a big difference between Minang and Chinese ethnic groups in Indonesia. The Chinese, as an ethnic minority, experienced some political and economic restrictions.

The Chinese specialisation in retail trading and petty industries started in the 1920s. This is due to the combination of an immigration surge of the China-born Chinese, and the colonial exclusion of the locally born Chinese from Dutch dominated plantations (Mackie, 1991).

TABLE 5.12: Parental Migration and Intergenerational Self-Employment Transmission

	(1)	(2)
Dep.var Children's self-employment	ETR selection	ETR no selection
Parents' self-employment × Parental migration (interaction)	0.195***	0.223***
Parents' self-employed × non-migrated	0.195***	0.223***
	(0.040)	(0.032)
Parents' self-employed × migrated	0.126*	0.107*
	(0.071)	(0.060)
Sundanese × non-migrated	0.111*	0.088*
	(0.064)	(0.052)
Sundanese × migrated	0.078	-0.003
	(0.102)	(0.095)
Minang × non-migrated	0.209**	0.111
	(0.102)	(0.078)
Minang × migrated	0.184	0.096
	(0.200)	(0.139)
Balinese × non-migrated	0.199**	0.209***
	(0.080)	(0.068)
Balinese × migrated	0.141	0.081
	(0.160)	(0.152)
Batak × non-migrated	0.404***	0.261***
	(0.109)	(0.087)
Batak × migrated	0.230	0.158
	(0.223)	(0.180)
Chinese × non-migrated	0.113	0.104
	(0.292)	(0.242)
Chinese × migrated	0.765	0.021
	(0.773)	(0.679)
Other × non-migrated	0.069	0.043
	(0.046)	(0.037)
Other × migrated	0.187**	0.246***
	(0.087)	(0.070)
Non-migrated parents × cut 1	0.760	1.469
	(0.179)	(0.114)
Migrated parents × cut 1	-0.518	0.397
	(0.613)	(0.365)
corr(e.Parental Migration,e.Self-employment)	-0.490**	-0.508***
	(0.207)	(0.092)
corr(e.Parental Migration,e.employed)	0.018	
	(0.029)	
corr(e.employed,e.Self-employment)	-0.612***	
	(0.059)	
Observations	6,401	9,485
N	6401	9485
N_selected	5081	.
N_nonselected	1320	.
K	58	49
Chi2	341.0	548.3
Converged	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at household level.

Variables definition refer to Table 5.5

van der Eng (2020) shows that the proportion of registered Chinese firms in the trade sector increased from 29.6% in 1900 to 45% in 1940. In 1940, 33.5% of registered Chinese firms were in manufacturing and business services (van der Eng, 2020).

In the Soeharto era, the Chinese re-established a relationship with the ruling elites both at the national and local level. This relationship was similar to what they had during the colonial opium trade (Mackie, 1991). Rush (2007) describes the nest the Chinese elite built around the powerful elites. However, the colonial social division continued in post-independence Indonesia. During the Soeharto era (1970–1998), the Chinese are confined in urban economic sectors (Suryadinata, 2008). The Chinese were the second citizen who had to be forced to integrate, not allowed to work in the public sector. The closeness of the Chinese elites to the ruling elites and civil discrimination creates anti-Chinese sentiments. Nevertheless, decades of trading specialisation help the Chinese gain a bigger benefit from migration. Also, as business owners or being family members, they are more probable to be in management positions.

The Minang culturally have a long tradition of male migration in response to their matrilineal inheritance system (Chadwick, 1991). The migration network for the Minang has been well established. It is historically recorded that they are attracted to the urban area and make their living through trading (Chadwick, 1991). An established migration network may provide a better environment for the Chinese and Minang migrants to thrive.

The Javanese and Sundanese, both mostly reside in Java island and have a similar pattern in the impact of individual migration and parental migration. The similarity may due to their occupations. They have eight occupations that are the same included in the top ten occupations of Javanese and Sundanese (see Table 5.3). However, our findings also show migration lead the Sundanese to be more likely to be in higher-skilled jobs and be self-employed. The impact is especially prominent in respect of parental migration, as the Sundanese are the least likely to be in the lowest-skilled occupations. This may due to the Sundanese migrating a short distance, mostly to Jakarta (Statistics Indonesia, 2011). Meanwhile, Javanese migrants spread all over the nation.

The Balinese and the other ethnic group are also quite similar to the Javanese and Sundanese. The main difference is that Balinese migrants and non-migrants have no differences in having skills-education upward or downward matches. Unlike the other ethnicities, the Balinese work more in the hospitality industry due to the concentration of tourism in Bali. Having a set of occupations in mind may limit educational aspirations to match with the available career options. Future studies may want to assess more the Balinese education-skill mismatch.

Parental migration in the various ethnicities included in the other ethnics group produces a higher impact on children's self-employment than in the Javanese, Sundanese and Balinese. This higher impact may occur due to the inclusion of Bugis and Madurese in this category. Both of the ethnicities are known to be better entrepreneurs than the Javanese, Sundanese and Balinese. It is hard to analyse in detail the other ethnicities in this category as the group consists of a smaller number of at least 26 different ethnic groups.

The Batak, in our findings, are less likely to be in a higher-skilled occupation than the Javanese. However, they are more likely to be in an occupation where skills are exactly matched or even higher than their education level. Their individual migration impact is not significant on the highest occupational level. But parental migration leads to more probability of children being in the highest occupational level. It suggests that migration impacts on skills for the Batak is much more prominent for the next generation, although, the impact of parental migration on children's self-employed status is insignificant.

There has not been any study on the Batak's aspiration to be entrepreneurs or self-employed. Early ethnography literature suggests that the Batak aspire to be in government administrative positions (Bruner, 1961). The Batak kinship in the urban migration network may facilitate this aspiration. Bruner (1972) suggests that the Batak migrants' association has a scholarship fund for bright children of the clan to advance their education. Although this can be a possible explanation, a study on Batak entrepreneur aspirations would provide a more informative explanation.

The ethnic differences in the impact of migration also reflected in the social exclusion experienced by some ethnicities. After the reform in 1998, the ethnic Chinese have more roles in politics and government institutions The Jakarta Post (2020). However, the decades of exclusion creates intergenerational persistence in occupations. The ethnic Chinese migrants' children are still more likely to be self-employed than the children of migrants from other groups.

Our findings suggest that there is some degree of ethnic employment niche for our migrants. The exclusion based on ethnicities is a natural product from this ethnic employment niche because the entrepreneurs recruit from their ethnic pool. Further, having the same ethnicity as the company's owner may provide increased the opportunities to climb the career ladder. On another note, ethnic groups from eastern Indonesia have experienced decades of lack of human capital and infrastructure investment. Therefore, the eastern Indonesian ethnic

groups such as Ambonese, Papuans, Flores and Timorese have to catch up with the western Indonesian ethnic groups. Many are still lagging, being in low-skilled jobs as their parents.

Jellema and Noura (2012) from the World Bank suggests some people are excluded from receiving government benefits and social security assistance due to the nature of the targeting system. Hence, there might be a possibility of ethnic exclusion. For example, the rice for the poor programme (Raskin) uses a community sharing system. Community leaders determine the targeting system. Therefore, there might be ethnic migrants who are excluded from its beneficiaries list.

5.8 Robustness Check

The ethnicity of an individual is defined to be the same over the years, although, some individuals may change their ethnic identification or identify more with different ethnicities. We add two binomial variables. First, an individual who has changed their ethnic identity over time. Second, an individual who relates more to a different ethnicity than their self-identified ethnicity. We include both of the variables in the migration and occupational skills and skills-education matched regression specification (see Appendix Table A.7). We found that having ethnic fluidity and different ethnic influences do not have any impact for the migrants. Also, the coefficients for the different ethnicities are consistent with our main variables.

5.9 Conclusion

The findings show that migration has a positive impact on occupational skills; however, the impact differs between ethnicities. We also found there is a skills-education mismatch in migrants that indicates the existence of an ethnic employment niche. Further, migration of least skilled parents promotes intergenera- tional upward occupational mobility. Moreover, parental migration promotes children's self-employment as we found the migration of non-self-employed parents results in more probability of children being self-employed compared with the children of self-employed parents. However, there is only a partial impact on intergenerational mobility. The children of higher-skilled parents are more likely to be in employment in jobs at their parents' skill level.

Albeit the positive impacts of migration, there are different impacts between ethnic groups. Reducing differences between ethnicities will be harder in an ethnically segmented labour

market. There are a few suggestions to break intergenerational occupational persistence. An efficient training centre and job matching centre could promote equal opportunity. Such innovation aims to break the ethnic network coalition and reduce ethnic exclusion. To make both suggestions work, formalising some of the current massive informal sectors will help. Having an option not to follow the parents' or ethnic group's occupation niche promotes not only intergenerational mobility but also equalises the impact of migration between ethnic groups. Future study may want to test these interventions and look at alternative interventions through the digital economy that may help to break the ethnic employment niche of the traditional economy.

Chapter 6

Conclusion

The conclusion chapter connects the messages from all the previous chapters and draws out the bigger picture from our research findings. This then leads us to the policy implications and recommendations that can be used to help break intergenerational persistence, to maximise the benefits of migration and to lessen the impact of childhood shock in the long run. Breaking intergenerational persistence also means that the benefits continue to the next generation.

6.1 Findings Summary

The analysis in our preceding chapters draws primarily on empirical work exploring the importance in adulthood of childhood shocks, parental migration, and being out of school as a child. In this section, we revisit the main messages of each chapter, looking across the different findings and conclude that parental migration does have a long-lasting impact on their children's future.

The second chapter gave us the context of internal migration and its history in Indonesia that helped shape the current migration pattern. This shows us that the networks and job guarantees at the destination are the most important aspects that lead to migration. Our conversations with migrants also signal the intergenerational occupational persistence where the children "inherit" their parents' or their community's profession. Although both women and men migrate, women need to negotiate their decision to migrate more whilst men have less social restrictions on their migratory decision. The majority of the migrants, including the return migrants, have had a good experience of their migration, reporting during interview conversations a lack of social exclusion and discrimination against migrants. They confirmed that participating in social events in the local communities was the main way to promote social cohesion between migrants and locals. However, we have to be careful reading too much into this, as there may be a positive bias in the migrants and locals recalling of their experience.

