Impact of migration costs, microcredit, and remittances on cross-border labour migration decisions: Evidence from a Cambodian household survey

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Abstract

Over the past two decades, the migration of Cambodian workers has contributed to poverty reduction and economic development. However, it has also constituted a substantial challenge, in view of the significant increase in the exodus of Cambodian migrant workers, particularly the migration to Thailand. This challenge has highlighted the need for a better understanding of the process, as well as of the interconnectedness and complementarity of migration and policies. Given the prominence of the topic, this thesis provides an examination of the Cambodian labour migration process.

There are four key research papers in this thesis. Using survey data from 422 households in three northern provinces of Cambodia, the thesis begins with an attempt to evaluate and quantify the monetary costs of migration and evaluate the impact of worker-paid migration costs on decision whether to migrate through legal and illegal channels. In the first core paper, migration cost is a critical factor in international labour mobility, but little is known about the pay of migrant workers in foreign jobs. Previous studies do not capture the effects of direct worker-paid migration costs on migration decisions. An alternative specific conditional logit model is used in this chapter to account for alternative migration costs, and the control function method is used to control for endogenous moving costs. Our results show that lowering the total cost of labour migration reduces irregular migration by 15.8 percentage points. Factors such as Thailand's immigration policy, as measured by the deportation rate, migrant length of stay, and wages, also influence whether migration is regular or irregular. These findings should prompt policymakers to consider alternative approaches to reducing migration costs and maximising the net gain on migration.

The second paper, constituting Chapter 3 in this thesis, investigates the microcredit-migration linkage through the lens of South–South Migration (SSM). Evidence from the literature evaluating the linkage between microcredit and migration is ambiguous. This chapter analyses the effect of microcredit on labour migration decisions in the context of South-South Migration (SSM) through the Cambodia to Thailand migration corridor. The study uses the endogenous switching probit model (ESP) to control for endogenous selection bias in borrowing and for the structural differences between decisions to borrow or not to borrow that influence the resolve to migrate.

The findings suggest that households with access to credit are more likely to have migrant family members than their non-borrowing counterparts. It is evident that households that have borrowed from financial institutions are 5.6 percentage points more likely to migrate, whereas households that borrow informally show a 3.2 percentage points likelihood of migrating. The findings of this study are important for policymakers to reassess policies on credit availability and redesign microfinance programmes to maximise gains from labour migration.

An investigation of the impact of remittances on household debt performance and levels of indebtedness is carried out in the third empirical paper, presented in Chapter 4 of the thesis. The findings suggest that households view remittances as transitory income, which declines as a migrant's length of stay away from home increases. Because remittance transfers are transitory, the results suggest that they have a positive impact on household debt performance, particularly in low-debt households. Thus, remittances can lower the debt of recipient households. Given the importance of remittances in households' debt reduction, policies promoting remittance transferring options and fee deduction should be endorsed in order to maximise remittances received by recipient households.

The final paper is elaborated in Chapter 5 of the thesis. This chapter examines two intertwined policy issues in the Cambodia-Thailand migration corridor during the COVID-19 period, focusing on labour recruitment practices and debt-related migration. This paper first identifies existing labour migration issues and policy gaps prior to the pandemic, then argues that these pre-existing challenges caused a delayed response, negatively affecting labour migration. Current labour migration during COVID-19 is heavily influenced by the motivations of private recruitment agencies (PRAs) engaged in this lucrative business, by high migration costs, and debt-induced and debt-financed migration. In the aftermath of the pandemic, the study recommends that key stakeholders discuss how to regulate labour mobility. With the evidence of Cambodia-Thailand labour mobility, policymakers can enhance policy designs and interventions to mitigate the effect of COVID-19 and manage future migration crises.

Notes on Publications

Each chapter in this thesis has resulted in a number of publications, including working papers, and conference and workshop presentations. Some of these have been submitted to journals for possible publication and are under review.

Chapter 2: Direct monetary costs and its determinants in migration decisions: Case of cross-border labour migration from Cambodia to Thailand

Working paper: Oum, C. M., Hassan, G. M., & Holmes, M. J. (2021). Direct monetary costs and their determinants in migration decisions: Case of cross-border labour migration from Cambodia to Thailand (No. 21/06), Hamilton, New Zealand: University of Waikato.

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Chapter 3: Impact of microcredit on labour migration decisions: Evidence from a Cambodian household survey

Working paper: Oum, C. M., Hassan, G. M., & Holmes, M. J. (2022). Impact of microcredit on labour migration decisions: Evidence from a Cambodian household survey (No. 22/01), Hamilton, New Zealand: University of Waikato.

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Chapter 4: Do remittances increase household indebtedness? Evidence from a Cambodian household survey

Working paper: Oum, C. M., Hassan, G. M., & Holmes, M. J. (2022). Do remittances increase household indebtedness: Evidence from a Cambodian household survey (No. 22/02), Hamilton, New Zealand: University of Waikato.

Paper Presented at the 2021 NZAE Virtual PhD Workshop, Auckland, 26-27 October 2021.

Chapter 5: Rethinking labour recruitment practices and debt-related migration: Cambodia-Thailand labour migration amidst the global pandemic

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Abbreviations

ADB:	Asian development bank
ASCL:	Alternative-specific conditional logit
CBC:	Credit bureau of Cambodia
CSO:	Civil Society Organization
ESP:	Endogenous switching probit model
FDI:	Foreign direct investment
GDP:	Gross domestic product
GPOG:	General principles and operational guidelines for fair recruitment and definition of recruitment fees and related costs
ILO:	International Labour Organization
IOM:	International Organization for Migration
MEF:	Ministry of Economy and Finance
MoFIAC:	Ministry of Foreign International Affairs and Cooperation
MoI:	Ministry of Interior
MoLVT:	Ministry of Labour and Vocational Training
MoSAVY:	Ministry of Social Affairs, Veterans and Youth Rehabilitation
MoU:	Memorandum of Understanding
MoWA:	Ministry of Woman Affairs
NAPDRR:	the National Action Plan for Disaster Risk Reduction
NBC:	National Bank of Cambodia
NELM:	New economics of labour migration
OECD:	Organization for European Cooperation and Development
PCR:	Polymerase chain reaction
PRA:	Private recruitment agency
SDGs:	Sustainable Development Goals
SNM:	South–North migration
SSM:	South–South migration
UN:	The United Nations
WB:	The World Bank

CHAPTER 1
INTRODUCTION

1.1 Overview

Over the last 50 years, we have witnessed rapid growth in the movement of individuals around the globe. Currently, there are 281 million international migrants, amounting to about 5% of the global population, residing and working in countries other than their country of origin, whereas there were only 84 million migrants in 1970 (IOM 2022). Such an expansion of movement has gained significant attention and forms an important part of the agenda of contemporary development and policy debates (IOM 2020b). Thus, to comprehend this phenomenon, scholars and researchers have delved into the exploration and investigation of the main trends and drivers, and their impact on migration.

1.1.1 Why do people move?

A large number of theoretical and empirical studies have been developed in an attempt to explain the determinants of migration and motivations for it. Ravenstien (1889), considered to be one of the earliest pioneers of theoretical development in the field, developed his law of migration, which has contributed to contemporary understanding and theoretical development. In particular, this law of migration illustrates important aspects of migration decisions including (1) distance, (2) the migration process, (3) the proximity of the destination (i.e., commercial or industrial area), (4) gender, (5) working age, (6) improvements in transportation, and (7) economic incentives, such as more jobs and higher wages (Grigg 1977). Later, in 1954, Lewis's dual-sector model provided an illustration of classical economic theory, contributing one of the most prominent theoretical models to the field (Todaro and Smith 2012). To explain the rural-urban migration model (Todaro and Smith 2012), Harris-Tadaro (1970) addressed the shortcomings of Lewis's model and advanced the theory by

integrating several factors, such as unemployment and changes in wages through government wage subsidies. The dual labour market theory developed by Piore (1979) dealt with the changes in the market conditions of the destination country suggesting that native workers tend to move from low to higher wages. The destination market therefore leads to a high demand for low-skilled migrant workers for low-wage jobs. Several other neo-economic theories of migration have gained momentum in explaining the determinants of migration and illustrate migration skill and education selectivity in particular. Such theories include those of Sjaastad (1962) on the cost and return of migration, De Jong and Fawcett (1981) on the value expectancy of the intention to move, and Borjas (1987) on the distribution of human capital between the source and destination countries, which illustrates particularly migration selectivity.

The new economics of labour migration (NELM) theory developed by Stark and Bloom (1985) posits a new perspective on the determinants and impact of migration. This theory not only overcomes the inadequacies of neoclassical theory, but also integrates new explanations based on market failures, such as incomplete insurance and credit market, and enhances our comprehension of changing migration patterns. Stark and Bloom (1985) also revitalise traditional thinking about migration decisions in NELM by focusing on collective decisions, where the household plays an important role as a primary unit of analysis. Thus, instead of relying on the migration decisions of individuals, as the neo-classical theories suggested, the NELM theory suggests that households decide jointly whether or not to send one or more family members abroad to diversify income and risk-sharing. Furthermore, NELM emphasises the crucial role of remittances, the money sent home by migrants, in risk mitigation and household livelihood and improvement in production. Other studies that are aligned with Stark and Bloom (1985) include several well-established theoretical models, such as Mincer's 1978 model, illustrating the conflict of interest among household members about migration

decisions (Mincer 1978), and Katz and Stark (1986), who posited the importance of migration decisions as "family portfolio decisions" which tend to reduce potential risks and other economic shortfalls.

Besides economic theories that explain the determinants of migration, other interdisciplinary theories of migration have also played an important role in contributing to an understanding of the determinants and facets of migration. These theories include the demand-push and supply-pull factors model (Lee 1966), migrant networks (Taylor 1986), and migration system theory (Kritz et al., 1992). To explain the mobility of people, several other migration theories have been developed, such as gravity theory, entropy, and Zelinsky (1971) mobility transition theory.

While a number of theories have been developed to explain why people move, empirical studies, which attempt to assess migration decisions at the macro and micro levels, also contribute to the validation of those theories and the economics of migration field. At the country level, for example, X. Clark, Hatton, and Williamson (2007b) examine variations in the rate of US immigration between 1971 and 1998 and find that the variation depends on relative income per capita between the United States and the source country, migration costs measured by distance, and changes in the US immigration policy. Similarly, Mayda (2010) investigates the determinants of bilateral migration flows into 14 Organization for Economic Cooperation and Development (OECD) countries and discovers that greater income opportunities in receiving countries have contributed to a significant increase in the emigration rate from countries of origin. Moreover, the cost of migration, the demographic composition of the population, and geography and proximity, all indicate statistical significance for the emigration rate. Other empirical factors that contribute to an understanding of migration determinants include cost of migration (McKenzie 2007), self-selection (Borjas 1987; Belot and Hatton 2012; Chiquiar and Hanson 2005), migrant networks measured by the stock of

immigrants (Carrington, Detragiache, and Vishwanath 1996; Epstein 2008), destination market conditions and proximities (Kim and Cohen 2010), and immigration policy (Mayda 2010; Djajić and Vinogradova 2019).

Numerous studies have been conducted to determine the factors that influence migration at the household level. Previous studies have found that factors linked to migration include poverty (Bertoli and Marchetta 2014; Ducanes 2015; Roth and Tiberti 2017), household consumption (Khandker, Khalily, and Samad 2012; Abramitzky, Boustan, and Eriksson 2013), education (Vatana Chea and Wongboonsin 2020; Gubhaju and De Jong 2009), health (Hildebrandt and McKenzie 2005), credit constraints (Cai 2020; Tiwari and Winters 2019; Bylander and Hamilton 2015), migrant networks (McKenzie and Rapoport 2007), changes in climate (Mueller et al. 2020), and the proximity of the chosen destination (Chakraborty and Kuri 2017).

1.1.2 Impact of migration and remittances on receiving and sending countries

While there is a growing understanding of the motivations and drivers of migration, there is also an ongoing effort to analyse the effects of migration and remittances on both receiving and sending economies. In the 21st century, such investigation is at the forefront of migration research because this is perhaps what the public and policymakers are particularly interested in, given the fact that immigration and emigration have long been significant items on economic and political agendas (Van den Berg and Bodvarsson 2009). From a standard supply and demand approach, an increase in immigration in a receiving country tends to put pressure on native-born workers' wages, as it provides an abundant supply of inexpensive immigrant labour (Van den Berg and Bodvarsson 2009; Anich et al. 2014). Previous studies have paid attention to the way immigration affects labour markets, such as in employment and wages at the micro level. For example, Altonji and Card (1991) and Dustmann, Frattini, and Preston (2013) find that immigration has a negative effect on wages, whereas Ottaviano

and Peri (2012) find that it has a positive but relatively small impact. Other studies, on the other hand, find that immigration has positive effects on economic growth on the macro level (Boubtane, Dumont, and Rault 2016), on productivity, and competitiveness (Burstein et al. 2020), fiscal effects (J. Clark et al. 2015) , and immigration policy (Djajić and Vinogradova 2019). Furthermore, other effects of immigration, such as on housing prices and investment and entrepreneurial activities, have also been thoroughly examined (see Sá (2015), Latif (2015), Fairlie and Lofstrom (2015)).

For sending countries, there are two strands in the literature on the effect of remittances. First, remittances from migrants have been a promising source of finance for households and have fostered the development of many recipient countries. Global remittances doubled from USD 433 billion to USD 719 billion between 2009 and 2019 (World Bank 2021a). Remittances to low- and middle-income countries (LMICs) increased from USD 302 billion in 2009 to USD 548 billion in 2019 (World Bank 2021a), making remittances to LIMCs their largest external source of finance, larger than foreign direct investment and three times the size of official development assistance (World Bank 2019a). Because remittance inflows to LIMCs are so large and significant, researchers and policymakers have focused on the impact of remittances on development outcomes for recipient economies. Previous research has found that remittances reduce poverty (Adams and Page 2005; Lokshin, Bontch-Osmolovski, and Glinskaya 2010), enhance educational attainment (Cox and Ureta 2003; Amuedo-Dorantes and Pozo 2010), increase health care expenditure and response to health shocks (Hildebrandt and McKenzie 2005; Ambrosius and Cuecuecha 2013), enhance skill and knowledge transfers to local communities (De Haas 2010, 2005), leverage investment and entrepreneurship (Woodruff and Zenteno 2007), and promote financial development, including the use of financial services and access to formal credit (Ambrosius and Cuecuecha 2016; Aggarwal, Demirgüç-Kunt, and Pería 2011; Giuliano and Ruiz-Arranz 2009; Orozco and Fedewa 2006).

Controversially, however, the literature also reveals that the impact of remittances on development outcomes is not always positive. Some studies, for instance, show that remittances do not significantly foster growth (Barajas et al. 2010) and can lead to a long-run real exchange rate appreciation that affects the tradable goods sectors (Hassan and Holmes 2013). Such real exchange rate appreciation in the recipient country caused by remittance inflows increases the cost of production and reduce the recipient country's export competitiveness (Lartey, Mandelman, and Acosta 2012).

1.2 Problem Statement

1.2.1 New Global Focus on Global South Migration: Why Global South Migration?

Accounts in the literature on migration from the early 1960s have focused primarily on South–North Migration (SNM) and have ignored research related to the Global South migration phenomenon. As a result, research into the Global South mobility has not appeared until recently. First, an explanation of the development nexus from the perspective of South–South Migration (SSM)[1] has only appeared in the last 15 years, with the dramatic increase in migration stock within Global South migration, the growth of remittances, and developmental impacts (D Ratha and Shaw 2007a; Anich et al. 2014). It is estimated that migrants from South to North make up approximately 34% of global migration stock, where SSM contributes about 38% (World Bank 2019a). The South–North remittance flow is estimated to constitute approximately 38% of global remittances while South-South remittances account for 34% (World Bank 2019a; Lim and Basnet 2017).

Second, what makes SSM intriguing and has begun to attract more attention is the diversity and complexity of its characteristics in comparison with SNM. The characteristics of SSM and SNM show several points of divergence, including temporary and seasonal movement and the wage

differential between country of origin and destination. First, SSM is likely to have a common border between countries and migration is often gender-based, since women are more likely to migrate due to the availability of domestic jobs. Second, remittance patterns seem to differ from that of SNM in terms of size and cost, and remittances are predominantly sent through informal channels. Third, in the Global South, immigration policy in the destination country is not as strict as in the Global North, leaving a loophole for irregular migration. Fourth, in SSM, intra-ethnic networks have a profound lowering effect on migration costs, facilitating irregular migration. Fifth, another factor differentiating between SNM and SSM is the context of environmental degradation, linking climate change and migration. Finally, labour mobility in SSM tends to be less selective in migration in terms of education level compared to SNM. These compelling differences between SSM and SNM offer insights and opportunities for examining disparities in labour migration, which may provide critical input for mitigating risks and directing policy debates and implications (Bastia and Skeldon 2020).

An important question emerges: why has it taken such a long time for the phenomenon of SSM to attract scholarly and academic interest? Most academic research in the field of migration studies has focused on labour migration from poor (the South) to rich countries (the industrial North), overlooking the growth in size and magnitude of labour migration within the Global South. This imbalance in the literature can be attributed to a number of factors.

First, mainstream theories and most empirical investigation have prioritised explaining the motivations and effects of migration on receiving countries in the North. For example, NELM, the neoclassical dual labour market theory and also the migration network theory pay more attention to migration to the North and give little consideration to SSM (Nawyn, 2016; Anich et al., 2014; Ratha & Shaw, 2007). These theoretical underpinnings also reflect the fact that the majority of migration

literature focuses on SNM because most academics are located in the North, in countries such as the United States, Europe, the OECD, and other developed countries (Anich et al. 2014; Nawyn 2016).

Another reason that much work has been devoted to SNM is that research funding and academic publications have placed priority on SNM research, addressing concerns about how migrants from the South affect the development of industrialised countries (Icduygu et al. 2021). For example, between 1990 and 2019, very few papers (16%) by southern researchers were published in the top 20 development journals, while about 73% were written by northern researchers (Amarante et al. 2021). This may also reflect the view that the development of theoretical models can be applied to migration from South American nations, such as Mexico, Guatemala, and the Caribbean to northern industrial countries, including the United States and other developed countries (Nawyn 2016; Icduygu et al. 2021). Thus, research agenda priorities are likely to put more emphasis on the influence of immigration on the Global North.

1.2.2 Cambodia Labour Migration

As a primary part of Global South migration, Cambodian labour mobility has increased significantly in both size and complexity over the last two decades. Between 2010 and 2021, the number of officially recorded migrant labourers grew significantly from 300,000 to 1.6 million (MoLVT 2020). In 2021, over 1.2 million Cambodian migrant workers went to Thailand, with the next largest number going to the Republic of Korea (68,843), Malaysia (46,711), and Japan (14,583 workers). Migrant workers' remittances accounted for 5.6% of Cambodia's GDP in 2019, which increased from USD 142 million in 2009 to USD 1.5 billion in 2019 (World Bank 2020b). These transfers have evidently had a significant, positive impact on poverty reduction, consumption, health, educational achievement and investment (Vatana Chea and Wongboonsin 2020; Roth and Tiberti 2017).

Given the rapid increase in the size and complexity of Cambodian labour mobility, the migration of labourers to Thailand provides an intriguing case study. The dynamic, diverse features of Cambodian labour mobility exemplify not only how it has evolved but also constitute an important aspect of the impact and evaluation of the growing migration literature dealing with Global South migration, including the migration-development nexus.

First, in addition to regular Cambodian workers who migrate to Thailand through official channels, this host country also receives a significant proportion of undocumented Cambodian migrant workers who choose to migrate without valid documentation with the help of informal brokers. Recent surveys conducted by Harkins, Lindgren, and Suravoranon (2017), the International Organization for Migration (IOM (2019), and the International Labour Organization (ILO (2020f) suggest that approximately 72% of Cambodian migrant workers entered Thailand illegally, double the size of all Cambodian migrant workers who enter Thailand by the official route. In 2019, for example, approximately 720,000 undocumented Cambodian migrant workers obtained Nationality Verification (NV) from the Thai authorities. Thus, this large number of irregular migrants indicates the need for a substantial investigation.

Second, scholarly study of Cambodian migration has only recently emerged. This means that many aspects remain to be investigated and further exploration is required to carry out a thorough evaluation of the impact of migration and gain an understanding of the development nexus. The absence of an impact assessment in quantitative research has contributed to less efficient policy design and policymaking in labour migration management and development programmes. Persistent informal and undocumented labour migration also indicates that labour migration policy is ineffective.

The first core paper in this thesis provides an examination of the direct effect of the monetary cost of migration on decisions concerning migration channels. From an international perspective, international efforts to reduce worker-paid migration costs are essential to ensure migrant protection and a positive return for migrant livelihoods and communities (UN 2015). However, worker-paid migration costs remain a significant gap in contemporary research on migration. It also appears that efforts to reduce recruitment fees and migration costs can be ineffective (ILO 2020f; IOM 2019).

For example, evidence from the South Asian migration corridor recently conducted by the ILO and the Global Knowledge Partnership (KNOWMAD) reveals that migrant workers paid comparatively high fees to seek employment abroad (ILO 2020f; World Bank 2015, 2016). The average Bangladeshi migrant paid USD 3,100 for a job in Kuwait, while Indians and Egyptians paid between USD 1,250 and USD 2,900 to secure construction or domestic work. Sri Lankan migrants spend about USD 320 (Abella and Martin 2014). Such reported costs are the equivalent of about 4 months of a migrant's foreign earnings. Similarly, Vietnamese migrant workers who travel to Malaysia pay a recruiter approximately USD 1,375, the equivalent of 3.9 months of foreign earnings. It is estimated that approximately 90% of those expenses are paid directly to recruiters, with the remaining 10% covering transportation, medical testing and passports (ILO 2018). Another survey indicates that Pakistani migrants covered the highest worker-paid migration costs for employment in Saudi Arabia, averaging USD 4,367, followed by Qatar and the United Arab Emirates.

As a consequence of unduly high migration costs, migrants are forced to seek financial assistance to cover their travel expenses. Excessive fees lead to two forms of debt-related migration (IOM 2019; Rahman 2015). First, potential migrants seeking financial assistance might turn to banks or informal moneylenders. For example, approximately 70% of migrants surveyed in Kuwait reported borrowing money from informal moneylenders. Pakistani migrant workers took an average loan of USD 2,904,

about two-thirds of the total cost of migration, to cover their travel expenses (World Bank 2015; Martin 2017).

Second, migrant workers may opt for a wage deduction approach to secure funding from informal brokers or potential employers to cover pre-departure and other expenses. This method has commonly resulted in debt bondage. Such debts can easily lead to the depletion of a migrant's savings, reduced consumption, and remittance reduction, impinging on the livelihood of a migrant's family members left behind (IOM 2019). Responding to these adversities, migrant workers are motivated to overstay their visas in the host country and are therefore more likely to become irregular migrants, subject to exploitation, detention and deportation (IOM 2019; ILO 2020f).

Although there are well-known consequences of high worker-paid migration costs, the effort to reduce these costs remains sluggish. One of the main reasons is probably a limited understanding of the costs workers must cover. Previous research has only accounted for the linkage between migration costs and various subsets of the dimensions of migration, such as the particular skills and qualifications of migrants, the value of waiting and length of stay at the destination, migration networks, immigration policy, and institutional quality in the source and destination countries.

To account for the direct monetary cost of migration, existing studies have conventionally used proxy variables, such as distance between the place of origin and destination, transportation costs, prevalence of migration, and whether a country is land-locked. Because the conventional approach uses the interdependence of migration costs and other proxies to fulfil the role of decisions about migration, it is difficult to determine how these costs can be reduced, given that the direct monetary costs of migration are largely absent from the literature on migration. Without well-established migration cost components and a greater understanding of how worker-paid costs influence decisions

about migration channels, the effort to improve the protection of migrants and ensure positive development outcomes for them can be quite challenging.

In the case of the Cambodia–Thailand migration corridor, it is obvious that current Cambodian migration literature is scarce and the role of monetary migration costs and how they influence decisions to migrate is understudied. Knowledge of Cambodian labour mobility has not reached a mature stage of research and research capacity is limited. Early studies provided evidence for estimating and understanding the costs incurred by Cambodian migrants prior to departure. These are particular fixed costs while migration expenses, such as for transportation and opportunity costs, were typically underestimated or absent (Chan 2009). This gap in the research on one of the contemporary challenges facing labour migration management also establishes an ambiguous environment for future policy design and implementation. This loophole frequently encourages migrant workers to choose to follow informal routes that can result in labour abuse, violence, exploitation and human trafficking (ILO 2020f; Martin 2012).

Another reason is that it is unclear to what degree costs can be reduced in order to motivate aspiring migrant workers to choose official migration channels, and what factors affect such decisions. Evidently, after the mass exodus of Cambodian migrants from Thailand in 2014 and 2017 due to a shift in Thailand's immigration policy cracking down on irregular migrant workers, the Cambodian government attempted to reduce the cost of passports from around USD 200 to USD 4 for migrant workers, with the aim of encouraging the use of formal migration channels. However, recent studies carried out by the International Labour Organization (ILO (2020f) and the IOM (2019) show that despite a significant reduction in the cost of a passport, would-be migrant workers continue to opt for irregular migrant channels. Harkins, Lindgren, and Suravoranon (2017) suggest that approximately 73% of Cambodian migrants in Thailand remain undocumented. Therefore, exploration of the above

issues should lead to a significant improvement in understanding contemporary Cambodian migration infrastructure and should address the current challenge in the migration of labour.

The research problem addressed in the second core paper of the thesis reflects a growing concern in the area of labour migration about the linkage between migration and microcredit. It is important to emphasise that this linkage has become a growing research area in contemporary migration studies, stemming from the fact that there has been a significant expansion in the provision of credit to potential migrant workers, and also because of the rapid growth of labour mobility in developing countries (Rahman 2015; IOM 2019; Bylander and Hamilton 2015). The migration of labourers from Cambodia to Thailand offers an intriguing case for examining the linkages between migration and microcredit, in view of the recent development of the microfinance sector and its labour migration patterns. Due to the expansion of Cambodia's microcredit sector, recognised as one of the fastest growing (Brickell et al. 2020; NBC 2019), credit market ventures seem to offer greater access to credit. The country's microfinance institutions have been propelled into the ranks of profit-oriented institutions combining competitive interest rates, an increased number of loans, and newly developed financial products, culminating in a significant growth in the number of borrowers. This sector has rapidly expanded its operations by establishing more than 1,300 credit offices across rural-urban areas in Cambodia, offering microcredit to more than 2 million borrowers in 2019 (CMA 2019).Within 15 years, the number of outstanding loans to microfinance borrowers increased to USD 7.15 billion. In 2019, the average loan per borrower topped the Cambodian gross domestic product (GDP) per capita for the first time.

A direct link between microcredit borrowing and migration is not obvious. Prior research has mostly focused on the remittance–credit relationship, leaving any direct link between microcredit and migration relatively unexplored. Evidently, remittances can relax household liquidity and credit

constraints by either substituting for or complementing credit access (Aggarwal, Demirgüç-Kunt, and Pería 2011; Ambrosius and Cuecuecha 2016, 2013). Moreover, the literature does not explicitly specify the role of microcredit in migration decisions, and accounts only for either formal or informal borrowing. For example, neither NELM nor the network theory of migration has explicitly distinguished the impact on migration decisions of formal or informal credit taken out by households. It is important to note that for households in developing countries, both formal and informal credit are important sources of finance frequently linked to the livelihoods and economic decisions of poor households (Chakrabarty and Chaudhuri 2001). Informal credit can be a potential source available to poor households to complement or substitute for formal loans (Ambrosius and Cuecuecha 2016). The availability of borrowing options has a substantial influence on migration decisions. The lack of available data and the gaps in the empirical estimation techniques used to evaluate such relationships limit our understanding of microcredit–migration links. In developing countries, longitudinal household survey data is often unavailable. Consequently, one cannot be certain whether greater access to microcredit promotes migration or whether migration facilitates credit access (Tiwari and Winters 2019). Furthermore, the study of the microcredit–migration relationship faces methodological challenges due to selection bias. Previous studies have been able to address the issue of either household credit access or migration, but not both (see Bylander and Hamilton (2015), Khandker, Khalily, and Samad (2012), and Shonchoy (2015)).