In considering that there may be intergenerational persistence, the third chapter investigates the impact of parental migration on intergenerational expenditure mobility. Parental migration increases the education level of the children and with it their per capita expenditure. However, migrants' children have more intergenerational mobility than the non-migrants' children if they live in urban areas in their adulthood, come from the poorest parents, or had migrated as a child. Also, in comparison to the non-migrants' children, the left-behind children are more intergenerationally mobile when their father migrated, but no better off when their mother migrated.

The fourth chapter looks at a different childhood shocks to parental migration. It explores the long-term impact of the education shock of the children dropping out during the Asian financial crisis and if household migration during the crisis mitigates the impact of this educational shock. The dropping out impact does indeed reduce the years of completed education but not the income and probability of working in agriculture. The children who dropped out have 1.3 less years of schooling compared with those who stayed at school. However, the differences are negligible in determining income and the probability of working in the agricultural sector in adulthood. The impact of dropping out is more prominent for the children who lived outside Java before the crisis. It also has the highest impact on the children who were ten years old in 1997, whilst the oldest and the youngest children in our cohort were barely affected. Household migration only helps if the household had a negative food shock and moved to a rural area. However, parental migration, especially in a household with negative shock and who left their children behind, has more benefit in keeping the children at school than household migration or the non-migrants. The mothers' migration, in particular, increases the probability of their left-behind children being in school.

The third and fourth chapter shows that parental migration during childhood in many ways has a positive impact on the children and that the impact is long-lasting, determining the children's educational outcome and expenditure as an adult. In chapter five, we found a similar pattern. Parental migration and individual migration in adulthood have a positive impact on occupational skills. However, the impact differs between ethnicities. There is an indication of an ethnic employment niche as migrants have more probability of having a skills-education mismatch. Also, the migration of parents with the lowest occupational skills promotes intergenerational upward occupational mobility in their children. The impact is only partial because children from parents with higher occupational skills tend to follow their parents' occupation. Moreover, parental migration is a stronger determinant than merely having self-employed parents on the children's probability of being

self-employed. The parental migration, further, promotes self-employment for the children from non-self-employed parents. Albeit the positive impacts of migration, we found that there is still inequality in the impact of migration between ethnic groups. Reducing inequality between ethnicities will be harder in a segmented labour market promoted by the exclusivity of the ethnic employment niche.

6.2 Policy Implications, Limitations and Future Research

The findings of our analysis show that there is a degree of intergenerational persistence in expenditure, education and occupational skills from parents to their children. Further, parental and individual migration have some benefit in unchaining intergenerational persistence, but only partially. This section explores possible actions by the government to promote greater intergenerational mobility, the limitations of our studies and potential future research related to the subject of intergenerational mobility. The policy implications focus on education, labour, and data integration policy in Indonesia.

Chapter three highlights the importance of education as a mechanism in which parents' migration affects the children's intergenerational expenditure mobility. Further, chapter four suggests that dropping out and the reduced years of schooling affect future expenditure. From our study, we also know that parental migration leads to longer schooling and a higher probability of keeping children at school during the crisis. The findings from both chapters three and four suggest that education for all is needed. If all children, regardless of their parental migration status, have equal access to equal quality of education, then the impact of parental migration on their children's education will not be as high.

The findings on education disruption due to the Asian financial crisis should also motivate policy-makers to reduce the negative impact of a shock, such as a financial crisis, on education. Innovative policies are needed to keep the children at school during a crisis. The children should have access to learning, educational materials, and graduate certification. The Indonesian government had undertaken some policy measures during the Asian financial crisis, which helped to keep some children at school. After the crisis, there was an expansion in policy for equal education access and quality. However, there is still scope to enhance the effectiveness of education policies, making sure that there is equality in education across the country. In the current Covid-19 crisis with the closure of schools and universities across Indonesia, ensuring access to education for all students is a must. As the internet is not widely

available, some alternatives are needed, for example, developing modules not only for the children but also for the parents to assist their children's learning.

The central government has committed to increased equitable access to services in quality education in their national five-year plan 2020–2024 (RPJMN 2020-2024). In 2013, the central government extended compulsory education from 9 years to 12 years of education. The extension of compulsory education means that central and local government assure free tuition from primary to high school. The problem is the free tuition is limited to public schools, which are limited in number. Expanding public investment to non-government schools would help to widen education access for the children who are not absorbed in public schools.

The compulsory education in Indonesia, however, does not have any consequences in law for parents or local authorities when children are out of school. The lack of law enforcing children to go to school means there is no reliable data on the children who are out of school. The obligation to do outreach on the children out of school for local government education authorities is limited by their annual target, which in many cases is arbitrary and rely on the available education budget. Education authorities in the central and local government could utilise the unique identification number that is attached to students to track and outreach the drop-outs. There could also be a fine for parents when their children are out of school without adequate reasons. An integrated effort between local governments and reliable data is needed to enforce education for all.

In terms of education, this dissertation is limited to education quantity in the form of years of schooling. Besides avoiding more complexity, individual educational quality is hard to measure. The common practice is using the Programme for International Student Assessment (PISA) approach by measuring the science, reading and maths literacy. The IFLS provide the test results in maths, science, Bahasa Indonesia and English. However, the school exam in Indonesia is not standardised nationally. Hence, the individual comparison would be incomparable.

To promote intergenerational occupational mobility and self-employment, a well-run training programme and job matching centre to give equal opportunities and break the ethnic network would enable greater equality in accessing the benefits of migration. In order to make both entities work, formalising some of the large current informal sectors would also help. Having more options not to follow the parents' or ethnic group's occupation niche promotes not only intergenerational mobility but also equalising the impact of migration between ethnic groups.

The central government in 2020 started an unemployment programme (Kartu Pra Kerja) which provides training and some financial incentive to finish the training. Some local governments with more budget have followed the lead to provide similar program to widen the programme reach. However, there is still unequal access to this programme, given some people have low computer literacy and have problems registering to the programme. The programme also has not been attached to any job matching agency as when the programme finished the alumni have to find jobs on their own. In Indonesia, job agencies are non-existent, except for specific jobs such as domestic workers, baby-sitters and elderly carers. Some vocational schools and academies have some sort of arrangement with some companies to help their students in the process of finding their first job. However, the only help an individual can get when losing their job is through their network of friends and families.

The findings in chapter three and chapter five suggest that the children of the poorest or lowest occupational skills non-migrant parents are at the most disadvantage. Special attention could be given to provide quality education, to ensure that the children utilise their access to quality education, and later on access apprenticeships. However, this requires a long-term programme and commitment from the government.

The limitations of the studies cross over with the IFLS data limitation. The migratory event is retrospective, based on the actual event that draws from the respondents' memory. It does not capture the collective migration decisions inside and outside the household. The parental migration in our analysis is a binary, migrated or non-migrated, and it did not capture the intensity of this parental migration during the children's childhood. Although there is a question on the distance of the migratory journey, most data in this variable is missing. This is why we limit our analysis to the between-districts migration. We undertook a robustness check on between islands migration in chapter three. The result is more intergenerational persistence rather than mobility for the children of migrants. This suggests differing impacts across different migration distances. Chapter three also shows that most migration is within the big island regions rather than inter-region.

We could undertake more intergenerational and life course analysis if there were better data linking income tax, population registration and an upcoming unemployment register. Indonesia uses a unique citizen number in their population register; however, different registration data are not yet linked with this unique number. The Indonesian Statistics Bureau has started longitudinal household data for a national labour survey (SAKERNAS) in 2019; however, it will be a while before it is possible to get a life course of individuals in the panel.

Better-connected registration data will help future studies in the subject of intergenerational social mobility. If this is not possible, then it would have been better to have the same households in the SUSENAS and SAKERNAS longitudinal surveys, so then analysis could be undertaken with both socio-economic and labour-related information for households.

Finally, we provide some suggestions for possible future research in Indonesia for intergenerational social mobility. A closer examination could be undertaken on intergenerational persistence, in particular for professional persistence from parents to children. Future research can also try to find the right migration distance or destination to optimise the benefit of parental migration. Additional further research can be on comparing internal and international migration and its differing impacts on children's social mobility. The research could also be undertaken into the differing impact of migration when there is partial out-migration or in-migration in the household. Some perspectives on the impact of parental migration on the children's health could be added. In addition, different policies regarding keeping children at school during a crisis and reducing inequality between ethnicities in a segmented labour market promoted by the exclusivity of the ethnic employment niche should also be examined.

Appendix A

Appendices for Chapter 5

A.1 Occupation

TABLE A.1: Occupation: Code, Skills and Categories

Code	Skill	Occupation
1	4	Physical scientists and related technicians
2	4	Architects, engineers, technologists
3	3	Surveyors, draftsmen, engineering assistants
4	4	Aircraft and ship's officer
5	4	Life scientists and related technicians
6	4	Physicians, medical assistants, dentists, dental assistants,pharmacists, nutritionist
7	3	Nurses, midwives, x-ray technicians, traditional medicine
8	4	Statisticians, mathematicians, system analysts and related technicians
9	4	Economists
11	3	Accountants and auditors
12	3	Jurists
13	3	Teachers
14	3	Workers in religion
15	4	Authors, critics, journalists, editors and related writers
16	4	Sculptors, painters, photographers and related creative artists
17	4	Composers, performing artists
18	4	Athletes, sportsmen and related workers
19	4	Professional and technical workers not elsewhere classified
20	4	Legislative officials and government administrators
21	3	Managers
26	2	Administrator unknown
27	2	Administrator, government
28	2	Administrator, non government
29	3	Manager not elsewhere classified (mostly school principals)
30	2	Clerical supervisors
31	4	Government executive of officials
32	2	Stenographers, typists and card tape-punching machine operators
33	2	Bookkeepers, cashiers, and related workers
34	2	Computing machine operators
35	2	Transport and communications supervisors
36	1	Transport conductors
37	2	Mail distributors and related workers
38	2	Telephone and telegraph operators
39	2	Clerical and related workers not elsewhere classified
40	3	Managers (wholesale and retail trade)
41	2	Working proprietors (wholesale and retail trade)
42	3	Sales supervisors and buyers
43	3	Technical salesman, commercial travellers, manufacturer's agents

Continued on next page

Continued from previous page

Code	Skill	Occupation categories
44	3	Insurance, real estate, securities and business services
45	2	Salesmen, shop assistants and related workers
48	2	Sales agent
49	2	Sales workers not elsewhere classified
50	3	Managers (catering and lodging services)
51	2	Working propriators (catering and lodging services)
52	1	Housekeeping and related service supervisors
53	1	Cooks, waiters, bartenders and related workers
54	1	Maids and related housekeeping service workers NEC
55	1	Building caretakers, charworkers, cleaners and related workers
56	1	Launderers, dry-cleaners and pressers
57	1	Hairdressers, barbers, beauticians and related workers
58	1	Protective service workers
59	1	Service workers not elsewhere classified
60	3	Plantation managers and supervisors
61	1	Planters and farmers
62	1	Agricultural and animal husbandry workers
63	1	Forestry workers
64	1	Fishermen, hunters, and related workers
69	1	Agricultural worker not elsewhere classified
70	2	Production supervisors and general foremen
71	1	Miners, quarrymen, well drillers and related workers
72	2	Metal processers
73	1	Wood preparation workers and paper makers
74	2	Chemical processers and related workers
75	1	Spinners, weavers, knitters, dyers, and related workers
76	1	Tanners, fellmongers and pelt dressers
77	2	Food and beverage processors
78	1	Tobacco preparers and tobacco product makers
79	2	Tailors, dressmakers, sewer, upholsterers and related workers
80	1	Shoemakers and leather good makers
81	1	Cabinet makers and related wood makers
82	1	Stone cutters and carvers
83	1	Blacksmith, tool makers and machine tool operators
84	2	Machinery fitters, assemblers, repairers and precision instruments makers (except electrical)
85	2	Electrical fitters and related electrical and electronics workers
86	3	Broadcasting station, sound equipment operators and cinema projectionist
87	2	Plumbers, welders, sheet-metal and structural metal preparers and erectors
88	2	Jewelry and precious metal workers
89	1	Glass formers, potters and related workers
90	1	Rubber and plastics product makers
91	1	Paper board products makers
92	1	Printers and related workers
93	1	Painters
94	2	Production and related workers not elsewhere classified
95	1	Bricklayers, carpenters and other construction workers
96	1	Stationary engines and related equipment operators
97	1	Material handling and related equipment, operators dockers and freight handlers
98	2	Transport equipment operators
99	1	Laborers not elsewhere classified

end of table

A.2 International Standard Classification of Occupations: ISCO-08

TABLE A.2: Skills Level Classification

Skill level	ISCO-08	Task	Type of skills	Education	Typical Occupation
Skill level 4 (high)	1. Managers	4: Complex problem-solving, decision making and creativity	High literacy and numeracy, interpersonal communication skills, ability to understand complex written materials and to communicate complex ideas	Higher educational institutions 3-6 years, extensive experience and on-the-job training as a substitute of formal education, formal qualification	Civil engineers, secondary school teacher, medical practitioner, musicians, operating theatre nurse, computer system analyst
Skill level 3 (high)	2. Professionals 3. Technicians and associate professionals	3:Complex technical and practical task in a specialised field, i.e. budgeting projects, managing other workers, performing technical functions for professionals	High literacy and numeracy, interpersonal communication skills, ability to understand complex written materials and to communicate verbally in difficult circumstances	1-3 years higher educational institution, extensive experience and on-the-job training as a substitute for formal education	Shop managers, laboratory technicians, legal secretaries, sales representatives, radiographers, computer technicians, broadcasting and recording technicians
Skill level 2 (medium)	4. Clerical support workers 5. Service and sales workers 6.Skilled agricultural 7. Craft and trades workers 8. Plant and machine operators, and assemblers	2: Operating machinery and electronic equipment, driving vehicles, maintenance and repair electrical and mechanical equipment, and manipulation, ordering and storage information	ability to read information, making written records, perform simple arithmetical and calculation, high level of manual dexterity	Second stage of secondary education, some occupation require vocation-specific education, on-the-job training substitute formal education	Butchers, bus drivers, secretary, clerks, dressmakers, shop sales assistants, hairdressers, electricians, motor vehicle mechanics
Skill level 1 (low)	9. Elementary occupations	1: Simple and routine physical or manual task i.e cleaning, digging, storing and assembling goods by hand, operating non-motorised vehicles and picking fruits and vegetables	basic skills in literacy and numeracy	primary education	office cleaners, freight handlers, garden labourers and kitchen assistants

A.3 Individual Migration and Occupational Skills

TABLE A.3: Individual Migration and Occupational Skills: Full Table of Ordered Probit with Migration as Endogenous Treatment

	(1)	(2)
Dep.Var: occupational skill	ETR	ETR
	Selection	No selection
Javanese as base		
Sundanese × non-migrated	0.073***	0.091***
	(0.023)	(0.028)
Sundanese × migrated	0.133**	0.161**
	(0.061)	(0.073)
Minang × non-migrated	0.073**	0.088**
	(0.033)	(0.040)
Minang × migrated	0.269***	0.328***
	(0.072)	(0.083)
Balinese × non-migrated	0.003	0.010
	(0.038)	(0.047)
Balinese × migrated	0.098	0.101
	(0.112)	(0.136)
Batak × non-migrated	-0.190***	-0.223***
	(0.046)	(0.055)
Batak × migrated	-0.222**	-0.293**
	(0.112)	(0.133)
Chinese × non-migrated	0.335***	0.414***
	(0.052)	(0.062)
Chinese × migrated	0.364**	0.483**
	(0.151)	(0.196)
Other × non-migrated	0.060***	0.070***
	(0.017)	(0.020)
Other × migrated	0.079*	0.101*
	(0.045)	(0.053)
Occupational status × Migration		
Private workers as base		

Continue to the next page

Continued from previous page

Dependent variable: occupational skill	(1) ETR Selection	(2) ETR No selection
Self-employed × non-migrated	0.237***	0.304***
	(0.018)	(0.020)
Self-employed × migrated	0.151***	0.207***
	(0.051)	(0.059)
Self-employed with temporary workers × non-migrated	-0.141***	-0.144***
	(0.022)	(0.025)
Self-employed with temporary workers × migrated	-0.128*	-0.123
	(0.072)	(0.083)
Self-employed with regular workers × non-migrated	0.170***	0.226***
	(0.044)	(0.052)
Self-employed with regular workers × migrated	0.237*	0.306**
	(0.128)	(0.151)
Government workers × non-migrated	0.796***	0.922***
	(0.031)	(0.035)
Government workers × migrated	0.473***	0.568***
	(0.074)	(0.089)
Family worker × non-migrated	-0.425***	-0.498***
	(0.027)	(0.034)
Family worker × migrated	-0.566***	-0.660***
	(0.086)	(0.104)
Unpaid worker in agriculture × non-migrated	-0.448***	-0.561***
	(0.136)	(0.170)
Unpaid worker in agriculture × migrated	-0.962**	-1.169**
	(0.424)	(0.525)
Unpaid worker in non-agriculture × non-migrated	-0.249***	-0.316***
	(0.081)	(0.095)
Unpaid worker in non-agriculture × migrated	-0.140	-0.133
	(0.120)	(0.149)
Age × non-migrated	-0.053***	0.021***

Continue to the next page

Continued from previous page

Dependent variable: occupational skill	(1) ETR Selection	(2) ETR No selection
	(0.004)	(0.003)
Age × migrated	-0.033***	0.043***
	(0.011)	(0.012)
Age^2 × non-migrated	0.001***	-0.000***
	(0.000)	(0.000)
Age^2 × migrated	0.000***	-0.000***
	(0.000)	(0.000)
Age at first job × non-migrated	0.000	0.001
	(0.001)	(0.001)
Age at first job × migrated	0.003	0.003
	(0.003)	(0.004)
Female × non-migrated	0.754***	0.433***
	(0.020)	(0.020)
Female × migrated	0.683***	0.298***
	(0.054)	(0.063)
Eduyear × non-migrated	0.086***	0.088***
	(0.002)	(0.002)
Eduyear × Migrated	0.089***	0.088***
	(0.006)	(0.007)
Urban × non-migrated	0.396***	0.471***
	(0.017)	(0.019)
Urban × migrated	0.239***	0.270***
	(0.039)	(0.046)
Selection of employment		
Age	0.138***	
	(0.003)	
Age^2	-0.002***	
	(0.000)	
Female	-0.945***	

Continue to the next page

Continued from previous page

Dependent variable: occupational skill	(1) ETR Selection	(2) ETR No selection
	(0.016)	
Married	0.310***	
	(0.020)	
HH with children under 10 y.o	-0.010**	
	(0.005)	
Eduyear	-0.032***	
	(0.002)	
Constant	-1.458***	
	(0.053)	
Selection to migration		
Weather_shock	-0.004	-0.012
	(0.020)	(0.023)
Outmigration rate	0.001***	0.002***
	(0.000)	(0.000)
Eduyear	0.038***	0.040***
	(0.002)	(0.003)
Age	-0.017***	-0.045***
	(0.004)	(0.005)
Age^2	-0.000	0.000***
	(0.000)	(0.000)
Constant	-1.264***	-0.723***
	(0.065)	(0.082)
Cut values		
Non-migrated × cut 1	-0.058	1.639
	(0.090)	(0.069)
Migrated × cut 1	0.082	1.697
	(0.189)	(0.209)
Non-migrated × cut 2	1.196	3.133
	(0.105)	(0.070)

Continue to the next page

Continued from previous page

Dependent variable: occupational skill	(1) ETR Selection	(2) ETR No selection
Migrated × cut 2	1.281	3.112
	(0.198)	(0.213)
Non-migrated × cut 3	1.919	4.032
	(0.119)	(0.076)
Migrated × cut 3	2.001	4.008
	(0.215)	(0.225)
corr(e.employed,e.occupational skills)	-0.784***	
	(0.022)	
corr(e.Migration,e.occupational skills)	-0.155***	-0.154***
	(0.024)	(0.027)
corr(e.Migration,e.employed)	0.095***	
	(0.013)	
N	75636	57407
N_selected	57407	.
N_nonselected	18229	.
K	65	56
Chi2	6409	5518
Converged	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at household level.