In the third core paper of this thesis, the impact of remittances on household indebtedness is examined. Although this impact has been rigorously studied, evaluating its effect on household indebtedness remains largely unexplored. In the literature, there is a large gap in our understanding of how remittance-sending behaviour affects household debt. What is intriguing about Cambodian debt is that, according to the United Nations' 2020 report on private debt and human rights emphases,

Cambodia is on the verge of sinking into a microfinance crisis that will result in financial fragility for households. This potential crisis is the result of the excessive lending and borrowing that has exacerbated adversity among the poor and the poorest households.

Outstanding loans increased from USD 50.13 million in 2005 to USD 7.2 billion in 2019, and there was an approximately 32% increase in loan value in 2019 compared to the outstanding loan value in 2018 (NBC 2019). The average amount of debt per person was about USD 3,415, exceeding the Cambodian GDP per capita in 2019, which was only USD 1,650. Total outstanding loans, including in the banking sector and microfinance institutions (MFI), reached 103% of GDP in 2018, and there was a 28.3% increase in credit growth compared to total outstanding loans in 2018 (NBC 2019). The household debt-to-income ratio has grown at a fast pace, increasing from 23% in 2013 to 30% in 2017 in Phnom Penh, the capital city, and from 46% to 49% in other urban areas, which is about 24% annually (MoP 2017).

Previous research evaluating the impact of remittances often points to measurement errors in remittances that could potentially yield inconsistent results. Moreover, it is noteworthy that previous studies can only account for officially recorded remittances, casting doubt on the determinants of remittances as well as their effect on outcomes. More importantly, to the best of our knowledge previous studies have only assessed the relationship between remittances and borrowing and/or financial development. The findings suggest that remittances promote financial development, including increasing borrowing and the number of those with a bank account. However, the evidence does not indicate whether remittances increase household indebtedness or private debt, which is one of the rapidly growing issues in developing countries. Consequently, it is necessary to examine whether there is a linkage between remittances and the accumulation of household debt and to what extent remittances affect household indebtedness.

Finally, the fifth chapter of this thesis emphasizes labour migration issues and challenges during the COVID-19 global pandemic. In this context, societies and economies around the globe have followed an unprecedented development path of development. Containment strategies instituted by governments, such as lockdowns, social distancing and travel restrictions, have resulted in profound economic disruptions. The pandemic has added layers of challenges to already existing ones, severely affecting the lives of Cambodian migrant workers, especially the undocumented, and the families they leave behind.

On the one hand, Cambodian migrant workers are usually excluded from host country social response programmes, such as welfare and healthcare support (e.g., vaccination programmes) (ILO 2020c; IOM 2021b). Cambodian migrants often receive no protection from employers, and this adverse effect is exacerbated by their status as undocumented migrant workers (ILO 2020e, 2021a, 2020b). Furthermore, private recruiting agencies (PRAs) that benefit from sending migrant workers overseas have mostly remained silent, failing to assist and monitor migrant workers throughout COVID-19 times.

On the other hand, debt-related migration increases the vulnerability of migrant livelihoods, resulting in even more adverse effects and greater pain for migrant households that take out loans to finance migration, and for households with existing debt (ILO 2017; IOM 2019). This situation escalates and intensifies financial pressure on remittance-dependent households, especially debt-inducing and debt-financing migrant households. Without remittances, family members left behind are unable to meet the repayment schedule, imposing profound stress on their livelihoods and potentially leading to over-indebtedness (Brickell et al. 2020; ILO 2020c). The economic damage caused by COVID-19 has also led to fewer alternatives at home as employment opportunities in the local community shrink. Therefore, returning migrants become a burden for households that have already suffered heavily

from the effects of the pandemic. In order to survive in such precarious situations, migrant workers from deprived socioeconomic backgrounds are more likely to re-enter the host country illegally, subjecting themselves to a high risk of exploitation, imprisonment and human trafficking. Thus, pre-existing labour issues and the impact of COVID-19 necessitate a thorough investigation and extensive evidence-based policy responses to such adversities.

1.3 Objectives and Research Questions

This thesis provides a thorough assessment of the process of Cambodian labour migration to Thailand, concentrating on the direct monetary costs of migration, microcredit, debt-related remittances, and migration during the COVID-19 period. Attaining the research objectives listed below will lead to significant policy implications. The objectives of this thesis are as follows:

i. To examine the effects of direct monetary costs on the migration decisions of Cambodian migrant workers to choose formal or informal channels to Thailand.

ii. To evaluate the relationship between microcredit borrowing and migration decisions through the lens of South–South Migration (SSM).

iii. To explore the effects of remittances on household indebtedness and debt performance.

iv. To investigate two interconnected policy issues in the Cambodia–Thailand migration corridor: labour recruitment practices and debt-related migration during the global pandemic.

To achieve these study aims, it is important to address several research questions that enable us to delve into the core of the problems.

Chapter 2: Direct monetary cost of migration and its determinants in migration decisions: Case of cross-border labour migration from Cambodia to Thailand:

- Is there a relationship between the monetary cost of migration and the choice of migration channel?
- What are the costs associated with migration, especially regular and irregular migration?
- On average, how much does a migrant pay in migration costs?

Chapter 3: Impact of microcredit and migration decisions: Evidence from a Cambodian household survey:

- What are the determinants of formal and informal microcredit uptake among migrant and non-migrant households?
- Does microcredit participation lead to migration?

Chapter 4: Do remittances increase household indebtedness? Evidence from a Cambodian household survey.

- What are the determinants in the sending of remittances?
- Is there a linkage between remittances and household debt accumulation? If yes, do remittances reduce or increase household indebtedness?

Chapter 5: Rethinking labour recruitment practices and debt-related migration: Cambodia–Thailand labour migration amidst the global pandemic:

- What were the pre-existing challenges in labour recruitment practices and in debt-related labour migration?
- Given the adverse effects of COVID-19, to what extent do labour recruitment practices and debt-related migration present challenges to labour migration management?
- What are the policy trajectories for mitigating the effects of COVID-19, as well as policies for future comparable crises?

1.4 Contribution of the Study

This thesis contributes to the literature and to policy implications in several ways. To begin with, the first core paper is one of few studies to examine the impact of the direct worker-paid cost of migration on the choice of migration channel. To assess migration choices, the paper uses direct monetary costs collected from a household survey instead of proxies. This first paper provides a unique database for the direct or real costs of moving from Cambodia to Thailand through official and unofficial channels and can further our understanding of how changes in cost affect such decisions. With our current effort to collect such data, the study contributes to Sustainable Development Goal indicator 10.7.1, which calls for better information on worker-paid migration costs. Finally, this empirical research contributes to evidence-based policymaking, enabling policymakers to reassess optimum migrant worker-paid costs. Most crucially, migrant-sending and -receiving governments, along with PRAs, should commit to lowering worker-paid migration costs by reducing processing time and bureaucratic complications, enforcing Private Recruiting Agency (PRA) ethics and discouraging resort to informal payments. A tightened immigration policy in the destination country would also be an option, raising the cost of undocumented migration and thereby encouraging safer, more affordable migration alternatives.

In line with the first core paper, the second paper contributes to the growing body of migration literature in a number of ways. First, the study sheds new light on the microcredit–migration relationship through the lens of Global South labour mobility and in the context of a rapidly expanding credit market. Second, in contrast to previous research, this study advances our understanding of how credit influences migration decisions by reckoning with the presence of formal and informal credit markets and the structural differences between borrowers and non-borrowers in terms of migration decisions. Finally, this research presents a new perspective on the NELM

hypothesis. According to our findings, the NELM theory may not adequately explain the relationship between microcredit borrowing and migration because the theory was initially developed to provide an explanation for SNM. Consequently, it may fail to explain the credit–migration link in the SSM context.

The third paper is one of few pioneering papers that examine the effects of remittances on household indebtedness, specifically in Cambodia. Most previous studies have used descriptive and qualitative analyses. Secondly, this study contributes to the literature by overcoming the shortcomings in previous studies deriving from measurement errors in calculating remittances. The presence of such errors can be seen from the fact that the balance of payments is often used to account for officially recorded remittances sent through formal channels. This approach fails to capture remittances being transferred through informal channels, such as friends or relatives, informal brokers, and informal transfer agencies. It is important to note that the majority of Cambodian labour migrants are irregular workers and most remittances sent home are processed through private agencies and informal transactions. Finally, we cast light on migrant motivations for sending remittances and their effect on household debt. Institutions and policymakers can thus utilise our findings to facilitate remittance inflows by reducing the cost of transfers, and introducing sound policies and practices to instruct migrant workers and the households they leave behind in financial literacy, enabling them to use formal transfer methods and better manage debt.

Finally, the on-going COVID-19 global pandemic has not only had a detrimental effect on labour mobility, but it has also made more transparent a long-standing structural issue in global migration. For policymakers, finding a new trajectory in labour migration policy to address pandemic-related issues is critical. This paper contributes to the literature by examining two interconnected labour migration issues: labour recruitment practices and debt-financed migration. The study addresses these

challenges using our current research results to formulate policy suggestions, notably drawing on pre-COVID-19 research and current source country policy responses to COVID-19. The issues confronting Cambodian migrant workers should be a policy priority in order to ensure migrant safety and protection. Understanding the issues is crucial for Cambodian policymakers and stakeholders to establish and sustain effective, pragmatic policy actions aimed at mitigating COVID-19's negative effects on migration and development. Moreover, it is critical for the post-COVID-19 recovery plan and to minimise the adverse effects of future migration-related crises.

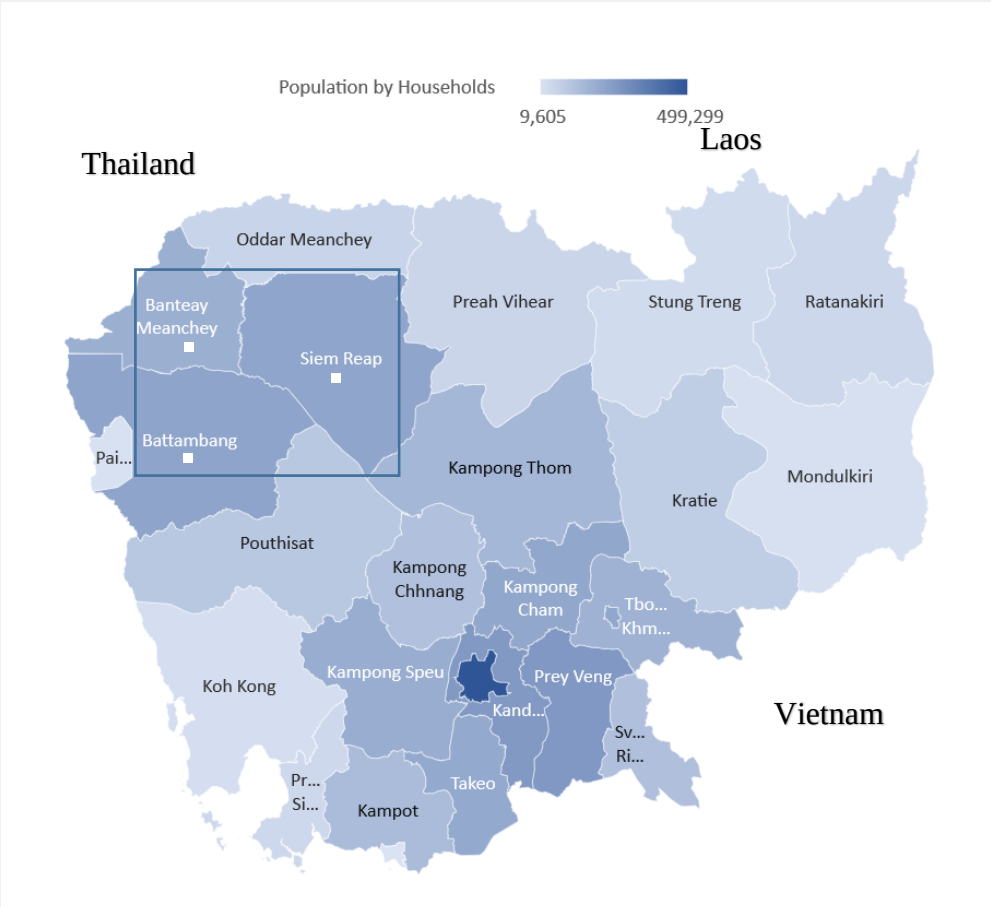
1.5 Research Methods and Data

1.5.1 Data

1.5.1.1 Household Samples

This thesis uses primary data from 422 households and 17 recruitment agencies. For the household survey, we selected provinces that are involved in large-scale international migration activity, drawing on data compiled by the Provincial Department of Planning (2015) and the Ministry of Planning (MoP, 2015). Three provinces, located in the northern region of Cambodia, and known to be the most common provinces of origin of migrant workers, have been selected. These three, namely Banteay Menchey, Battambang, and Siem Reap (See Figure 1.1), represent the highest proportion of international migration from Cambodia (MoP, 2015; IOM, 2022). The three provinces account for 53% of all international migrants from Cambodia (MoP, 2015; Dickson & Koenig, 2016).

Figure 1.1 *Administrative Map of Cambodia showing Survey Location within the Square*



Note: Banteay Menchey, Siem Reap, and Battambang Province. Source: NIS (2020)

Multi-stage stratified random sampling is utilised to determine household location and selection. According to the MoP (2013), 81% of migrants come from rural villages while 19% come from urban areas. Consequently, rural and urban classification is required for district (Srok) and commune (Khum) selection. The designation is based primarily on the classification provided by the MoP (2011). Based on the above MoP information (2013), probability proportional to size (PPS) sampling is used to provide the household sample distribution in each commune. A total of 12 villages were randomly drawn from the selected communes (Table 6). Based on MoP (2017),it is suggested that approximately 21% of households reside in urban areas and 79% in rural areas. Therefore, the sample size is proportionally distributed based on that information.

Table 1.1. *Sample Distribution by Migration Status*

Province	Number of villages	Non-migrant households	Migrant households	Total samples
Banteay Menchey	6	90	52	142
Battambang	6	96	49	145
Siem Reap	5	89	46	135
Total	17	275	147	422

Note. Data collection was conducted from 10th December 2019 to 18th December 2019.