Variables definition refer to Table 5.5

A.4 Individual Migration and Occupational Skills

TABLE A.4: Individual Migration and Occupational Skills Job Match to Educational Level

Dependent Variable: education-skills match	(1) ETR Selection	(2) ETR No selection
Javanese as base		
Sundanese × non-migrated	-0.117***	-0.131***
	(0.027)	(0.030)
Sundanese × migrated	-0.202***	-0.227***
	(0.068)	(0.075)
Minang × non-migrated	-0.001	0.006
	(0.042)	(0.046)
Minang × migrated	-0.087	-0.096
	(0.088)	(0.097)
Balinese × non-migrated	0.132***	0.146***
	(0.042)	(0.046)
Balinese × migrated	0.056	0.075
	(0.122)	(0.134)
Batak × non-migrated	0.284***	0.309***
	(0.046)	(0.050)
Batak × migrated	0.312**	0.353***
	(0.123)	(0.137)
Chinese × non-migrated	-0.261**	-0.276**
	(0.107)	(0.116)
Chinese × migrated	0.021	0.020
	(0.374)	(0.417)
Other × non-migrated	-0.067***	-0.076***
	(0.018)	(0.020)
Other × migrated	-0.055	-0.069
	(0.048)	(0.052)
Private workers as base		
Self-employed × non-migrated	-0.427***	-0.461***

Continue to the next page

Continued from previous page

Dependent Variable: education-skills match	(1) ETR Selection	(2) ETR No selection
	(0.019)	(0.020)
Self-employed × migrated	-0.334***	-0.372***
	(0.062)	(0.067)
Self-employed with temporary workers × non-migrated	-0.076***	-0.086***
	(0.019)	(0.021)
Self-employed with temporary workers × migrated	-0.025	-0.043
	(0.071)	(0.077)
Self-employed with help of regular workers × non-migrated	-0.045	-0.038
	(0.057)	(0.062)
Self-employed with help of regular workers × migrated	-0.056	-0.047
	(0.195)	(0.212)
Government worker / employee × non-migrated	0.054	0.088**
	(0.036)	(0.036)
Government worker / employee × migrated	0.253***	0.285***
	(0.083)	(0.089)
Family worker × non-migrated	0.149***	0.145***
	(0.021)	(0.023)
Family worker × migrated	0.248***	0.249***
	(0.070)	(0.077)
Unpaid worker in Agriculture × non-migrated	0.015	0.007
	(0.067)	(0.072)
Unpaid worker in Agriculture × migrated	0.077	0.091
	(0.206)	(0.223)
Unpaid worker in Non-Agriculture × non-migrated	0.121*	0.143*
	(0.069)	(0.076)
Unpaid worker in Non-Agriculture × migrated	-0.293**	-0.349***
	(0.117)	(0.128)
Age × non-migrated	0.045***	-0.005*
	(0.005)	(0.003)

Continue to the next page

Continued from previous page

Dependent Variable: education-skills match	(1) ETR Selection	(2) ETR No selection
Age × migrated	0.083***	0.033***
	(0.011)	(0.012)
Age^2 × non-migrated	-0.001***	0.000
	(0.000)	(0.000)
Age^2 × migrated	-0.001***	-0.001***
	(0.000)	(0.000)
Age at first job × non-migrated	0.002***	0.002***
	(0.001)	(0.001)
Age at first job × migrated	0.008***	0.008**
	(0.003)	(0.003)
Female × non-migrated	-0.654***	-0.416***
	(0.023)	(0.019)
Female × migrated	-0.570***	-0.298***
	(0.058)	(0.062)
Urban × non-migrated	-0.116***	-0.105***
	(0.017)	(0.018)
Urban × migrated	0.001	0.030
	(0.041)	(0.045)
Selection to employment		
Age	0.123***	
	(0.003)	
Age2	-0.001***	
	(0.000)	
Female	-0.874***	
	(0.016)	
Married	0.442***	
	(0.020)	
HH with children under 10 y.o	-0.010**	
	(0.005)	

Continue to the next page

Continued from previous page

Dependent Variable: education-skills match	(1) ETR Selection	(2) ETR No selection
Constant	-1.562***	-0.471***
	(0.052)	(0.082)
Selection to migration		
Weather_shock	-0.007	-0.011
	(0.020)	(0.023)
Outmigration rate	0.002***	0.003***
	(0.000)	(0.000)
Age	-0.010**	-0.037***
	(0.004)	(0.005)
Age^2	-0.000***	0.000
	(0.000)	(0.000)
Female	-0.060***	-0.081***
	(0.020)	(0.027)
Constant	-1.019***	-0.471***
	(0.064)	(0.082)
Cut values		
Non-migrated × cut 1	0.622	-0.569
	(0.116)	(0.062)
Migrated × cut 1	1.354	0.272
	(0.210)	(0.208)
Non-migrated × cut 2	2.194	1.131
	(0.200)	(0.063)
Migrated × cut 2	2.588	1.619
	(0.203)	(0.208)
Corr(e.employed,e.skilledumatch)	0.655***	
	(0.050)	
Corr(e.migration,e.skilledumatch)	0.038***	0.055***
	(0.010)	(0.015)

Continue to the next page

Continued from previous page

Dependent Variable: education-skills match	(1) ETR Selection	(2) ETR No selection
Corr(e.migration,e.employed)	0.078***	
	(0.013)	
Observations	75,840	57,407
N	75840	57407
N_selected	57407	.
N_nonselected	18433	.
K	59	51
Chi2	2444	1639
Converged	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

All estimation standard errors are clustered at household level

Variables definition refer to Table 5.5

A.5 Parental Migration and Children's Occupational Skills

TABLE A.5: Parental Migration and Children's Occupational Skills: Full Table of Ordered Probit with Parental Migration as Endogenous Treatment

	(1)	(2)
Dependent Variable: children's occupational skills	ETR	ETR
	Selection	No selection
Parents' skill × parental migration		
Parents' skill level 1 as the base		
Parents' skill level 2 × non-migrated parents	0.190***	0.283***
	(0.036)	(0.030)
Parents' skill level 2 × migrated parents	0.199**	0.324***
	(0.079)	(0.065)
Parents' skill level 3 × non-migrated parents	0.177**	0.306***
	(0.084)	(0.068)
Parents' skill level 3 × migrated parents	0.393***	0.463***
	(0.115)	(0.114)
Parents' skill level 4 × non-migrated parents	0.328*	0.146
	(0.183)	(0.122)
Parents' skill level 4 × migrated parents	0.259*	0.466***
	(0.157)	(0.147)
Javanese as base		
Sundanese × non-migrated parents	0.031	0.006
	(0.048)	(0.045)
Sundanese × migrated parents	0.250***	0.351***
	(0.091)	(0.089)
Minang × non-migrated parents	0.227**	0.105
	(0.102)	(0.073)
Minang × migrated parents	0.304**	0.292***
	(0.148)	(0.104)
Balinese × non-migrated parents	-0.002	0.031
	(0.074)	(0.063)
Balinese × migrated parents	0.076	0.088

Continue to the next page

Continued from previous page

Dependent Variable: children's occupational skills	(1) ETR Selection	(2) ETR No selection
	(0.123)	(0.134)
Batak × non-migrated parents	-0.044	-0.092
	(0.112)	(0.078)
Batak × migrated parents	-0.139	0.140
	(0.166)	(0.139)
Chinese × non-migrated parents	0.367***	0.452***
	(0.111)	(0.123)
Chinese × migrated parents	0.258	0.509***
	(0.192)	(0.156)
Other × non-migrated parents	-0.048	-0.160***
	(0.039)	(0.032)
Other × migrated parents	0.031	0.095
	(0.080)	(0.069)
Private workers as base		
Self-employed × non-migrated parents	0.057	0.073*
	(0.045)	(0.038)
Self-employed × migrated parents	-0.172**	-0.142*
	(0.079)	(0.073)
Self-employed with temporary workers × non-migrated parents	-0.214***	-0.121***
	(0.055)	(0.044)
Self-employed with temporary workers × migrated parents	-0.350***	-0.185**
	(0.102)	(0.079)
Self-employed with help of regular workers × non-migrated parents	0.282***	0.317***
	(0.095)	(0.085)
Self-employed with help of regular workers × migrated parents	0.052	0.227*
	(0.123)	(0.122)
Government workers × non-migrated parents	0.763***	0.970***
	(0.083)	(0.071)
Government workers × migrated parents	0.365***	0.636***

Continue to the next page

Continued from previous page

Dependent Variable: children's occupational skills	(1) ETR Selection	(2) ETR No selection
	(0.137)	(0.131)
Family worker × non-migrated parents	-0.307***	-0.531***
	(0.054)	(0.041)
Family worker × migrated parents	-0.386***	-0.593***
	(0.126)	(0.095)
Unpaid worker in agriculture × non-migrated parents	-3.840***	-5.633***
	(0.195)	(0.078)
Unpaid worker in agriculture × migrated parents	0.000	0.000
	(0.000)	(0.000)
Unpaid worker in non-agriculture × non-migrated parents	-0.741**	-0.875***
	(0.302)	(0.195)
Unpaid worker in non-agriculture × migrated parents	0.000	-0.181
	(0.000)	(0.355)
Non-migrated parents × number of migration	0.056**	0.047**
	(0.025)	(0.024)
Migrated parents × number of migration	-0.024	-0.070
	(0.044)	(0.048)
Urban × non-migrated parents	0.332***	0.365***
	(0.039)	(0.030)
Urban × migrated parents	0.258***	0.299***
	(0.070)	(0.062)
Female × non-migrated parents	0.725***	0.434***
	(0.051)	(0.028)
Female × migrated parents	0.488***	0.382***
	(0.093)	(0.061)
Age × non-migrated parents	-0.039***	-0.022***
	(0.006)	(0.004)
Age × migrated parents	-0.062***	-0.025***
	(0.011)	(0.010)

Continue to the next page

Continued from previous page

Dependent Variable: children's occupational skills	(1) ETR Selection	(2) ETR No selection
Age^2 × non-migrated parents	0.000***	0.000***
	(0.000)	(0.000)
Age^2 × migrated parents	0.001***	0.000**
	(0.000)	(0.000)
Employment selection		
Age	0.054***	
	(0.007)	
Age^2	-0.001***	
	(0.000)	
Female	-0.905***	
	(0.047)	
Married	0.576***	
	(0.050)	
HH with children under 10 y.o	-0.089**	
	(0.035)	
Constant	-1.061***	
	(0.147)	
Parental migration selection		
Eduyear	0.049***	
	(0.005)	
P_weather_shock	0.078*	0.104***
	(0.042)	(0.035)
P_outmigration rate	0.002***	0.002***
	(0.001)	(0.001)
P_edu	0.039***	0.031***
	(0.005)	(0.004)
P_age	0.070***	0.113***
	(0.013)	(0.012)
P_age^2	-0.001***	-0.001***

Continue to the next page

Continued from previous page

Dependent Variable: children's occupational skills	(1) ETR Selection	(2) ETR No selection
	(0.000)	(0.000)
Constant	-2.771***	-3.689***
	(0.251)	(0.239)
Cut values		
Non-migrated parents × cut 1	-0.619	-0.020
	(0.134)	(0.092)
Migrated parents × cut 1	-1.874	-0.793
	(0.270)	(0.242)
Non-migrated parents × cut 2	0.552	1.438
	(0.146)	(0.095)
Migrated parents × cut 2	-0.777	0.503
	(0.283)	(0.264)
Non-migrated parents × cut 3	1.183	2.266
	(0.158)	(0.104)
Migrated parents × cut 3	-0.302	1.209
	(0.296)	(0.280)
Corr(e.employed,e.occupational skills)	-0.786***	
	(0.035)	
Corr(e.parental migration,e.occupational skills)	-0.431***	-0.516***
	(0.055)	(0.051)
Corr(e.parental migration,e.employed)	0.040	
	(0.029)	
Observations	5,671	8,269
N	5671	8269
N_selected	4351	.
N_nonselected	1320	.
K	70	61
Chi2	1247	6849
Converged	1	1

Continue to the next page

Continued from previous page

	(1)	(2)
Dependent Variable: children's occupational skills	ETR	ETR
	Selection	No selection

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variables definition refer to Table 5.5

A.6 Parental Migration and Children's Self-Employment

TABLE A.6: Parental Migration and Children's Self-employment: Full Table of Probit with Parental Migration as Endogenous Treatment

	(1)	(2)
Dep.Var:Children's occ skills	ETR	ETR
	Selection	No selection
P_self-employment × non-migrated parents	0.195***	0.223***
	(0.040)	(0.032)
P_self-employment × migrated parents	0.126*	0.107*
	(0.071)	(0.060)
Javanese as base		
Sundanese × non-migrated parents	0.111*	0.088*
	(0.064)	(0.052)
Sundanese × migrated parents	0.078	-0.003
	(0.102)	(0.095)
Minang × non-migrated parents	0.209**	0.111
	(0.102)	(0.078)
Minang × migrated parents	0.184	0.096
	(0.200)	(0.139)
Balinese × non-migrated parents	0.199**	0.209***
	(0.080)	(0.068)
Balinese × migrated parents	0.141	0.081
	(0.160)	(0.152)
Batak × non-migrated parents	0.404***	0.261***
	(0.109)	(0.087)
Batak × migrated parents	0.230	0.158
	(0.223)	(0.180)
Chinese × non-migrated parents	0.113	0.104
	(0.292)	(0.242)
Chinese × migrated parents	0.765	0.021
	(0.773)	(0.679)
Other × non-migrated parents	0.069	0.043
	(0.046)	(0.037)

Continue to the next page

Continued from previous page

Dep.Var:Children's self-employment	(1) ETR Selection	(2) ETR No selection
Other × migrated parents	0.187**	0.246***
	(0.087)	(0.070)
Agricultural × non-migrated parents	0.381***	0.110***
	(0.050)	(0.041)
Agricultural × migrated parents	0.252***	-0.010
	(0.097)	(0.084)
Risk 1 × non-migrated parents	0.122	0.140**
	(0.075)	(0.065)
Risk 4 as base		
Risk 1 × migrated parents	0.314***	0.309***
	(0.120)	(0.109)
Risk 2 × non-migrated parents	0.099	0.056
	(0.095)	(0.078)
Risk 2 × migrated parents	-0.038	-0.006
	(0.170)	(0.169)
Risk 3 × non-migrated parents	0.055	0.029
	(0.062)	(0.052)
Risk 3 × migrated parents	-0.022	-0.027
	(0.117)	(0.108)
Number of migration × non-migrated parents	-0.173***	-0.136***
	(0.042)	(0.033)
Number of migration × migrated parents	0.122**	0.083*
	(0.057)	(0.048)
Eduyear × non-migrated parents	-0.023***	-0.024***
	(0.006)	(0.005)
Eduyear × migrated parents	-0.040***	-0.031***
	(0.011)	(0.009)
Urban × non-migrated parents	-0.271***	-0.240***
	(0.044)	(0.035)

Continue to the next page

Continued from previous page

Dep.Var:Children's self-employment	(1) ETR Selection	(2) ETR No selection
Urban × migrated parents	-0.214***	-0.212***
	(0.080)	(0.068)
Female × non-migrated parents	0.236***	-0.075**
	(0.075)	(0.032)
Female × migrated parents	0.282**	0.012
	(0.113)	(0.062)
Age × non-migrated parents	0.001	0.021***
	(0.007)	(0.005)
Age × migrated parents	-0.004	0.026**
	(0.014)	(0.011)
Age^2 × non-migrated parents	0.000***	0.000***
	(0.000)	(0.000)
Age^2 × migrated parents	0.000	-0.000
	(0.000)	(0.000)
Employment selection		
Age	0.038***	
	(0.007)	
Age^2	-0.000***	
	(0.000)	
Female	-0.913***	
	(0.048)	
Married	0.739***	
	(0.041)	
HH with children under 10 y.o	-0.151***	
	(0.038)	
Eduyear	0.026***	
	(0.005)	
Constant	-0.530***	
	(0.141)	

Continue to the next page

Continued from previous page

Dep.Var:Children's self-employment	(1) ETR Selection	(2) ETR No selection
Parental migration selection		
P_weather_shock	0.082**	0.086***
	(0.039)	(0.033)
P_Outmigration rate	0.002***	0.002***
	(0.001)	(0.001)
P_edu	0.037***	0.025***
	(0.006)	(0.004)
P_age	0.085***	0.118***
	(0.012)	(0.011)
P_age^2	-0.001***	-0.001***
	(0.000)	(0.000)
Constant	-3.051***	-3.708***
	(0.238)	(0.211)
Non-migrated parents × cut 1	0.760	1.469
	(0.179)	(0.114)
Migrated parents × cut 1	-0.518	0.397
	(0.613)	(0.365)
Corr(e.Parental migration,e.children's self-employment)	-0.490**	-0.508***
	(0.207)	(0.092)
Corr(e.Parental migration,e.employed)	0.018	
	(0.029)	
Corr(e.employed,e.children's self-employment)	-0.612***	
	(0.059)	
Observations	6,401	9,485
N	6401	9485
N_selected	5081	.
N_nonselected	1320	.
K	58	49
Chi2	341.0	548.3

Continue to the next page

Continued from previous page

	(1)	(2)
Dep.Var:Children's self-employment	ETR	ETR
	Selection	No selection
Converged	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variables definition refer to Table 5.5

A.7 Robustness Check on Ethnic Fluidity and Ethnic Influence

TABLE A.7: Robustness Check on Ethnic Fluidity and Ethnic Influence

Dependent Variables	(1) Occupational Skills	(2) Skills-Education Matched
Ethnic influence_inf × 0b.mgoutkab	-0.051***	0.097***
	(0.015)	(0.017)
Ethnic influence_inf × migrated	-0.038	0.031
	(0.041)	(0.044)
Ethnic fluidity × non-Migrated	-0.041	0.069*
	(0.032)	(0.040)
Ethnic fluidity × migrated	-0.044	0.109
	(0.085)	(0.095)
Sundanese × non-migrated	0.081***	-0.120***
	(0.024)	(0.029)
Sundanese × migrated	0.123**	-0.164**
	(0.062)	(0.069)
Minang × non-Migrated	0.065*	-0.006
	(0.034)	(0.044)
Minang × migrated	0.345***	-0.152*
	(0.071)	(0.092)
Balinese × non-Migrated	-0.017	0.136***
	(0.041)	(0.042)
Balinese × migrated	0.134	0.070
	(0.112)	(0.121)
Batak × non-Migrated	-0.198***	0.290***
	(0.047)	(0.046)
Batak × migrated	-0.198*	0.341***
	(0.109)	(0.118)
Chinese × non-Migrated	0.333***	-0.280**
	(0.056)	(0.116)
Chinese × migrated	0.305*	0.078
	(0.162)	(0.388)

Continue to the next page

Continued from previous page

Dependent Variables	(1) Occupational Skills	(2) Skills-Education Matched
Other × non-Migrated	0.049***	-0.038*
	(0.018)	(0.019)
Other × migrated	0.082*	-0.052
	(0.048)	(0.051)
Self-employed × non-migrated	0.255***	-0.438***
	(0.019)	(0.020)
Self-employed × migrated	0.147***	-0.363***
	(0.052)	(0.064)
Self-employed temporary workers × non-Migrated	-0.126***	-0.090***
	(0.023)	(0.020)
Self-employed temporary workers × migrated	-0.151**	-0.053
	(0.073)	(0.073)
Self-employed regular workers × non-Migrated	0.191***	-0.086
	(0.045)	(0.058)
Self-employed regular workers × migrated	0.153	0.143
	(0.140)	(0.207)
Government workers × non-Migrated	0.777***	0.079**
	(0.031)	(0.036)
Government workers × migrated	0.439***	0.281***
	(0.076)	(0.083)
Family worker × non-Migrated	-0.425***	0.146***
	(0.028)	(0.022)
Family worker × migrated	-0.589***	0.160**
	(0.087)	(0.071)
Unpaid worker in agriculture × non-Migrated	-0.555***	0.060
	(0.146)	(0.067)
Unpaid worker in agriculture × migrated	-1.086**	0.142
	(0.425)	(0.195)
Unpaid worker in non-agriculture × non-Migrated	-0.302***	0.162**

Continue to the next page

Continued from previous page

Dependent Variables	(1) Occupational Skills	(2) Skills-Education Matched
	(0.072)	(0.070)
Unpaid worker in non-agriculture × migrated	-0.034	-0.376***
	(0.131)	(0.125)
Age × non-migrated	-0.053***	0.039***
	(0.005)	(0.005)
Age × migrated	-0.022**	0.068***
	(0.011)	(0.012)
Age^2 × non-migrated	0.001***	-0.000***
	(0.000)	(0.000)
Age^2 × migrated	0.000**	-0.001***
	(0.000)	(0.000)
Age at first job × non-migrated	-0.000	0.002***
	(0.001)	(0.001)
Age at first job × migrated	0.002	0.010***
	(0.003)	(0.003)
Female × non-Migrated	0.736***	-0.621***
	(0.021)	(0.025)
Female × migrated	0.728***	-0.598***
	(0.054)	(0.059)
Eduyear × non-migrated	0.089***	
	(0.002)	
Eduyear × migrated	0.091***	
	(0.006)	
Urban_gab × non-migrated	0.411***	-0.127***
	(0.018)	(0.018)
Urban_gab × migrated	0.241***	-0.016
	(0.039)	(0.041)
Selection to employment		
Age	0.140***	0.125***