Source: Author's fieldwork

Table 1.2. *Sample Distribution by Village*

Provinces	Village	Non Migrant HH	Migrant HH	Total Samples
Banteay Menchey	Banoy	16	9	25
	Keab	8	15	23
	Kork Svay	10	5	15
	Russie Kroak	23	5	28
	Tuek Thla	20	5	25
	Tomnob Chrey	13	13	26
Battambong	Kroper Chueng	14	7	21
	Kroper Tboung	9	11	20
	Sampov Lech	24	11	35
	Ou Many I	14	11	25
	Ou Many II	15	4	19
	Samnanh	20	5	25
Siem Reap	Chambak Hae	25	8	33
	Chanleas Dai	19	30	49
	kork Thnot	18	0	18
	Rolum Svay	15	6	21
	Trapeang Ses	12	2	14
Total		275	147	422

Note. Data collection was conducted from 10th December 2019 to 18th December 2019.

Source: Author's fieldwork

1.5.1.2 Recruitment Agency Samples

A key reason for undertaking a recruitment agency survey is to obtain migration cost information that cannot be observed or gathered from a household survey. The fee charged was then computed as a cost relative to the household's wealth. This type of cost is primarily used in Chapter 2 of this thesis.

The Ministry of Labour and Vocational Training (MoLVT) granted licences to private recruitment firms providing recruitment services for labour migration overseas to Thailand, Malaysia, South Korea, Hong Kong, Saudi Arabia, Japan and Qatar (MoLVT, 2019). Since this study focuses on the SSM aspect, the sampling design for recruitment agencies is based primarily on recruitment firms providing services to Thailand, which is considered a South-South labour migration corridor (Bylander, 2017). To identify registered recruitment companies, the study used a list provided by MoLVT (2019a), and the MoLVT Prakas (Cambodian ministerial order) on Private Recruitment Agency MoLVT (2013) that indicates the regular legal status of a recruitment agency sending workers abroad. We used a separate version of the household questionnaire to obtain information concerning recruitment fees and migration costs through official channels. We selected only 30 registered companies based in Phnom Penh that are responsible for managing and sending labour migrants to Thailand. However, only 17 out of 63 active PRAs participated in the survey (see Thesis Appendix for a list of PRAs).

1.5.2 Research Methods

This thesis encompasses four primary research papers; each emphasises a separate research method and technique to attain research objectives. In the first paper, to address research problems, the alternative-specific conditional logit model is used to gauge the effect of the direct monetary costs of migration on decisions about migration channels. However, as the costs of migration appear to be

endogenous, the control function method is employed to estimate and predict the generalised residual from the costs' function. The predicted residual is then utilised by substituting in the migration channel decision function. After estimation, the average and conditional marginal effects are employed to measure the changes in migration costs that could affect migration channel decisions. Finally, we use cost simulation to see how changes in cost affect migration decisions.

The second research paper investigates the effect of the uptake of microcredit on migration decisions. Since borrowing choices are subject to selection bias, we first estimate the migration decision function using the instrumental variable probit model, which differentiates between borrowers and non-borrowers based on formal and informal credit. To enhance our estimation, we employ the endogenous switching probit (ESP) model, allowing us to account for the differences between borrowers and non-borrowers embedded in the migration decisions function. We provide a robustness test using the seemingly unrelated bivariate probit model and a simple probit model. These approaches permit us to account for the coexistence of official and unofficial loan sources from which households can obtain finance. After instrumentation and using a simple probit model, we are able to examine the effect of borrowing on migration decisions.

To gain insight into the impact of remittances on household indebtedness, the third paper employs several econometric approaches for estimating this impact and for dealing with any bias that might yield inconsistent results. First, the Heckman selection model and the two-stage least square (2SLS) regression model are employed to assess the determinants of remittances. Then, the generalised residual is predicted and substituted into the structural equations of household indebtedness. Finally, we check the robustness of our result, using the instrumental variable Tobit model (IV-Tobit) that estimates directly the selected instrumental variables and the outcome variables.

In light of the present dire situation caused by the COVID-19 global pandemic, the last chapter of the thesis focuses on labour mobility challenges and prospects in the Cambodia–Thailand migration corridor. This paper uses the latest current research, policy papers, and government and official reports from the Asian Development Bank, IOM, ILO, the United States Agency for International Development, the World Bank, United Nations Development Programmes, other international non-governmental organisations (INGOs) and local non-governmental organisations (NGOs), together with grass-roots reports focusing on contemporary labour migration. All these are employed to analyse how pre-existing labour mobility challenges have delayed responses aimed at curbing the adverse effects of COVID-19. Furthermore, journal articles related to the impact of COVID-19 are carefully evaluated in order to pinpoint the determinants of labour migration as well as the magnitude of the influence of COVID-19 on the management of this migration.

1.5.3 Ethical Approval

Ethical approval (WMS 19/53) was granted by the Waikato Management School Human Research Ethics Committee on 7 August 2019.

1.6 Structure of the Thesis

This thesis consists of six chapters. The first chapter lays out the problem statements and motivation for this research, highlighting an unexplored area of study, the study's contribution, and the data used. The core research body of the thesis comprises four research papers that constitute Chapters 2 to 5, inclusively. Chapter 2 attempts to quantify the direct monetary costs of migration and their influence on migration decisions. Chapter 3 investigates the impact of microcredit borrowing on migration decisions. Chapter 4 leads readers to explore and understand the determinants of remittances, as well as to evaluate the effect of remittances on household indebtedness and debt performance. The final

core research paper, Chapter 5, sheds light on labour migration practices and debt-related migration by examining pre-existing conditions as well as current challenges resulting from the global COVID-19 pandemic. This chapter also highlights policy recommendations that may not only mitigate the negative effects of COVID-19, but may also influence policy direction in the face of further related labour migration crises. The final chapter, Chapter 6, summarises the empirical findings, policy implications, limitations of the research and avenues for future research.

Note:

1. The definition of the South refers to countries classified as low-income (less than USD 996 gross national income (GNI)/capita) and middle-income countries (less than USD 12,055 GNI/capita) while the North is made up of high-income countries (more than USD 12,055 GNI/capita) (Ratha & Shaw, 2007; World Bank, 2017). This thesis has chosen to investigate the principal destination for Cambodian labour migration, Thailand (USD 5,950 GNI/capita), that is part of the Global South (World Bank, 2017).

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CHAPTER 2

DIRECT MONETARY COSTS AND ITS DETERMINANTS IN MIGRATION DECISIONS: CASE OF CROSS-BORDER LABOUR MIGRATION FROM CAMBODIA TO THAILAND

2.1 Introduction

According to the International Labour Organization (ILO) Private Employment Agencies Convention No.181, migrant workers shall not be directly or indirectly charged for foreign jobs (ILO 1997). Reducing worker-paid migration costs should be endorsed to ensure a safe and positive return on migrants' livelihood and their community (UN 2015). However, the effort to lower the recruitment fees and costs involved in migration seems inefficacious (ILO 2020f; IOM 2019; UN 2013a).

The global knowledge partnership on migration and development (KNOMAD) and the ILO surveys on migration costs show that migrant workers across bilateral corridors spent relatively high fees to obtain foreign jobs (World Bank 2016, 2015; ILO 2020f). A survey in Kuwait shows that Bangladeshi migrants paid an average of USD 3,100. Indians paid USD 1,250, and Egyptian migrants spent about USD 2,900 for their foreign employments in construction and domestic jobs. However, Sri Lankan migrant workers had paid relatively less than other nationalities because they are more likely to be female migrants working as domestic workers while they tend to earn low wages, about USD 320 per month on average (Abella and Martin 2014). The reported cost of migration among migrants in Kuwait is approximately equivalent to 4 months of their earnings.

Such costs are likely to be disproportionately high for low-skilled migrant workers. Therefore, the survey found that more than 70% of those surveyed sought money from informal moneylenders to cover migration costs. Similarly, a survey at the Vietnam-Malaysia migration corridor also shows that among 339 Vietnamese migrant workers in Malaysia have paid a recruiter on average of USD 1,375 to acquire an average wage of USD 354 per month. This is equivalent to about 3.9 months of their earnings in Malaysia. Ninety percent of the costs incurred are paid directly to recruiters, while the other 10 percent accounts for transportation, medical test, passport, and others. More than half of the workers took out loans to finance their migration journey (World Bank 2015). Migration to other destinations such as Saudi Arabia (SA), Qatar, and the United Arab Emirates require migrants to pay between 1 to 9 months of their earnings, while Pakistanis migrants in SA paid the highest migration costs, USD 4,367 on average. The average loan to facilitate migration each migrant took was about USD 2,904, about two-thirds of the total cost of migration (World Bank 2015; Martin 2017).

Recruiters' overcharging fees may cause two types of debt migration (IOM 2019; Rahman 2015). First, potential migrants seeking financial assistance might turn to banks or informal moneylenders. Second, migrant workers may opt for a wage deduction approach to seek money from informal brokers or potential employers to cover pre-departure and other expenses. This commonly leads to debt-bondage migration and household asset depletion. Therefore, to cover costs of migration, one of the alternatives is that migrant workers overstay their visas in the host country. They are more likely to become irregular migrants who are subject to frequent exploitation, detention, and deportation (Bylander 2019; ILO 2020f; Martin 2017). Also, the excessive amount of worker-paid migration costs offsets migrant workers' savings, consumption,

productivity, and remittances; this contributes less to their community development (Anich et al. 2014; IOM 2019; Skeldon 2008).

In the migration literature, migration cost is a crucial factor underlying how and why people move and determining the outcomes of migration. The linkage between migration costs and migration decisions is frequently embedded in a different subset of migration dimensions such as selective skills and qualification of migrants (Borjas 1987; Chiswick 1999; Chiquiar and Hanson 2005; X. Clark, Hatton, and Williamson 2007a), the option value of waiting and length of stay at the destination (Angelucci 2012; Burda 1995; Thom 2009), migration networks (Carrington, Detragiache, and Vishwanath 1996; Epstein 2008; Taylor 1986; McKenzie and Rapoport 2007; Lanati and Thiele 2018), immigration policy (Chiquiar and Hanson 2005; Mayda 2010; Djajić and Vinogradova 2019), and institutional quality at the source country (McKenzie and Rapoport 2007). However, if the monetary costs of migration can be directly observed and isolated from self-selection criteria, it then can provide an important answer predicting which types of migrants are likely to migrate (Chiswick 1999).

Reasons for why migrant workers pay high migration costs are unresolved because of a limited understanding about worker-paid migration costs. High migration cost has a detrimental effect on the development outcome (World Bank 2015; Martin 2017), but there has been no precise method for gauging such cost. Existing studies have only used proxy variables such as distance between the place of origin and destination, transportation costs, migration prevalence, colonial history, a common language, and being land-locked countries to account for the direct monetary cost of migration (X. Clark, Hatton, and Williamson 2007a; Dreher and Poutvaara 2011; House and Rempel 1980; Massey and Espinosa 1997). Although these proxy variables indicate their admissibility and validity, it remains difficult to comparatively quantify the amount of monetary

costs that migrant workers have actually paid for foreign employments and other hidden costs such as the opportunity costs (Martin 2017). Furthermore, ILO-KNOWMAD's approach on measuring recruitment costs, which was recently published (World Bank 2015, 2016; ILO 2020f), contains data on particular worker-paid costs to a specific migration corridor and limited to the cost of migration associated with informal labour mobility. Consequently, such limited understanding of the issue has resulted in inadequate labour migration management, allowing informal migration networks dominated by unauthorised brokers and smugglers to operate across migration corridors. These migration agents frequently provoke a number of concerns such as human trafficking, exploitation, and labour abuses (ILO 2020f; Martin 2012). Secondly, migration characteristics and infrastructures that vary between corridors make it difficult to construct migration costs. For example, South-South migration (SSM) and South-North migration (SNM) are fundamentally opposed in many ways in terms of the underlying determinants and impacts (Anich et al. 2014; MacKellar and McNicoll 2019).[1] It thus poses challenges in establishing concise cost components.

To address the above issues, this paper examines the effect of monetary migration costs on migration decisions by using data from two unique sources, designed to capture migration cost information: first, 422 households in the northern province of Cambodia and, second, 17 labour recruiting agencies managing Cambodian labour migrants to Thailand. The combination of both datasets allows us to construct the alternative specific choices, which are the direct monetary costs of migration such as the total cost, general cost, financial cost, and opportunity cost for each migration channel. Instead of employing conventional approaches such as logit, probit, and the multinomial model, which can be estimated with case-specific attributes, the Alternative Specific Conditional Logit model (ASCL) is used to accommodate both the alternative migration costs and case-specifics. Moreover, the Control Function (CF) method (Wooldridge 2015) is also employed

to isolate the endogenous cost of moving by using Cambodian migration stock at a provincial level in Thailand as a proxy variable. We satisfactorily checked for the instrument's admissibility and ensured that the exclusion restriction conditions are satisfied.

Our empirical evidence shows that excessively high costs associated with formal migration contributes to an increase in the likelihood of migrating through irregular channels. Formal migration costs vary between USD 247 and USD 458. It is suggested that the formal cost of migration is substantially expensive, which is equivalent to the average of 2.65 months in household consumption expenditure. On the other hand, informal migration costs range between USD 176 and 231 and costs about 1.38 months of household consumption expenditure less than migration through regular channels. The findings of the study show that an increase in the cost of migration equivalent to one month's household consumption increases migrants' likelihood of choosing illegal channels by 15.8 percentage points. In addition to the monetary costs of migration and its effects on migration channel, this study also finds that the deportation rate, migrant worker earnings, and duration of stay in the destination country all exhibited statistically significant effects on formal migration decisions. Strengthening immigration policies measured by the deportation rate reduces irregular migration by 20.9 percentage points. Also, increasing the duration of stay reduces irregular migration by 2.96 percentage points. We found that the migrant wage at the destination has only a small effect on the choice of regular migration, which is only 0.9 percentage points.