Continue to the next page

Continued from previous page

Dependent Variables	(1) Occupational Skills	(2) Skills-Education Matched
	(0.003)	(0.003)
Age^2	-0.002***	-0.001***
	(0.000)	(0.000)
Female	-0.918***	-0.846***
	(0.015)	(0.015)
Married	0.365***	0.498***
	(0.021)	(0.019)
HH with children under 10 y.o	-0.017***	-0.015***
	(0.005)	(0.005)
Eduyear	-0.034***	
	(0.002)	
Constant	-1.467***	-1.596***
	(0.053)	(0.052)
Selection to migration		
Negative weather shock	0.003	0.001
	(0.020)	(0.020)
Outmigration rate	0.001***	0.002***
	(0.000)	(0.000)
Age	-0.022***	-0.015***
	(0.004)	(0.004)
Age^2	-0.000	-0.000***
	(0.000)	(0.000)
Female	-0.031	-0.060***
	(0.020)	(0.020)
Eduyear	0.040***	
	(0.002)	
Constant	-1.244***	-0.974***
	(0.065)	(0.064)
Corr(e.employed,e.occupational skill)	-0.752***	0.580***

Continue to the next page

Continued from previous page

Dependent Variables	(1) Occupational Skills	(2) Skills-Education Matched
	(0.029)	(0.056)
Corr(e.migration,e.occupational skill)	-0.139***	0.029***
	(0.022)	(0.009)
Corr(e.migration,e.employed)	0.079***	0.063***
	(0.013)	(0.013)
Observations	81,285	81,489
N_selected	62987	62987
N_nonselected	18298	18502
K	80	72
Chi2	6577	2228
Converged	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variables definition refer to Table 5.5

Bibliography

Acosta, Pablo (2011). "School Attendance, Child Labour, and Remittances from International Migration in El Salvador". In: *Journal of Development Studies* 47.6, pp. 913–936.

Akita, Takahiro (2003). "Decomposing Regional Income Inequality in China and Indonesia Using Two-stage Nested Theil Decomposition Method". In: *The Annals of Regional Science* 37.1, pp. 55–77.

Almond, Douglas and Janet Currie (2011). *Human Capital Development Before Age Five*. Vol. 4. PART B. Elsevier B.V., pp. 1315–1486. ISBN: 9780444534521.

Amare, Mulubrhan et al. (2018). "Rainfall Shocks and Agricultural Productivity: Implication for Rural Household Consumption". In: *Agricultural Systems* 166.March, pp. 79–89. ISSN: 0308521X.

Ananta, Aris et al. (2015). *Demography of Indonesia's Ethnicity*. Institute of Southeast Asian Studies.

Andersson, Lina and Mats Hammarstedt (2010). "Intergenerational Transmissions in Immigrant Self-employment: Evidence from Three Generations". In: *Small Business Economics* 34.3, pp. 261–276.

Antman, Francisca M (2012). "Gender, Educational Attainment, and the Impact of Parental Migration on Children Left Behind". In: *Journal of Population Economics* 25.4, pp. 1187–1214.

Arifin, Evi Nurvidya et al. (2015). "Quantifying Indonesia's Ethnic Diversity: Statistics at National, Provincial, and District Levels". In: *Asian Population Studies* 11.3, pp. 233–256.

Auwalin, Ilmiawan (2019). "Ethnic Identity and Internal Migration Decision in Indonesia". In: *Journal of Ethnic and Migration Studies*, pp. 1–21.

Beazley, Harriot, Leslie Butt, and Jessica Ball (2018). "'Like It, Don't Like It, You Have to Like It': Children's Emotional Responses to the Absence of Transnational Migrant Parents in Lombok, Indonesia". In: *Children's Geographies* 16.6, pp. 591–603.

Becker, Gary S (1993). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago press.

Becker, Gary S. and Nigel Tomes (1979). "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility". In: *The Journal of Political Economy* 87.6, pp. 1153–1189.

Becker, Gary S. et al. (2015). "A Theory of Intergenerational Mobility". In: *SSRN Electronic Journal*. ISSN: 1556-5068. URL: http://www.ssrn.com/abstract=2652891.

Beegle, Kathleen, Joachim de Weerdt, and Stefan Dercon (2006). "Orphanhood and the Long-run Impact on Children". In: *American Journal of Agricultural Economics* 88.5, pp. 1266–1272.

– (2011). "Migration and Economic Mobility in Tanzania: Evidence from a Tracking Survey". In: *Review of Economics and Statistics* 93.3, pp. 1010–1033. ISSN: 0034-6535.

Black, Sandra E. and Paul J. Devereux (2011). *Recent Developments in Intergenerational Mobility*. Vol. 4. PART B. Elsevier B.V., pp. 1487–1541. ISBN: 9780444534521. eprint: arXiv:1011.1669v3.

Borjas, G J, S G Bronars, and S J Trejo (1992). "Self-selection and Internal Migration in the United States." In: *Journal of urban economics* 32.2, pp. 159–185.

Borjas, George J (1992). "Ethnic capital and Intergenerational Mobility". In: *The Quarterly journal of economics* 107.1, pp. 123–150.

– (2006). "Making It in America: Social Mobility in the Immigrant Population". In: *NBER Working Paper Series* 12088.

Bruner, Edward M (1961). "Urbanization and Ethnic Identity in North Sumatra". In: *American Anthropologist* 63.3, pp. 508–521.

– (1972). "Batak Ethnic Associations in Three Indonesian Cities". In: *Southwestern Journal of Anthropology* 28.3, pp. 207–229.

Bruze, Gustaf (2018). "Intergenerational Mobility: New Evidence from Consumption Data". In: *Journal of Applied Econometrics* 33.4, pp. 580–593.

Bucheli, José R, Alok K Bohara, and Matías Fontenla (2018). "Mixed Effects of Remittances on Child Education". In: *IZA Journal of Development and Migration* 8.1, p. 10.

Cameron, Lisa (2009). "Can a Public Scholarship Program Successfully Reduce School Drop-outs in a Time of Economic Crisis? Evidence from Indonesia". In: *Economics of Education review* 28.3, pp. 308–317.

Cameron, Lisa A (2001). "The Impact of the Indonesian Financial Crisis on Children: An Analysis Using the 100 Villages Data". In: *Bulletin of Indonesian Economic Studies* 37.1, pp. 43–64.

Chadwick, RJ (1991). "Matrilineal Inheritance and Migration in a Minangkabau Community". In: *Indonesia* 51, pp. 47–81.

Chan, Carol (2017). "Not Always 'Left-Behind': Indonesian Adolescent Women Negotiating Transnational Mobility, Filial Piety and Care". In: *The Asia Pacific Journal of Anthropology* 18.3, pp. 246–263.

Chang, Hongqin, Xiao-yuan Dong, and Fiona MacPhail (2011). "Labor Migration and Time Use Patterns of the Left-behind Children and Elderly in Rural China". In: *World Development* 39.12, pp. 2199–2210.

Chen, Wen Hao, Yuri Ostrovsky, and Patrizio Piraino (2017). "Lifecycle Variation, Errors-in-Variables Bias and Nonlinearities in Intergenerational Income Transmission: New Evidence from Canada". In: *Labour Economics* 44.2017, pp. 1–12. ISSN: 09275371.

Chetty, Raj and Nathaniel Hendren (2018). "The Impacts of Neighborhoods on Intergenerational Mobility I: Childhood Exposure Effects". In: *The Quarterly Journal of Economics* 133.3, pp. 1107–1162.

Chiquiar, Daniel and Gordon H Hanson (2005). "International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States". In: *Journal of Political Economy* 113.2, pp. 239–281.

Conceição, P et al. (2019). "Human Development Report 2019, Beyond Income, Beyond Averages, Beyond Today: Inequalities in Human Development in the 21st Century". In: *United Nations Development Programme* 1.

Corak, Miles (2013). "Inequality from Generation to Generation: The United States in Comparison". In: *The economics of inequality, poverty, and discrimination in the 21st century* 1, pp. 107–126.

Del Ninno, Carlo and Mattias Lundberg (2005). "Treading Water: the Long-term Impact of the 1998 Flood on Nutrition in Bangladesh". In: *Economics & Human Biology* 3.1, pp. 67–96.

Dercon, Stefan and Catherine Porter (2014). "Live Aid Revisited: Long-term Impacts of the 1984 Ethiopian Famine on Children". In: *Journal of the European Economic Association* 12.4, pp. 927–948.

Djankov, Simeon et al. (2006). "Who are China's Entrepreneurs?" In: *American Economic Review* 96.2, pp. 348–352.

Dribe, Martin, Jonas Helgertz, and Bart van de Putte (2015). "Did Social Mobility Increase During the Industrialization Process? A Micro-level Study of A Transforming Community in Southern Sweden 1828-1968". In: *Research in Social Stratification and Mobility* 41, pp. 25–39.

Dunn, Thomas and Douglas Holtz-Eakin (2000). "Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links". In: *Journal of Labor Economics* 18.2, pp. 282–305.

Duryea, Suzanne, David Lam, and Deborah Levison (2007). "Effects of Economic Shocks on Children's Employment and Schooling in Brazil". In: *Journal of Development Economics* 84.1, pp. 188–214.

Dustmann, Christian (2003). "Children and Return Migration". In: *Journal of population economics* 16.4, pp. 815–830.

– (2008). "Return Migration, Investment in Children, and Intergenerational Mobility: Comparing Sons of Foreign- and Native-Born Fathers". In: *The Journal of Human Resources* 43.2, pp. 299–324. ISSN: 0022-166X.

Elmhirst, Rebecca (2002). "Daughters and Displacement: Migration Dynamics in an Indonesian Transmigration Area". In: *Journal of Development Studies* 38.5, pp. 143–166.

– (2004). "Labour Politics in Migrant Communities: Ethnicity and Women's Activism in Tangerang, Indonesia". In: *Labour in Southeast Asia: Local Processes in a Globalised World*, pp. 387–406.

Fearnside, Philip M (1997). "Transmigration in Indonesia: Lessons from Its Environmental and Social Impacts". In: *Environmental Management* 21.4, pp. 553–570.

Fellmeth, Gracia et al. (2018). "Health Impacts of Parental Migration on Left-behind Children and Adolescents: A Systematic Review and Meta-Analysis". In: *The Lancet* 392.10164, pp. 2567–2582.

Ferreira, Francisco HG, Giovanna Prennushi, and Martin Ravallion (1999). *Protecting The Poor From Macroeconomic Shocks*. Vol. 2160. World Bank Publications.

Ferreira, Francisco HG and Norbert Schady (2009). "Aggregate Economic Shocks, Child Schooling, and Child Health". In: *The World Bank Research Observer* 24.2, pp. 147–181.

Florey, Margaret and Christopher Healey (2002). "Work Well and Guard Your Honour: Temporary Labour Migration and the Role of Adolescent Women in Eastern Indonesia". In: *Asian Studies Review* 26.3, pp. 355–381.

Frankenberg, Elizabeth, Duncan Thomas, Kathleen Beegle, et al. (1999). *The Real Costs of Indonesia's Economic Crisis: Preliminary Findings from the Indonesia Family Life Surveys*. Rand Santa Monica.

Graves, Elizabeth E (2009). *The Minangkabau Response to Dutch Colonial Rule in the Nineteenth Century*. Equinox Publishing.

Hagan, John, Ross MacMillan, and Blair Wheaton (1996). "New Kid in Town: Social Capital and the Life Course Effects of Family Migration on Children". In: *American sociological review*, pp. 368–385.

Haider, Steven and Gary Solon (2006). "Life-Cycle Variation in the Association between Current and Lifetime Earnings". In: *The American Economic Review* 96.4, pp. 1308–1320.

Hammarstedt, Mats and Marten Palme (2012). "Human Capital Transmission and The Earnings of Second-Generation Immigrants in Sweden". In: *IZA Journal of Migration* 1.1, p. 4. ISSN: 2193-9039.

Handiyatmo, Dendi (2012). *Migrasi Internal Penduduk Indonesia Hasil Sensus Penduduk 2010*.

Hare, Denise (1999). "'Push'versus 'pull' Factors in Migration Outflows and Returns: Determinants of Migration Status and Spell Duration Among China's Rural Population". In: *The Journal of Development Studies* 35.3, pp. 45–72.

Harris, John R and Michael P Todaro (1970). "Migration , Unemployment and Developmnent : A Two-Sector Analysis". In: *American Economic Review* 60.1, pp. 126–142. URL: http://www.jstor.org/stable/1807860.

Heckman, James J (1976). "The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models". In: *Annals of Economic and Social Measurement, Volume 5, number 4*. NBER, pp. 475–492.

Heckman, James J and S Mosso (2014). "The Economics of Human Development and Social Mobility". In: *NBER Working Paper Series* 19925, pp. 1–74. ISSN: 1941-1383.

Hertz, Tom et al. (2007). "The Inheritance of Educational Inequality: International Comparisons and Fifty-year Trends". In: *The BE Journal of Economic Analysis & Policy* 7.2.

Hetler, Carol B (1989). "The Impact of Circular Migration on a Village Economy". In: *Bulletin of Indonesian Economic Studies* 25.1, pp. 53–75.

Hugo, Graeme (1995). "International Labor Migration and the Family: Some Observations from Indonesia". In: *Asian and Pacific Migration Journal* 4.2-3, pp. 273–301.

– (2002). "Effects of international migration on the family in Indonesia". In: *Asian and Pacific migration journal* 11.1, pp. 13–46.

– (2006). "Forced Migration in Indonesia: Historical Perspectives". In: *Asian and Pacific Migration Journal* 15.1, pp. 53–92. ISSN: 01171968.

Hugo, Graeme J (1982). "Circular Migration in Indonesia". In: *Population and Development Review*, pp. 59–83.

IMF (2000). "Recovery from the Asian Crisis and the Role of the IMF". In: *International Monetary Fund*.

Jellema, Jon and Hassan Noura (2012). *Protecting Poor and Vulnerable Households in Indonesia*. World Bank, Jakarta Office.

Jensen, Robert (2000). "Agricultural Volatility and Investments in Children". In: *American Economic Review* 90.2, pp. 399–404.

Jones, Gavin W and Peter Hagul (2001). "Schooling in Indonesia: Crisis-related and Longer-term Issues". In: *Bulletin of Indonesian Economic Studies* 37.2, pp. 207–231.

Jürges, Hendrik (2013). "Collateral Damage: The German Food Crisis, Educational Attainment and Labor Market Outcomes of German Post-war Cohorts". In: *Journal of Health Economics* 32.1, pp. 286–303.

Kaestner, Robert and Ofer Malamud (2014). "Self-Selection and International Migration: New Evidence from Mexico". In: *Review of Economics and Statistics* 96.1, pp. 78–91.

Kharisma, Bayu, Elan Satriawan, and Lincolin Arsyad (2017). "The Impact of Social Safety Net Scholarships Program to School Dropout Rates in Indonesia: The Intention-to-treat Analysis". In: *The Journal of Developing Areas* 51.4, pp. 303–316.

Khoo, Choon Yen and Brenda SA Yeoh (2017). "Responsible adults-in-the-making: Intergenerational Impact of Parental Migration on Indonesian Young Women's Aspirational Capacity". In: *Geoforum* 85, pp. 280–289.

Kim, Dae Young (2006). "Stepping-Stone to Intergenerational Mobility? The Springboard, Safety Net, or Mobility Trap Functions of Korean Immigrant Entrepreneurship for the Second Generation". In: *International Migration Review* 40.4, pp. 927–962. ISSN: 01979183.

Klein, Alexander (2011). "Did Children's Education Matter? Family Migration as A Mechanism of Human Capital Investment: Evidence from Nineteenth-Century Bohemia". In: *The Economic History Review* 64.3, pp. 730–764.

Kong, Sherry Tao and Tadjuddin Noer Effendi (2011). "Occupational Choice and Mobility Among migrants in Four Cities". In: *Employment, living standards and poverty in contemporary Indonesia*. Ed. by Chris Manning and Sudarno Sumarto. Institute of Southeast Asian Studies.

Krishna, Anirudh (2013). "Stuck in Place: Investigating Social Mobility in 14 Bangalore Slums". In: *Journal of Development Studies* 49.7, pp. 1010–1028. ISSN: 0022-0388.

Kuncoro, Mudrajad and Nova Murbarani (2016). "Regional Inequality in Indonesia, 1994-2012". In: *The Business & Management Review* 8.1, p. 38.

Kusworo, Ahmad (2014). "Lampung in the Twentieth Century: The Making of 'Little Java'". In: *Pursuing Livelihoods, Imagining Development: Smallholders in Highland Lampung, Indonesia*. Vol. 9. ANU Press, pp. 17–40. ISBN: 9781925021479.

Kwon, Seok-Woo, Colleen Heflin, and Martin Ruef (2013). "Community Social Capital and Entrepreneurship". In: *American Sociological Review* 78.6, pp. 980–1008.

Lam, Theodora and Brenda SA Yeoh (2018). "Parental Migration and Disruptions in Everyday Life: Reactions of left-behind children in Southeast Asia". In: *Journal of Ethnic and Migration Studies*, pp. 1–20.

Levine, David and Michael Kevane (2003). "Are Investments in Daughters Lower When Daughters Move Away? Evidence from Indonesia". In: *World Development* 31.6, pp. 1065–1084.

Levine, David I. and Jon R. Jellema (2007). "Growth, Industrialization, and The Intergenerational Correlation of Advantage". In: *Industrial Relations* 46.1, pp. 130–170. ISSN: 00198676.

Lewis, W Arthur (1954). "Economic Development with Unlimited Supplies of Labour". In: *The Manchester School* 22.2, pp. 139–191.

Lindquist, Matthew J, Joeri Sol, and Mirjam van Praag (2015). "Why Do Entrepreneurial Parents Have Entrepreneurial Children?" In: *Journal of Labor Economics* 33.2, pp. 269–296.

Lisa J. Studdert Soekirman, Kathleen M. Rasmussen and Jean-Pierre Habicht (2004). "Community-based School Feeding During Indonesia's Economic Crisis: Implementation, Benefits, and Sustainability". In: *Food and Nutrition Bulletin*, 25.2, pp. 156–165.

Long, Jason and Joseph P Ferrie (2013). "Intergenerational Occupational Mobility in Great Britain and the United States Since 1850". In: *American Economic Review* 103.4, pp. 1109–1137. ISSN: 0002-8282.

Long, Larry H. (1972). "The Influence of Number and Ages of Children on Residential Mobility". In: *Demography* 9.3, pp. 371–382.

Lu, Yao (2014). "Parental Migration and Education of Left-behind Children: A Comparison of Two Settings". In: *Journal of marriage and family* 76.5, pp. 1082–1098.

Mackie, Jamie (1991). "Towkays and Tycoons: the Chinese in Indonesian Economic Life in the 1920s and 1980s". In: *Indonesia*, pp. 83–96.

Maddala, G S (1986). "Disequilibrium, Self-selection, and Switching Models". In: *Handbook of Econometrics, Volume III*. Ed. by Z. Griliches and M.D. Intriligator. Elsivier Science Publisher BV. Chap. 28, pp. 1634–1682.

Manning, Chris and Devanto S Pratomo (2013). "Do Migrants Get Stuck in the Informal Sector? Findings from a Household Survey in Four Indonesian Cities". In: *Bulletin of Indonesian Economic Studies* 49.2, pp. 167–192.

Massey, D (1990). "Social Structure, Household Strategies, and the Cumulative Causation of Migration". In: *Population Index* 56, pp. 3–26.

Massey, Douglas S et al. (1993). "Theories of International Migration: A Review and Appraisal". In: *Population and development review*, pp. 431–466.

Mavridis, Dimitris (2015). "Ethnic Diversity and Social Capital in Indonesia". In: *World Development* 67, pp. 376–395.

McCulloch, Neil, Julian Weisbrod, and C. Peter Timmer (2007). "Pathways Out of Poverty During an Economic Crisis: an Empirical Assessment of Rural Indonesia". In: *Center for Global Development Working Paper* 115, pp. 1–40. ISSN: 1556-5068.

Mincer, Jacob (1974). "Introduction to "Schooling, Experience, and Earnings"". In: *Schooling, Experience, and Earnings*. National Bureau of Economic Research, Inc, pp. 1–4. URL: https://EconPapers.repec.org/RePEc:nbr:nberch:1762.