This study contributes to the literature in a number of fronts. First, it is one of the first few studies to use direct monetary costs instead of proxies to assess migration choices. Second, we create a unique database on the direct or real cost of moving from Cambodia to Thailand through official and informal channels. This permits us to contribute to SDG indicator 10.7.1, which calls for

enhanced information on worker-paid migration costs. Finally, the findings of this study provide a clarity of the cost issues involved in migration to support evidence-based decision making for policymakers to assess the optimum worker-paid migration costs. Consequently, this has the capability to employ the migrants and safeguard them against labour exploitation, abuse, and trafficking. More importantly, in terms of the policy implications, migrant-sending and receiving governments, along with private recruiting agencies (PRAs) should commit to reducing worker-paid migration costs by lowering processing time for legal documents, bureaucratic complications, enforcing PRA recruitment ethics, and discouraging informal payments. Moreover, given the study's findings that the deportation rate has a significant and substantial effect on irregular migration, from Cambodia's perspectives further tightening of Thailand's immigration policy can increase the cost of undocumented migration and thereby decreasing the propensity of aspiring migrant workers to choose the irregular route.

The remainder of this paper is organized as follows. Section 2 reviews the Cambodian migration context, followed by a discussion of the conceptual framework in Section 3. Section 4 presents the empirical specifications and approaches to overcome bias in estimation. Section 5 presents the data and variables used, and Section 6 summarizes the evidence on migration choice determinants, the marginal effect of migration costs. The last section forms the conclusion.

2.2 The Cambodian Labour Migration Context

Cambodian labour migration is not a new phenomenon. However, this marvel becomes more dynamic and diverse. During the last ten years, the number of Cambodian migrants who migrated through official channels has more than doubled (MoLVT 2020). However, only a few studies have focused on documenting and estimating the worker-paid cost of Cambodian migrants who migrated through official channels. At the same time, worker-paid migration costs via informal

channels also remain largely unexplored (Harkins, Lindgren, and Suravoranon 2017; ILO 2020f; Tunon and Rim 2013). Evidence shows that high worker-paid cost is accountable for the irregular emigration. It stems from a long waiting time and complicated recruitment process as a consequence of bureaucratic system complications. The Cambodian Ministry of Labour and Vocational Training (MoLVT) also recognizes a policy gap in governing labour migration, including inconsistencies in terms of clarity and areas of work and seemingly non-comprehensive legal frameworks policies resulting in a high migration cost (MoLVT 2014).

Table 2.1. *Estimated Costs Incurred by Cambodian Migrant Workers to Thailand (in US$)*

Cost components	Regular migration	Irregular migration
Recruitment Service		
PRA's service	$59 - $100	-
Informal broker	-	$33 -$136
Passport		
Red	$100-$250	-
Black	$67	-
VISA (L-A)	$20.5	-
Border Pass	-	$7- $26
OCWC	$18.5 - $27	-
Medical Examination	$20	-
Transportation		
Inbound	$5-$10	$5-$10
Outbound	$5-$10	$5-$10
Work permit book	$70	-

Note: Red passport is a travel document issued by the ministry of interior for publics while black passport is specifically issued for migration workers with several traveling restriction and for oversea employment purpose only. OCWC: Oversea Cambodian Workers Card. Food, accommodation during travelling, and other document processing fees in Thailand are not included. There were also some forms of bribe to authorities that were not reported here. Source: Harkins, Lindgren, and Suravoranon (2017) ; ILO (2020f), VERITE (2019)

Because available data on direct migration costs is limited, previous studies excluded cost variations and primarily concentrated on fixed migration costs. In practice, however, there are considerable prerequisite costs, including passport, medical check, exit fee, training, travel, recruitment agency, work permit, application form, visa, and other expenses (see Table 2.1) (ILO 2020f). Although the government of Cambodia has enormously reduced the passport fee as a part of emigration cost deduction from USD 125 to USD 4 after the mass exodus of Cambodian migrants in 2014, Cambodian migrants still choose informal channels (ILO 2020f). Irregular migrants have to pay for only two to three items to migrate. This includes the cost of service paid to friends or relatives assisting migrants to cross the border and the cost of border pass, and the transportation cost. A recent survey by Harkins, Lindgren, and Suravoranon (2017) suggests that approximately 73% of Cambodian migrants in Thailand are undocumented. Other migration surveys also found that irregular migrants remain high in number even though the worker paid-cost of irregular migration is high (IOM 2019; ILO 2020f).

2.3 Conceptual Framework

To examine the decision to migrate, denote U^M as the utility function of migration; U^R presents as the utility function of regular migrant; U^Idenotes a utility function of irregular migrant, and U^N is the value function of non-migration. Then $U^M = \max(U^R, U^I)$; therefore, the migrant's decision to move or not $\mathrm{U} = \max(U^M, U^N + \varepsilon)$. The term ε attached to the U^N reflects the idiosyncratic variation among households/individuals in term of value that they link to their connections to the place of origin that can be realised only by remaining at home (Djajić and Vinogradova, 2019). Hence the probability of migration can be expressed by:

$$P = Prob\,(U^M > U^N + \varepsilon) = Prob\,(U^M - U^N > \varepsilon) = F\,(U^M - U^N) \qquad (1)$$

where F(.) is the cumulative distribution function of the error component ε. And $U^M = \max(U^R, U^I)$. Secondly, the paper extends the concept of the decision rule and choice as established by Roseman (1983) and Pellegrini and Fotheringham (2002) to determine whether a household sends their family member through a regular or irregular route or chooses not to migrate. Following Pellegrini and Fotheringham (2002):

$$U_{ij} = V_{ij} + \varepsilon_{ij} \tag{2}$$

where U_{ij}denotes the utility of household *i*, that sends a family member through alternative route j. U_{ij} is the summation of the observable utility V_{ij} and the unobservable random error component ε_{ij}. The probability of migrating through alternative route j is greater when V_{ij} is higher than V_{ik}. Thus, the probability of household *i* sending their family member through route *j* is equal to the probability that U_{ij} provides the highest utilities of all other alternatives in the choice set C_i Therefore, it can be expressed:

$$P_i(j|C_i) = \Pr(U_{ij} > U_{ik} \forall\, k \in C_i\; j \neq k) \tag{3}$$

Substitute the above equation (2) into (3)

$$P_i(j|C_i) = \Pr(V_{ij} + \varepsilon_{ij} > V_{ik} + \varepsilon_{ik}\; \forall\, k \in C_i\; j \neq k) \tag{4}$$

The joint distribution of the error term in different assumptions leads to the different choice of model (Pellegrini and Fotheringham 2002).

2.3.1 Choice of Migration

For analytical purposes, we investigate the choice of migration by distinguishing between regular or irregular migration at the initial stage of the migration journey process. It enables us to identify illegal migrants at the outset and avoid depending on the migration status given by the Memorandum of Understanding [2] (MoU) or the Nationality Verification program[3] (NV) offered in Thailand. So, we provide two sets of choice modelling for both regular and irregular migration.

2.3.2 Regular Migration

A decision to migrate through a regular channel maximizes the expected discounted lifetime utility function that provides a higher utility than irregular migration and non-migration. There are three time periods in setting up a utility function for regular migrants: before migration, overseas and return. However, it is vital to note that our survey data is not designed to capture returned migrants. Hence, we focus on variables in two periods, including households' and migrants' characteristics before and during migration. First, potential migrants need to finance migration cost (K^R) such as transportation, visa, passport, and the agency. When emigrating through regular channels, a migrant is subjected to a fixed time contract (τ) and earn (W^R) after working at the destination country. One possible way to observe a migrant's wage at the host country is to use a proxy of the migrant's level of education (Vanwey 2004). A higher level of education is likely to contribute to higher wages and consumption overseas. Therefore, the utility of regular migration can be expressed:

$$U^R = f(K^R, W^R, \tau)$$

In this case, we specify K^R is the total cost of regular migration, which can be divided into three components, namely (1) general cost, (2) financial cost, and (3) opportunity cost using the ILO classification (ILO 2016b).

2.3.3 Irregular Migration

A decision to emigrate through an informal channel occurs when maximizing the utility function of irregular migration, which is higher than regular migration and non-migration. The distinction between regular and irregular emigration is that irregular migrants may risk deportation if authorities in the destination country discover their status; therefore, the length of stay at the destination can vary subjected to the above circumstances (Djajić and Vinogradova 2019). The irregular costs of migration (K^I) is dependent on household's asset holdings to finance the move. K^I is assumed to be higher than K^R because the emigration is to a developed country (Global North); therefore, a highly restricted immigration policy contributes to the high cost of irregular migration (Djajić and Vinogradova 2019). However, in the case of Cambodian migration to Thailand which is located in the Global South, K^I is typically lower than regular channels (Harkins, Lindgren, and Suravoranon 2017; ILO 2020f). Irregular migrants earn wages (W^I) at the destination and potentially encounter deportation rate denoted by (ρ). The utility function of the irregular migrant can be expressed:

$$U^I = f(K^I, W^I, \rho\,)$$

The wage rate (W^I) can be observed through the level of education of migrants, while the deportation rate (ρ) can be directly observed as the numbers of deportees in the year prior to migrants migrating to the destination. If the number of deportees increases or the immigration policy at the destination is strengthened; the probability of irregular migration declines.

Based on Djajić and Vinogradova (2019), we show that the factors determining whether to migrate through an official or unofficial channel depends on (1) cost of regular migration, (2) cost of irregular migration, (3) duration of the contract (the length of stay at the destination), (4) wage via regular migration, (5) wage via irregular migration, (6) deportation rate if migrants emigrate through an illegal channel.

2.4 Empirical Specification

Our initial empirical approach is to solve problems in the estimations including self-selection bias in migration[4], the Independence of Irrelevant Alternatives (IIA), and the endogenous cost of moving. Then, the Alternative Specific Conditional Logit (ASCL) is used to estimate the alternative and case-specific attributes in equation (5).

This paper primarily adopts the alternative specific conditional logit model (Cameron and Trivedi 2005; Greene 2018; McFadden 1974; Wooldridge 2015). This approach provides the advantage over the traditional method allowing each alternatives to have specific attributes by adding variation across choice alternative and the individual case-specific characteristics. Standard choice approaches such as logit, probit model, and the multinomial logit/probit can only control for case-specific or individual-specific characteristics that could provide little variation and not capture the alternative specific effects.

Following Davies, Greenwood, and Li (2001), household *i* make decisions to send one or more family members through choices j=0, 1, 2, i.e., no migration, regular migration, and irregular migration, respectively. It is vital to include non-movers choosing not to migrate in understanding migration decisions; otherwise, the study would be trapped into the selection-biased problem (Davies, Greenwood, and Li 2001). Therefore, a decision to migrate M_{ij} through *j* channel can be expressed as follows:

$$M_{ij} = \beta_1 X'_{ij} + \beta_2 X_i + \beta_3 m_i + \varepsilon_{ij} \quad (5)$$

where X'_{ij} denotes a vector of choice-specific attributes representing all types of migration costs. m_i is a vector of migrant's characteristics and X_i denotes a household's case specific characteristics. β, β_1, β_2 denote the parameters to be estimated for each alternative, household, and migrant, respectively. ε_{ij} is strictly to be independent and identically distributed across alternatives (iid). Therefore, the probability of household *i* choosing to send a family member through *j* channel which the utility U_{ij} is the highest value among all other choices *k*. Therefore, it can be expressed as

$$P(y_i = j) = P(U_{ij} > U_{ik}) \; \forall k \neq j \quad (5.1)$$

Then:

$$P_{ij} = P(y_i = j) = \frac{e^{(\beta_1 X'_{ij} + \beta_2 m_i + \beta_3 X_i)}}{\sum_{k=1}^{J} e^{(\beta_1 X'_{ik} + \beta_2 m_i + \beta_3 X_i)}} \quad (5.2)$$

where J is a total of j alternatives, which are three alternatives. X'_{ij} is the set of the alternative specific regressors, mainly the components of migration cost varying across alternatives and characteristics at the location where migrants work as regular or irregular status, including labour

market and socioeconomic information. X_i and m_i denote household and migrant case-specific attributes, respectively.

Although the conditional logit model performs better with the alternative specific attributes, this econometric approach requires a strong assumption of the alternative invariance with the Independence of Irrelevant Alternatives (IIA) assumption. Therefore, if it is violated, the model is not an appropriate choice (Greene 2018; Cheng and Long 2007). The Hausman and McFadden test (Hausman and McFadden 1984) is used to check a standardized comparison of the model coefficient for the IIA assumption (Cheng and Long 2007).

2.4.1 Marginal Effects

Examining the marginal cost is vital to see how the cost changes would affect migration mode choice to go abroad for work. It can be expressed (Davies, Greenwood, and Li 2001):

$$\frac{\partial P_{ijk}}{\partial X'_{ik}} = P_{ijk}(1 - P_{ijk})\beta \tag{6}$$

For the conditional logit model, the marginal effect for continuous variables such as cost components is the ratio of differences in the probability migrating through j to k for the change of X'_{ik}.

2.4.2 Endogenous Cost of Migration

Carrington, Detragiache, and Vishwanath (1996) and Massey and Espinosa (1997) suggest that the cost of migration is endogenous because it correlates with the unobservable characteristics; specifically to the destination's attributes. The presence of the migrant community at the destination affects worker-paid migration costs. This cost endogenously decreases with an increase

of migration stock, which is already settled at the country of destination. Therefore, as a network effect, it can minimize time, facilitate job search, and reduce risks for potential migrants at the place of origin (McKenzie and Rapoport 2007; Taylor 1986; Epstein 2008).

To account for the endogeneity issue, the control function (CF) approach is effective and straightforward to use (Wooldridge 2015). The CF method is a robust two-step approach that can be utilized to eliminate endogeneity in the choice model. The endogenous variable is regressed on observed characteristics and the instrument, following the exclusion restriction procedure. The predicted residual from the first step estimation is retained and substituted in the choice model with other explanatory variables (Petrin and Train 2010; Greence 2018; Wooldridge 2015). One of the advantages of employing CF is that it is efficient, straightforward, and more precise than the instrumental variable method as it generates residuals from migration channel decisions (Wooldridge 2015). Following Petrin and Train (2010), we have:

$$U_{ij} = V\left(X'_{ij}, X_i, m_i, \gamma\right) + \varepsilon_{ij} \tag{7}$$

where γ is the parameter while ε_{ij} is the error component across alternative j. So, recognizing X'_{ij} as an endogenous variable $E\left[\varepsilon_{ij}, X'_{ij}\right] \neq 0$; the X'_{ij} is not independent of ε_{ij} which is likely to produce biased estimates. Generating the CF, we employed the reduced form that X'_{ij} is a function of the exogenous variables and the instrumental variable.

$$X'_{ij} = W(S_i, X_i, m_i, \alpha) + \mu_{ij} \tag{7.1}$$

We introduce an instrumental variable S_i denotes an instrumental variable which is measured by stock of Cambodian migrants at the provincial level in Thailand using the data available at the Department of Employment, Ministry of Labour Thailand in 2018.. We employed a simple falsification test to validate instrument admissibility and its validity: the instrument is valid only

if it affects the monetary cost of migration but not the choice of migration (Di Falco, Veronesi, and Yesuf 2011; Pizer 2016).[5] α is the parameter while $\mu_{ij}$is the error component across alternative j for each migration cost. With the independence assumption, it is straightforward to retain standard estimation using Ordinary Least Squares (OLS), and the general form of CF can be expressed as CF ($\mu_{ij};\ \delta$) and δ is the parameter. Therefore, the error component now consists of $\varepsilon_{ij} = \text{CF}\ (\mu_{ij};\ \delta) + \widehat{\varepsilon_{ij}}$.

Substitute CF ($\mu_{ij};\ \delta$) into the utility function U_{ij}. Therefore, with a given CF specification, we can have the utility function U_{ij} as follows:

$$U_{ij} = V\left(X'_{ij}, X_i, m_i, \gamma\right) + \text{CF}\ (\mu_{ij};\ \delta) + \widehat{\varepsilon_{ij}} \tag{8}$$

2.5 Data and Variables

This study exploits two primary data sources covering 422 households in three provinces in the northern part of Cambodia, Banteay Meanchey, Battambang, and Siem Reap, which represent a high density of international migration and 53 % of the total international migration (Dickson and Koenig 2016; MoP 2015).

Probability proportional to size (PPS) sampling is used to determine the study area's sample distribution after the multi-stage random sampling was employed. Data collection took place in December 2019, within 17 villages (See Table 2.2). The sample size is proportionally distributed according to the Ministry of Planning (MoP) (2017) data that states overall approximately 21 % of households reside in the urban area and 79 % in the rural area.

Table 2.2. *Sample Distribution by Migration Status*

Province	Number of Villages	Non-Migrant households	Migrant households	Total Samples

Banteay Menchey	6	90	52	142
Battambang	6	96	49	145
Siem Reap	5	89	46	135
Total	17	275	147	422

Note: Data collection was conducted from 10th December 2019 to 18th December 2019.

Since we attempt to construct the alternative specific costs of migration, a separate version of the questionnaire was employed to obtain the recruitment fees and migration costs through official channels, particularly via the PRA. We randomly select 30 registered companies based in Phnom Penh, managing and sending labour migrants to Thailand. To identify registered companies, we use a list provided by MoLVT (2019), and the Prakas on Private Recruitment Agency by MoLVT (2013) that highlight conditions and legal status of a recruiting agency sending workers abroad. There are 17 PRAs out of 63 active PRAs participated in the survey.

2.5.1 Variables

Our explanatory variables of interest are the total cost of migration and its components, based on the Global Knowledge Partnership on Migration and Development (KNOWMAD) and ILO migration cost survey across different bilateral corridors (ILO 2016b, 2018, 2020f). Migration cost is measured and classified under the SDGs indicator 10.7.1. It includes: 1) the general cost, which refers to the cost borne by potential migrants on specific training programmes such as language training or the cost of preparing to work in the destination and the cost of preparation to work in foreign country. 2) The financial cost includes the contract agreement, passport and visa, health check, and travel expenses. 3) The opportunity cost is the cost borne by migrant workers in comparison to the wage not earned when migrants travel from home to training locations or when a migrant is not earning and spends time on pre-departure training. 4) The total cost is calculated as the sum of all costs (See Table A.4 for migration cost sub-components).

It is important to note that, in this study, we justify the computation of migration costs as the ratio of the reported total cost of migration to the average household's monthly consumption expenditure prior to migration. This measurement differs from ILO-KNOWMAD's approach which measures migration costs as a share of migrant monthly wages in the host country. There are at least two main reasons for this justification. First, Cambodian labour migration decisions are characterised by a collective decision which is a joint decision of the household or the parental decisions (MoP 2013). Household members jointly determine the costs and benefits of sending one or more family members abroad. Given such consideration, the monetary costs of migration are perceived by all household members including migrants themselves. Thus, inquiring households about the amount they have spent for foreign employment can be an ideal alternative to capture the actual costs of moving. Second, a household survey can provide information about more than migration costs; it can provide information about the household's socioeconomic status, such as income, expenditure, and debt, which is vital for quantifying the migration costs in terms of household economic status instead of migrants' wage ratio at the destination. Martin (2017) suggests that more accurate information about migrant workers can also be obtained by conducting a survey through their households. Finally, our measurement that marginally deviates from the ILO-KNOWMAD's approach may indicate new and important evidence about how relatively expensive the cost of moving is for poor Cambodian households and low-skilled migrants from Cambodia to Thailand.

The case-specific variables include household head and household characteristics – age, gender, household size, average household education, occupation (farmer, own business, public servant, and employee), level of monthly household income, dependency ratio, level of household wealth index (poorest, poor, medium, wealthy, wealthiest) constructed by the Polychoric Principal Component Analysis (See Table A.6 in Chapter 2 Appendix). Variables at village level are

considered important in determining household migration decisions, we also include the geographic variables such as irrigation system (whether or not the household is located in a village that has an irrigation system), distance from household to school, to nearest border check-point, and to the nearest immigration office.

Migrant characteristics include the length of stay at the destination and years of education, which are the variables theoretically affecting the choice of migration route (Djajić and Vinogradova 2019). The regression model's control variables include gender, marital status (single, married, widowed, and divorced), occupation at the country of destination (service, factory, construction, and fishing), and migrants' good health status dummy variable equal to 1; otherwise zero.

We incorporate an immigration policy variable, deportation, measured by numbers of Cambodian migrant being deported (Djajić and Vinogradova 2019; Mayda 2010). The data was retrieved from the National Committee for Counter Trafficking (NCCT), reporting the number of deportees from various destinations each year from 2013 to 2018 across different check-points. Cambodian migration stock in Thailand at a provincial and regional level, retrieved from the Department of Employment, Ministry of Labour Thailand in 2018, is also included in the models to capture network effects and control for the endogeneity in migration cost.

2.5.2 Descriptive Statistics

Table 2.3 presents the results of the descriptive statistical analysis and additional material which can be found in the Appendix in Table A. 7 and A. 8. The simple statistical test shows a statistically significant difference between regular and irregular migration costs in all cost components. The results show that costs for irregular migration are relatively lower than for regular migration at both cost components and aggregate. The total reported cost of migration through regular channels

is 2.6 months of household consumption expenditure on average, which equals USD 458, while the total cost for irregular migration is 1.274 months of monthly household consumption expenditure, equivalent to USD 217. The result also reveals that regular migrants spend a large proportion on financial costs which constitute 76 % of the total cost including travel document fees, visas, medical test fees, contract fees, and internal and international transportation costs. In contrast, irregular migration cost is equivalent to USD 176 on average.

Table 2.3 *Average Migration Costs per Migrant by Channel*

VARIABLES	Regular Migration		Irregular Migration		Diff. in Mean
	Mean	SD	Mean	SD	
Total cost of migration	2.659	1.194	1.274	1.405	1.386***
General cost of migration	0.253	0.436	0.006	0.041	0.247***
Financial cost of migration	2.098	1.244	1.016	1.426	1.083***
Opportunity cost of migration	0.127	0.221	0.010	0.064	0.117***

*Notes: The cost of migration is measured by the ratio of the reported total cost of migration per person and calculated into a USD 2014 constant to the household's monthly consumption expenditure prior to migration. Wald test is performed to test the null hypothesis of equal means. *** p<0.01, ** p<0.05, * p<0.1*

Table A.8 in Chapter 2 Appendix displays the differences in means between irregular and regular migrants' characteristics. The statistical test shows that our variables of interest indicate statistically significant differences within migration choice at 1 % and 5 %, respectively. First, irregular migrants tend to stay in the destination country longer than regular migrants by 45.12 months on average. This longer length of stay could result in difficulties when passing through immigration check-points if migrants want to return and re-emigrate. Furthermore, the length of stay for irregular migrants appears longer since regular migrants are contracted to a fixed time work permit of only two years with a possible two-year extension. Finally, there is a statistically significant difference between regular and irregular migrants in terms of years of education. This result shows that regular migrants may possess basic knowledge to register with PRAs while

irregular migrants rely on their kinships such as family/friends, informal brokers, and experienced migrants to facilitate their migration.

2.6 Results

Table 2.4 and Table 2.5 show the estimated results using the ASCL approach. However, it is important to show that our empirical estimation strategies have thoroughly addressed several econometric challenges such as selection bias in migration decisions, the independence of irrelevant alternatives (IIA), the endogenous migration cost, and recall bias in migration costs. First, we eliminate the selection bias in migration decisions using Propensity Score Matching (PSM). This approach balances the dataset property and makes it comparable in terms of characteristics among migrant and non-migrant households. After estimating the propensity scores for each household, the common support or the overlap condition technique was used to generate a balanced household distribution (Roth and Tiberti 2017; Liu, Feng, and Brandon 2018). Table A.1 in the Appendix shows that the balancing property is satisfied given the household's

exogenous covariates. Households that are not located in the common support area were dropped. Thus, the observations remain 411 households and 11 households were dropped from the dataset.

Secondly, in Table A.2, the Hausman and McFadden test result reveals that there is no evidence of an IIA violation, as we cannot reject the null hypothesis that the conditional logit model produces consistent results similar to the mixed logit model. Therefore, it confirms the validity of the ASCL approach used in this study.

Third, the study incorporates the CF method to accommodate the endogenous cost of moving. The CF residual is retained from the OLS estimation from Equation 7.1 and substituted into Equation 8. As the CF method also requires the identification rule with a valid instrumental variable, the falsification test is used to ensure its admissibility. Table A.3 presents the result of the falsification test and find that the instrumental variable satisfies the exclusion restriction which affects migration decisions channel only through the cost of moving.

Finally, we address the recall bias in migration costs. As mentioned in previous section, ILO-KNOWMAD measures migration costs by computing the reported costs to migrant's monthly foreign earning while, in this study, we compute the costs of migration as the ratio of the reported migration costs to the average household's monthly consumption expenditure. Given the fact that our household survey was conducted in Cambodia, the country of origin, the study would not be able to survey migrant workers on how much they actually paid for and earned from their foreign employments. Also, the left-behind households we surveyed would not accurately recall or report migrant workers' monthly earnings in Thailand (Funkhouser 2012). Therefore, using the ratio of the reported migration costs to the average household's monthly consumption expenditure, instead of migration costs to migrant's monthly earning ratio, can be an alternative and ideal measurement to mitigate the migration costs recall bias.

Table 2.4 shows that all variables are statistically significant at 1 percent and 5 percent level with predicted signs. The alternative-specific total costs of migration have expected negative sign across estimated models, including Model 4 in the last column computed using the residual inclusion from the Control Function method from Equation 7.1. Overall, the results suggest that an increase in the total cost can reduce the likelihood of regular migration, thereby increase the propensity to migrate through the irregular channel.

The general cost including cost of pre-departure training, language training, and brokerage fee also indicates a negative sign suggesting that increasing this type of cost leads to a reduction in the propensity to choose regular migration. Unlike the official channel, a migrant who chooses irregular migration does not have prerequisite expenses on pre-departure training or language training but bears only brokerage fees that are much cheaper and less time-consuming than regular migration. Furthermore, while migrants are dependent on migration networks, job training is unnecessary. This is because asymmetric information has been reduced and passed on to migrants through family and friends who help them get a job at the destination (McKenzie and Rapoport 2007; Orrenius and Zavodny 2005).

Table 2.4. *The Determinants of Migration Choice (The Alternative Specific Estimations)*

VARIABLES	Alternative Specific Conditional Logit (Individual Level)			
	Model (1)	Model (2)	Model (3)	Model (4)
Total migration cost	-0.921*	-0.899	-1.427***	-1.897**
	(0.510)	(0.669)	(0.544)	(0.917)
General cost	-13.51***	-17.14***	-17.68***	-24.05***
	(3.053)	(4.099)	(3.355)	(5.568)
Opportunity cost	58.17***	65.20***	70.83***	86.19***
	(11.66)	(13.08)	(14.67)	(19.34)
Financial cost	1.188**	1.422**	2.019***	2.832***
	(0.547)	(0.673)	(0.643)	(1.019)

VARIABLES	Alternative Specific Conditional Logit (Individual Level)			
	Model (1)	Model (2)	Model (3)	Model (4)
Financial cost (Square)	-0.0383	-0.0725	-0.0890	-0.161**
	(0.0613)	(0.0697)	(0.0707)	(0.0785)
Opportunity cost (Square)	-40.88***	-45.56***	-48.92***	-58.09***
	(9.583)	(9.775)	(11.84)	(13.41)
Observations	442	442	442	442

*Note: Individual case specific variables were included in all models and corresponded to the estimated models in Table 2.5. The CF residual is estimated using OLS with robust standard error. OLS results and the falsification test for exclusion restriction are available in the Appendix materials. Cluster standard error at the household level was used because one household could send multiple migrants. Altwise in McFadden's choice was employed to control for the missing value in the alternative specific attributes (See Stata (2021). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

The financial cost and its square term indicate a statistically significant and non-linear relationship between the financial cost and migration choice. Our empirical evidence is in contrast with previous findings and can be explained for a number of reasons. Our measurement of financial cost is not accounted for by a fixed term, such as the distance between a place of origin to a place of destination or the transportation cost previously used (Davies, Greenwood, and Li 2001). We used related costs to construct financial costs, which differ in terms of mode of transportation and associated fees. Furthermore, it is essential to note that the Cambodia passport fee, which is used to calculate the financial cost, varies across migrants. This is due to the fact that migrants may apply for either a red or a black passport, each of which has a different fee.[6]

The opportunity cost indicates a statistically significant positive coefficient and negative at opportunity cost square. While we observe the effect of opportunity cost on regular migration, it varies with the cost of being away from home and not earning during the application process and pre-departure training. Due to the variation, a linear cost will not fully capture how the costs differ in terms of the household's distance and occupation before migration that deviates from the

household's income loss. These estimated coefficients point to the inverted U-shape which opportunity cost relationship is positive before a certain cost threshold and turn negative afterward. Likewise, for the financial cost in Model 4.