Mood, Carina (2010). "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It". In: *European sociological review* 26.1, pp. 67–82.

Muhidin, Salut et al. (2003). "Migrated Household in Indonesia: An Exploration of the Intercensal Survey Data". In: *Chotib, S.-E. Khoo, S. Muhidin, Z. Hao and SK Singh,*

Asians on the Move: Spouses, Dependants and Households, Asian MetaCentre Research Paper Series 8.

Naim, Mochtar (1973). "Merantau: Minangkabau Voluntary Migration". PhD thesis.

Nguyen, Loc Duc, Katharina Raabe, and Ulrike Grote (2013). "Rural-Urban Migration, Household Vulnerability, and Welfare in Vietnam". In: *World Development* 71, pp. 79–93. ISSN: 0305750X.

Nielsen, Helena Skyt and Beatrice Schindler Rangvid (2012). "The Impact of Parents' Years Since Migration on Children's Academic Achievement". In: *IZA Journal of Migration* 1.1, p. 6. ISSN: 2193-9039. URL: http://www.izajom.com/content/1/1/6.

Niittykangas, Hannu and Hannu Tervo (2002). "Intergenerational Mobility in Self-employment: A Regional Approach". In: *42nd Congress of the European Regional Science Association: "From Industry to Advanced Services - Perspectives of European Metropolitan Regions", August 27th - 31st, 2002, Dortmund, Germany*.

Nitisastro, Widjojo (2006). *Population Trends in Indonesia*. Equinox Publishing.

Nivalainen, Satu (2004). "Determinants of Family Migration: Short Moves vs. Long Moves". In: *Journal of Population Economics* 17.1, pp. 157–175.

van der Eng, Pierre (2020). "Chinese Entrepreneurship in Indonesia: A Business Demography Approach". In: *Business History*, pp. 1–22.

van Klinken, Gerry (2003). "Ethnicity in Indonesia". In: *Ethnicity in Asia*. Routledge, pp. 88–111.

van Lottum, J. and D. Marks (2012). "The Determinants of Internal Migration in A Developing Country: Quantitative Evidence for Indonesia, 1930–2000". In: *Applied Economics* 44.34, pp. 4485–4494. URL: http://www.tandfonline.com/doi/abs/10.1080/00036846.2011.591735.

van der Wijst, Ton (1985). "Transmigration in Indonesia: An Evaluation of a Population Redistribution Policy". In: *Population Research and Policy Review* 4.1, pp. 1–30.

Oey-Gardiner, Mayling (1991). "Gender Differences in Schooling in Indonesia". In: *Bulletin of Indonesian Economic Studies* 27.1, pp. 57–79.

Okten, Cagla and Una Okonkwo Osili (2004). "Social Networks and Credit Access in Indonesia". In: *World Development* 32.7, pp. 1225–1246.

Olivetti, Claudia; Paserman, Daniele; Salisbury, Laura (2013). "Three-generation Mobility in the United States, 1850-1940: The Role of Maternal and Paternal Grandparents". In: *Journal of Chemical Information and Modeling* 53.9, pp. 1689–1699. ISSN: 1098-6596.

Pakpahan, Yus Medina, Daniel Suryadarma, and Asep Suryahadi (2009). "Destined for Destitution: Intergenerational Poverty Persistence in Indonesia". In: *Chronic Property Research Centre Working Paper* 134, pp. 1–14.

Paul, Anju Mary (2015). "Negotiating Migration, Performing Gender". In: *Social Forces* 94.1, pp. 271–293.

Peters, H. Elizabeth (1992). "Patterns of Intergenerational Mobility in Income and Earnings". In: *Review of Economics & Statistics* 74, p. 456. ISSN: 00346535.

Ranis, G. and J. C. H. Fei (1961). "A Theory of Economic Development". In: *The American Economic Review* 51.4, pp. 533–565. ISSN: 0002-8282. eprint: 00368075.

Ravallion, Martin and Michael Lokshin (2007). "Lasting Impacts of Indonesia's Financial Crisis". In: *Economic Development and Cultural Change* 56.1, pp. 27–56.

Ravenstein, E . G . (1885). "The Laws of Migration". In: *Journal of the Statistical Society of London* 48.2, pp. 167–235.

Resosudarmo, Budy P and Daniel Suryadarma (2014). "The Impact of Childhood Migration on Educational Attainment: Evidence from rural–urban migrants in Indonesia". In: *Asian Population Studies* 10.3, pp. 319–333.

Resosudarmo, Budy P et al. (2009). "The Socioeconomic and Health Status of Rural–Urban Migrants in Indonesia". In: *Development Economics Working Papers SMERU Research Institure* October.

Rush, James R (2007). *Opium to Java: Revenue Farming and Chinese Enterprise in Colonial Indonesia, 1860-1910*. Equinox Publishing.

Sandi, Matteo (2018). In: *Handbook of Migration and Globalisation*. Edward Elgar Publishing. Chap. Migration and Economic Adjustment: Lessons from Indonesia and the US.

Shafiq, M Najeeb (2010). "The Effect of an Economic Crisis on Educational Outcomes: An Economic Framework and Review of the Evidence". In: *Current Issues in Comparative Education* 12.2, pp. 5–13.

Shah, Manisha and Bryce Millett Steinberg (2017). "Drought of Opportunities: Contemporaneous and Long-Term Impacts of Rainfall Shocks on Human Capital". In: *Journal of Political Economy* 125.2, pp. 527–561. ISSN: 0022-3808. DOI: 10.1086/690828.

Sharma, Anisha (2015). "The Impact of a Macroeconomic Crisis on Childschooling Outcomes in Indonesia". In: *Centre for the Study of African Economies (CSAE)*.

Smith, Christopher D., Jonas Helgertz, and Kirk Scott (2016). "Parents' Years in Sweden and Children's Educational Performance". In: *IZA Journal of Migration* 5.1, p. 6. ISSN: 2193-9039.

Solon, Gary (1999). "Intergenerational Mobility in the Labor Market". In: *Handbook of labor economics*. Vol. 3. Elsevier, pp. 1761–1800.

Sørensen, Jesper B (2007). "Closure and Exposure: Mechanisms in the Intergenerational Transmission of Self-employment". In: *The sociology of entrepreneurship*. Emerald Group Publishing Limited, pp. 83–124.

Sparrow, Robert (2007). "Protecting Education for the Poor in Times of Crisis: An Evaluation of a Scholarship Programme in Indonesia". In: *Oxford Bulletin of Economics and Statistics* 69.1, pp. 99–122.

Stark, Oded (1991). *The Migration of Labor*. Wiley Blackwell.

– (2006). "Inequality and Migration: A Behavioral Link". In: *Economics Letters* 91.1, pp. 146–152.

Stark, Oded and David E Bloom (1985). "The New Economics of Labor Migration". In: *The American Economic Review* 75.2, pp. 173–178.

Stark, Oded and Marcin Jakubek (2013). "Migration Networks as a Response to Financial Constraints: Onset, and Endogenous Dynamics". In: *Journal of Development Economics* 101, pp. 1–7.

Stark, Oded and You Qiang Wang (2002). "Migration Dynamics". In: *Economics Letters* 76.2, pp. 159–164.

Statistics Indonesia (2011). "Kewarganegaraan, Suku Bangsa, Agama, dan Bahasa Sehari-hari Penduduk Indonesia: Hasil Sensus Penduduk 2010". In: *Jakarta: BPS*.

– (2013). "Proyeksi Penduduk Indonesia 2010-2035". In: *Jakarta: Badan Pusat Statistik*, pp. 1–472.

– (2019). "Jumlah Penduduk Miskin, Persentase Penduduk Miskin dan Garis Kemiskinan, 1970-2015". In: URL: https://www.bps.go.id/statictable/2014/01/30/1494/jumlah-penduduk-miskin-persentase-penduduk-miskin-dan-garis-kemiskinan-1970-2017.html (visited on 05/09/2019).

Sumner, Andy, Arief Anshory Yusuf, and Yangki I made Suara (2014). "The Prospects of the Poor : A Set of Poverty Measures Based on the Probability of Remaining Poor (or Not) in Indonesia". Bandung.

Suryadarma, Daniel et al. (2006). "From Access to Income: Regional and Ethnic Inequality in Indonesia". In: *Land, Livelihood, the Economy and the Environment in Indonesia: Essays in Honour of Joan Hardjono*. Yayasan Obor, pp. 103–123.

Suryadinata, Leo (2008). "Chinese Indonesians in an Era of Globalization: Some Major Characteristics". In: *Ethnic Chinese in Contemporary Indonesia*, pp. 1–16.

Suryahadi, Asep, Agus Priyambada, and Sudarno Sumarto (2005). "Poverty, School and Work: Children During the Economic Crisis in Indonesia". In: *Development and Change* 36.2, pp. 351–373.

Suwandinata, Hanny (2012). "Children's Influence on the Family Decision-making Process in Food Buying and Consumption: An Empirical Study of Children's Influence in Jakarta-Indonesia". In.

The Jakarta Post (2020). "Being Chinese-Indonesian". In: *The Jakarta Post*. URL: https://www.thejakartapost.com/academia/2020/01/24/being-chinese-indonesian.html.

The World Bank (2019). *World Development Indicators*. URL: https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?locations=ID.

Thomas, Duncan et al. (2004). "Education in a Crisis". In: *Journal of Development economics* 74.1, pp. 53–85.

Turner, Sarah (2007). "Small-scale Enterprise Livelihoods and Social Capital in Eastern Indonesia: Ethnic Embeddedness and Exclusion". In: *The professional geographer* 59.4, pp. 407–420.

UNDESA, Population Division (2017). *International Migration Report 2017: Highlights*.

Wajdi, Nashrul (2017). "Interregional Migration in Indonesia. Macro, Micro, and Agent-based Modelling Approaches". In.

Wajdi, Nashrul, Leo J.G. van Wissen, and Clara H. Mulder (2015). "Interregional Migration Flows in Indonesia". In: *Sojourn: Journal of Social Issues in Southeast Asia* 30.2, pp. 371–422. ISSN: 02179520.

Yezer, Anthony MJ and Lawrence Thurston (1976). "Migration Patterns and Income Change: Implications for the Human Capital Approach to Migration". In: *Southern Economic Journal*, pp. 693–702.