Table 2.5 reports results of the case-specific variables of interest. Deportation, year of education as a proxy for migrant wage, and length of stay are all statistically significant with predicted signs. First, the findings show that by strengthening the immigration policy through the deportation of Cambodian irregular migrants has a positive effect on the propensity of choosing regular migration. This implies that strengthening Thailand's immigration policy can be one of the alternatives to curb illegal labour migration from Cambodia. Furthermore, this result is in accordance with prior research such as Morehouse and Blomfield (2011), who showed that tightening immigration policies and combating illegal migrants reduced irregular stock in Europe from 2007 to 2011. Secondly, there is a negative association between length of stay at a destination and immigration status which is statistically significant at the 5 % level. The results suggest that irregular migrants are more likely to stay longer than legal migrants. There are two key explanation to this finding.

Table 2.5. *The Determinants of Migration Choice (Individual Case-Specific Estimation)*

VARIABLES	Alternative Specific Conditional Logit (Individual Level)			
	Model (1)	Model (2)	Model (3)	Model (4)
	Reference Migration Choice: Irregular Migration			
Log of deportation (t-1)	3.663***	3.847***	4.373***	5.043***
	(1.071)	(1.147)	(1.094)	(1.662)
Length of stay	-0.583***	-0.490**	-0.610***	-0.714**
	(0.208)	(0.238)	(0.228)	(0.360)
Wage	0.166**	0.225***	0.174**	0.240**
	(0.0736)	(0.0820)	(0.0842)	(0.104)
Children	-0.671	-0.976*	-0.917*	-1.204*
	(0.530)	(0.556)	(0.536)	(0.627)
Widowed	-14.01***	-13.25***	-13.48***	-13.09***
	(1.557)	(1.890)	(1.556)	(2.208)
Migrant's occupation at destination				
Fishing	-13.67***	-13.20***	-14.94***	-12.99***
	(0.981)	(1.259)	(0.778)	(1.346)
Shock_ Crop Damage (before migration)			-15.12***	-14.31***
			(1.567)	(1.671)
Female migrant ratio			-9.910***	-14.35***
			(2.860)	(4.237)
Migration stock in Thailand (Regions)		-1.0305**		-8.5406*
		(4.1006)		(5.1806)
Log distance to the nearest border		39.44**		45.62**
		(16.97)		(18.30)
Log distance to immigration office		-48.33**		-60.96**
		(24.59)		(24.72)
Household Wealth Index	YES	YES	YES	YES
Provincial dummies	YES	YES	YES	YES
Constant	-41.72***	-4.361	-49.11***	12.38
	(12.21)	(49.05)	(12.42)	(43.51)
Observations	442	442	442	442

*Note: Only Significant slope estimates are reported in this table. All case-specific variables used in the estimations can be found in Table A.3 in the Appendix. Alternative case specific variables in all Model (1-4) and The CF residual is estimated using OLS with robust standard error. Cluster standard error at the household level was used because one household could send multiple migrants. Altwise in McFadden's choice was employed to control for the missing value in the alternative specific attributes (STATA 2021). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

First, to avoid exposing themselves, undocumented migrant workers limit their movements as they typically continue to work clandestinely in the informal sector. Second, irregular migrants prefer to stay at the destination working in the informal sector for an extended period of time until the cost of migrating is covered and reaches saving targets.

Employing migrants' years of education as a proxy for wages at the destination, we find that regular migrants are likely to have higher wages than irregular migrants. This finding is consistent with previous studies suggesting that irregular migrants are commonly exploited and earn less compared to regular migrants. They often work in "3D jobs" (Dirty, Difficult, and Dangerous) (Bylander 2017; IOM 2019). However, our finding contradicts Sobieszczyk (2000) and Djajić and Vinogradova (2019). They suggest that undocumented migrant workers' wages tend to be higher than documented migrant workers working in more advanced countries such as Japan, Singapore, South Korea, and Taiwan. It is noteworthy to emphasize that, based on Djajić and Vinogradova (2019), irregular migrants can more flexibly meet the demands of employers faster than regular migrants who require paperwork and a recruitment process. This mechanism of irregular migrants' flexibility possibly reduces the cost of recruiting for employers. Therefore, employers are willing to pay a higher rate for irregular migrants. Nonetheless, it is important to point out that the above studies (Djajić and Vinogradova 2019; Sobieszczyk 2000) mainly illustrate the context of South-North migration given a significant difference from South-South labour movement which is a primary context in this study.

2.6.1 Marginal Effects of Migration Costs

Although the cost of migration from Cambodia to Thailand is relatively inexpensive compared to other migration corridors (ILO 2020f), the average cost of monthly household consumption ratio used in this study unravels new and important findings that costs of moving from Cambodia to

Thailand remain an issue for poor Cambodian households and low-skilled migrants. One of the main results is that a high cost of moving increases the likelihood of irregular migration. Given such result, we further examine the marginal effect of migration costs on the migration channel in greater detail. The results in Table 2.6 indicate that changes in migration costs have a statistically significant effect on regular and irregular migration decisions. As illustrated in Table 2.6, an increase in the total cost of migration equivalent to one month's consumption reduces the chance of choosing an official route by 15.8 percentage points, vice versa for informal channel.

Controlling for migrants' characteristics, we did not find a significant difference between the average marginal effect between the average and conditional marginal effect, 15.8 percentage points and 15.7 percentage points, respectively. This result implies that the choice of migration from Cambodia to Thailand may not necessarily involve migrants' characteristics. Nevertheless, the labour migration policy could potentially shape the choice of migration patterns and decisions either formal or informal channel. This finding is also consistent with previous studies suggesting that government policies are more important than individual migrant characteristics that affect migration decisions. Therefore, curbing the adversity of the high cost of migration as well as managing labour migration can be done through both sending and receiving countries (Martin 2017; Djajić and Vinogradova 2019; Mayda 2010; Van den Berg and Bodvarsson 2009).

Table 2.6 *Average Marginal Effect and Adjusted Prediction at Different Cost of Migration Values*

VARIABLE	Average Marginal Effect	Conditional Marginal Effect	Cost of migration (in month) Zero Cost	One month	Two months	Three months	Four Months	Five months
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Regular migration	-0.158**	-0.157**	0.643***	0.470***	0.326***	0.215***	0.134***	0.0827***
	(0.072)	(0.0666)	(0.144)	(0.0886)	(0.0465)	(0.0167)	(0.0152)	(0.0140)
Irregular migration	0.158**	0.157**	0.357**	0.530***	0.674***	0.785***	0.866***	0.917***
	(0.0729)	(0.0666)	(0.144)	(0.0886)	(0.0465)	(0.0167)	(0.0152)	(0.0140)
Obs.	442	422	442	442	442	442	442	442

*Note: The Average Marginal Effect is calculated at mean. The Conditional marginal effect; we estimate the conditional probability on migrants' characteristics at mean given the changes on probability when choosing migration choice. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

In Table 2.6 columns (3)-(5), we analyse the changes in migration costs that affect the likelihood of choosing regular and irregular migration channels. Using the cost simulation, we first assume that the Cambodian government enforces a zero-fee policy in which employers and PRAs bear all the costs of migration. The results show that regular migration has a predicted probability of 64.3 percentage points and irregular migration has a predicted probability of 35.7 percentage points. Although the network effects that may have impacted their migration choice to some extent, it shows that when costs can be lowered to zero, it can encourage a safe movement since formal migration is more cost-attractive than informal channels. Secondly, as formal migration costs rise, equivalent to five months of household consumption expenses, the likelihood that migrants would choose the regular emigration route reduces from 64.3 to 8.27 percentage points , while the likelihood that they will use an irregular route increases to 91.7 percentage points %.

As the average regular migration cost is equivalent to 2.65 months of household consumption, emigration through irregular channels remains popular because of its low costs (ILO 2020f; IOM

2019). Our first case-specific variable of interest, log of deportation, shows that if the Thai authority strengthens measures to tackle irregular migrants, it increases in the probability of choosing regular migration by 20.9 percentage points. This result implies that tightening immigration policy in Thailand through the deportation can be an effective policy to cope with irregular emigration from Cambodia. Higher wages for regular migration increase 0.9 percentage points as an incentive for Cambodian migrants to opt for formal migration. Interestingly, the result suggests that with a 1% increase in the length of stay, a migrant is less likely to choose regular migration by 2.96 percentage points. Therefore, the findings of this study suggest various policy implications that should be reviewed and reformulated by governments in both the country of origin and the country of destination.

2.7 Conclusion

Research in theoretical and empirical modelling of the international movement of people has been limited by the use proxy variables to gauge migration costs instead of direct migration cost data. However, it is essential to acquire actual migration cost data for the international endeavour to minimize moving costs, enhance migrants' livelihoods and increase returns on migration. This study offers a fresh understanding of the constituents of worker-paid migration costs and examines its effect on migration decisions.

The findings of this study show that motivating aspiring migrant workers to choose formal migration can be done through reducing the cost of migration. Specifically, deducting the total cost of labour migration equivalent to one-month household average consumption can increase the likelihood of choosing regular migration by 15.8 percentage points. The findings also support the theoretical hypotheses that strengthening immigration policy at the country of destination, measured by the number of Cambodian deportees, reduces the probability of migrating through

illegal or irregular channels by 20.9 percentage points. Also, increasing the length of stay at the destination country reduces the likelihood of choosing irregular migration by 2.96 percentage points. We also found that the migrant wage at the destination has only a small effect on the choice of regular migration, which is only 0.9 percentage points.

Given the important finding drawn from our study that the primary motivation for irregular migration is high migration costs, policy priorities that both sending and receiving governments can elevate to keep worker-paid migration costs low are to eliminate formal migration complication, to adopt minimum migrant worker-paid fees, and to strengthen labour recruitment ethic codes of conducts that ensure PRAs good practices. This article also offers a research venue as a guideline for researchers who attempt to further investigate the direct worker-paid migration costs and advances the need to examine the level of willingness to pay migration cost among migrant workers or employers.

Notes

1. SSM and SNM differ in several ways, including (1) insignificant wage differentials, (2) sharing common borders, (3) gender-based migration, (4) temporary and seasonal migration, (5) size of remittances, transaction cost, and remitting channel, (6) lessen immigration policy led to irregular migration, (7) intra ethnic or network migration. (8) Degradation of the environment and less selective migration (Dilip Ratha and Shaw 2007b; Anich et al. 2014).

2. Memorandum of Understanding between Cambodia and Thailand on cooperation in the employment of workers (19 December 2015) (MoLVT 2014).

3. The Nationality Verification (NV) process legalizes migrants who have been working illegally in Thailand. Between 2014 and 2019, approximately one million Cambodian irregular migrants completed the NV scheme. (MoLVT 2020). The words "undocumented/documented, irregular/regular, illegal/legal" will be used interchangeably in this chapter.

4. Self-selection bias correction in migration using Propensity Score Matching (PSM) (Roth and Tiberti 2017; Liu, Feng, and Brandon 2018). We used a logit model to estimate the propensity

score for both migrant and non-migrant households. Follow Rosenbaum and Rubin (1983), the valid propensity score exists between 0 and 1; $0 < Pr(M_i = 1|X_i) < 1$; where $Pr(M_i = 1|X_i) = \frac{Exp(X_i^M \alpha)}{1+Exp(X_i^M \alpha)}$; X_i is a set of exogenous factors affecting the decision to migrate M_i and α is the parameter.

5. Based on Agwu, Yuni, and Anochiwa (2018), Table A. 3 of Chapter 2 Appendix shows the test of exclusion restrictions for the selected instrumental variable. The result indicates that our instrumental variable, migration stock, is valid which is statistically significant affecting migration cost and not the choice of migration channel.

6. All Cambodians are eligible to apply for a red passport, which permits them to travel, stay, and work abroad. The black passport, on the other hand, is a recent initiative that assists migrant workers in cutting costs of migration. According to our survey, one must apply via a PRAs and the fee is between USD 35 and USD 75 including the OCWC. The standard or red passport ranges between USD 100 and USD 250.

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2.9 Appendix

Table A. 1 *Propensity Score Estimates (Treatment = Migrant Households)*

VARIABLES	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (7)
Rural area	0.578*	0.545*	0.592*	0.608*	0.593*	0.677**
	(0.318)	(0.317)	(0.318)	(0.318)	(0.317)	(0.322)
Household (HH) gender	0.046	0.087	0.097	0.057	0.065	0.015
	(0.249)	(0.247)	(0.249)	(0.249)	(0.248)	(0.253)
HH high school	-0.068	-0.067	-0.070	-0.011	-0.109	-0.060
	(0.446)	(0.445)	(0.448)	(0.447)	(0.448)	(0.451)
# Female earns (before migration)	0.463***	0.453***	0.475***	0.487***	0.455***	0.513***
	(0.156)	(0.156)	(0.158)	(0.157)	(0.157)	(0.161)
# Female members	0.359***	0.349***	0.346***	0.354***	0.361***	0.366***
	(0.091)	(0.091)	(0.092)	(0.091)	(0.091)	(0.093)
Dependency ratio	2.012***	2.031***	2.073***	2.096***	1.989***	2.065***
	(0.576)	(0.575)	(0.587)	(0.581)	(0.577)	(0.595)
Irrigation	-0.226	-0.230	-0.230	-0.287	-0.188	-0.240
	(0.261)	(0.261)	(0.263)	(0.263)	(0.263)	(0.267)
Distance to school	-0.440*	-0.443*	-0.411*	-0.435*	-0.442*	-0.399*
	(0.228)	(0.229)	(0.231)	(0.231)	(0.229)	(0.231)
Poorest household	0.355					0.653*
	(0.301)					(0.393)
Poor household		-0.103				0.286
		(0.294)				(0.384)
Medium household			0.685**			0.863**
			(0.280)			(0.363)
Wealthy household				-0.619**		-0.184
				(0.315)		(0.386)
Wealthiest household					-0.400	
					(0.298)	
Provincial dummies	YES	YES	YES	YES	YES	YES
Constant	-2.89***	-2.74***	-2.99***	-2.80***	-2.728***	-3.35***
	(0.466)	(0.459)	(0.468)	(0.456)	(0.452)	(0.545)
Number of obs.	422	422	422	422	422	422
Prob>X^2	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R^2	0.153	0.151	0.162	0.158	0.154	0.170
Log likelihood	-230.96	-231.587	-228.67	-229.634	-230.7298	-226.274
Balancing property	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied
Remaining obs.	415	413	408	402	418	411
# of blocks	5	5	5	5	5	5

*Notes: Migration is a non-random assignment, the Propensity Score Matching (PSM) technique was used to correct selection bias in migration decision by comparing migrant households (treatment group) characteristics to the non-migrant household's (control group) through the estimated propensity score (Roth and Tiberti 2017; Liu, Feng, and Brandon 2018). Sampling weights are not used to calculate propensity score following Frolich (2007). Standard errors are in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.10.*
Source: Authors' Calculation

Table A.2 *Independent of Irrelevant Alternatives (IIA) Test*

	Hausman and McFadden test
Log likelihood	-65.602742
Chi-square statistics	0.000
Likelihood ratio test statistics	-
Degree of freedom	26
Prob>= Chi-square/ Chi-bar-square	0.999
Decision	Cannot reject H_o

Note: H_o: IIA property holds or the mixed logit model produces the consistent result as the conditional logit model; therefore, there is no evidence against the conditional logit model. Discussing in Cheng and Long (2007), the Hausman and McFadden (HM) test performs to compare the estimates $\hat{\beta}^c$ and $\hat{\beta}^m$. Therefore the HM test can be expressed: $HM = (\hat{\beta}^c - \hat{\beta}^m)' [\widehat{Var}(\hat{\beta}^c) - \widehat{Var}(\hat{\beta}^m)]^{-1} (\hat{\beta}^c - \hat{\beta}^m)$.The $\widehat{Var}(\hat{\beta}^c)$ and $\widehat{Var}(\hat{\beta}^m)$ are the estimated covariance. Therefore, if the value of HM indicates statistically significance, there is a violation of the IIA. However, if the value of HM is distributed as chi-square with the degree of freedom equal to the estimated coefficient in $\hat{\beta}^m$, the IIA is hold and not violated.
Source: Authors' Calculation

Table A. 3 *The Test of Exclusion Restrictions for the Instrumental Variable*

VARIABLES	Determinants of Migration Cost	Regular Migration Choice
	OLS	ASCL
Migration stocks	-9.3706***	1.04e-06
	(3.1306)	(0.0000165)
Log deportation	0.186	6.565***
	(0.294)	(2.005)
Log length of stay	0.170***	-.7199**
	(0.0523)	(0.328)

Years of education	-0.00328	0.268*
	(0.0258)	(0.144)
Female_ Migrant	-0.116	0.354
	(0.154)	(0.573)
Single	-0.338	1.155
	(0.586)	(1.874)
Married	-0.883	1.115
	(0.560)	(1.313)
Widowed	-0.00970	-29.295***
	(0.780)	(2.703)
Health_good	-0.357	1.285*
	(0.231)	(0.658)
# of Children	0.0449	-0.044
	(0.0883)	(0.403)
Occupation at the destination		
Factory	0.0438	1.103
	(0.280)	(1.165)
Construction	0.131	1.913
	(0.245)	(1.338)
Fishing	0.231	-12.240***
	(0.562)	(2.764)
Service	0.143	0.345
	(0.270)	(1.477)
Sibling	-0.732*	-1.140
	(0.386)	(1.676)
Children	-0.520**	-3.828**
	(0.252)	(1.610)
Relatives	-0.181	-2.018
	(0.521)	(1.804)
Parents	-0.901	17.663***
	(0.951)	(1.933)
Other relationship	-0.727	-4.478
	(0.285)	(1.976)
Shock_ Crop Damage (before migration)	0.696	-10.565***
	(0.493)	(2.536)
Female migrant ratio (village)	-0.912	-16.917***
	(0.848)	(6.253)
Log distance to the near border	-12.20**	52.079***

	(4.972)	(15.872)
Log distance to the immigration office	9.975*	-70.898**
	(5.702)	(21.488)
Regional Cambodian migration stock	2.83e-06*	0.00001
	(1.53e-06)	(6.01e-60)
Household wealth dummies	YES	YES
Provincial dummies	YES	YES
Constant	10.99	11.381
	(8.298)	(45.349)
Observations	448	422
R-squared	0.111	-

*Note: All alternative cost specific variables- total cost, general cost, financial cost, opportunity cost, and square terms- are included in the ASCL model. All cost specific variables remain statistically significant at 5 percent level. Cluster standard error at the household level was used because one household could send multiple migrants. Altwise in McFadden's choice was employed to control for the missing value in the alternative specific attributes. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1Source: Authors' Calculation*

Table A.4 *Migration Cost Components*

Migration Cost Component	Sub-Migration Cost Component
General cost	Cost of learning destination languages
	Pre-departure training fee
	Job training fee
	Recruitment agent's fee
Financial cost	Passport fee
	Visa fee
	Medical test fee
	Transport cost (both inland and international)
	Contract fee
	Exit clearance fee
	Insurance
	Other payment
Opportunity cost	Cost of travelling from home to training place
	Cost of living outside household for pre-departure training

Source: Author's elaboration based on Chan (2009); Jalilian (2012); ILO (2016; 2018); Testaverde et al. (2017)

Table A.5 *Total Migration Costs per Migrant by Channel (US$ 2014 Constant)*

VARIABLES	Mean	Std. Dev.	Min	Max
Recruiting agency	$ 495.96	205.0234	93.90726	721.8521
Informal broker	$ 183.69	183.7706	15.6354	674.8143
Village network	$ 245.80	175.8615	23.79708	586.96
Family member/friend	$ 282.85	179.6164	13.40736	787.2834
Experienced/returned migrant	$ 345.55	179.9018	13.75883	725.4254
Others	$ 246.84	253.0459	6.25	1070.872

Source: Author's calculation

Table A.6. *The Polychoric PCA Validity Tests*

	The Polychoric PCA
The determinant of the Correlation Matrix	0.367
Bartlett test of sphericity	
Chi-square	415.74
Degree of freedom	105
P-value	0.000
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy	0.633

Note: The Bartlett test of Sphericity indicates a small p-value suggesting a correlation matrix is suitable for factor analysis. The KMO test of sampling adequacy shows the statistical value is 0.633 which is above the threshold of 0.5 underlying a valid statistics to proceed with the factor analysis and suggest an appropriateness to construct household wealth index with Polychoric PCA.
Source: Author's calculation

Table A.7 *Household (HH) Characteristics by Migration Status*

VARIABLES	Migrant HH (N=147)		Non-Migrant HH (N=275)		Diff. in Mean	
	Mean	SD	Mean	SD		
Rural area	0.816	0.389	0.665	0.473	-0.151	***
HH head's gender	0.401	0.492	0.298	0.458	-0.103	**
HH head's age	54.211	12.172	49.051	12.862	-5.160	***
HH head's education	3.603	3.560	4.931	3.904	1.327	***
HH ID poor	0.245	0.431	0.211	0.409	-0.034	
HH Farmer	0.422	0.496	0.407	0.492	-0.014	
HH head with Birth Certificate	0.898	0.304	0.916	0.277	0.018	
HH size (before migration)	1.777	0.432	1.448	0.441	-0.330	***
Female member (before migration)	1.112	0.510	0.766	0.502	-0.346	***
HH member earn income (before migration)	0.978	0.509	0.730	0.452	-0.249	***
HH size (after migration)	1.467	0.466	1.431	0.445	-0.036	
Female member (after migration)	0.866	0.508	0.759	0.503	-0.107	**
HH member earn income (after migration)	0.620	0.524	0.730	0.510	0.110	**
HH member<15 years old	1.980	1.653	1.389	1.189	-0.591	***
HH member>65 years old	0.354	0.571	0.273	0.549	-0.081	
Social capital	0.823	0.383	0.665	0.473	-0.158	***
Dependent ratio	120.06	123.759	71.521	75.358	-48.54	***
Consumption per capita	55.250	37.194	66.510	44.557	11.260	***
Agriculture landholding	0.490	0.502	0.491	0.501	0.001	
Radio	0.252	0.435	0.225	0.419	-0.026	
Television	0.816	0.389	0.709	0.455	-0.107	**
Bicycle	0.707	0.456	0.644	0.480	-0.064	
Motor	0.735	0.443	0.855	0.353	0.120	***
Animal cart	0.054	0.228	0.124	0.330	0.069	**
Sewing machine	0.082	0.275	0.149	0.357	0.067	**
Boat	0.020	0.142	0.047	0.213	0.027	
Toilet	0.932	0.253	0.847	0.360	-0.085	**
Bank account	0.020	0.142	0.145	0.353	0.125	***
Remittances	0.844	0.365	0.182	0.386	-0.662	***
Borrowing (before migration)	0.408	0.493	0.345	0.476	-0.063	
Borrowing (after migration)	0.367	0.484	0.425	0.495	0.058	

*Notes: Household consumption per capita is the monthly expenditure in US dollars. Wald test is performed to test the null hypothesis of equal means. *** p<0.01, ** p<0.05, * p<0.1*
Source: Authors' Calculation

Table A.8 *Migrant Characteristics by Migration Channel*

VARIABLES	Irregular migration (N=202)		Regular migration (N=68)		Diff.in Mean
	Mean	SD	Mean	SD	
Year of migration	2016.431	2.148	2016.279	2.931	-0.151
# Times of migration	2.297	1.955	1.515	0.954	-0.782***
Length of stay (months)	94.69	8.535	49.57	6.578	-45.12***
Years of education	5.902	3.055	6.875	2.917	0.973**
Gender	1.480	0.501	1.456	0.502	-0.024
Migrant's education category					
No formal education	0.203	0.403	0.191	0.396	-0.012
Primary education	0.391	0.489	0.368	0.486	-0.023
Secondary education	0.307	0.462	0.309	0.465	0.002
High school education	0.099	0.299	0.132	0.341	0.033
Occupation before migration					
Farmer	0.322	0.468	0.265	0.444	-0.057
Own business	0.099	0.299	0.059	0.237	-0.040
Public servant	0.010	0.099	0.000	0.000	-0.010
Employee	0.327	0.470	0.338	0.477	0.012
Migrant's health	3.208	0.674	3.353	0.824	0.145
Marital status	1.802	0.565	1.838	0.704	0.036
# of Children	1.094	1.122	1.074	1.083	-0.021
Occupation at the destination					
Factory	0.144	0.352	0.294	0.459	0.151***
Construction	0.416	0.494	0.426	0.498	0.011
Services	0.252	0.436	0.206	0.407	-0.047
Fishing boat	0.020	0.140	0.000	0.000	-0.020

*Notes: Wald test is performed to test the null hypothesis of equal means. *** p<0.01, ** p<0.05, * p<0.1*
Source: Authors' Calculation

CHAPTER 3
IMPACT OF MICROCREDIT ON LABOUR MIGRATION DECISIONS: EVIDENCE FROM A CAMBODIAN HOUSEHOLD SURVEY

3.1 Introduction

Migration is considered an effective household strategy to diversity income and insure against risk (Stark and Bloom 1985). However, migration is associated with substantial costs requiring a household to possess the additional savings needed to undertake such a move. Liquidity-constrained households are unable to migrate because they cannot access credit (Cai 2020; Phan 2012). For instance, the emigration rate from poor countries is relatively low because of their liquidity and therefore credit constraints (Hatton and Williamson 2005; Orrenius and Zavodny 2005). However, wealthier households who do not have liquidity constraints may not opt for financing migration through credit despite having access to it to avoid the higher cost. McKenzie and Rapoport (2007) find that the migration rate from wealthier households is higher up to a certain threshold. A natural question arises. Are liquidity-constrained households permanently incapable of migrating? Some recent literature suggests that this is not necessarily the case. If liquidity- or credit-constrained households gain access to credit or other cash resources, the probability of their migrating will be higher (Cai 2020; Phan 2012; Angelucci 2015).

In migration literature, the new economics of labour migration (NELM) first proposes a market failure based explanation for the relationship between credit and migration. In the presence of

incomplete credit and insurance markets, migration substitutes for inaccessible capital by providing remittances to households remaining at home (Stark and Bloom 1985; Massey 1988). In contrast, when households are able to access credit, they can increase consumption and enhance household production, thereby reducing the likelihood of migrating (Stark and Bloom 1985; Taylor et al. 1996). Thus, policies to stem outward migration based on the NELM can be recommended to expand the provision of credit, particularly in rural areas (Bylander and Hamilton 2015; Katz and Stark 1986).

The link between credit availability and migration can also be explained through the lens of the network theory of migration. For example, migration networks enable potential migrants to minimize the consequences of asymmetric information and uncertainty about jobs and risks at the destination by improving household understanding of migration infrastructures that facilitate the migration journey (Munshi and Rosenzweig 2005; Carrington, Detragiache, and Vishwanath 1996). Such facilitating mechanisms made available through migration networks have the potential to lower migration costs and enhance access to credit in order to finance migration (McKenzie and Rapoport 2010; Ban, Gilligan, and Rieger 2020; Okten and Osili 2004; Orrenius and Zavodny 2005).

Despite the link between microcredit and the decision to migrate, a topic discussed in the literature, little research exists on this relationship, which has not been rigorously studied because a direct linkage between microcredit borrowing and migration is not obvious. First, prior research has mostly focused on the remittance-credit relationship, leaving the direct impact of microcredit on migration relatively unexplored. Evidently, remittances can relax household liquidity and credit constraints by either substituting for or complementing credit access (See Aggarwal, Demirgüç-Kunt, and Pería (2011); Ambrosius and Cuecuecha (2016, 2013)).

Second, the literature does not explicitly specify the role of microcredit on migration decisions, which had previously accounted for either formal or informal borrowing. For example, neither NELM nor the network theory of migration have explicitly distinguished between formal and informal credit and its effects on migration decisions. It is important to note that for households in developing countries, both formal and informal credit are important sources of finance that frequently influence the livelihoods and economic decisions of poor households (Chakrabarty and Chaudhuri 2001). Both types of credit are potentially available to poor households, and tend to complement or substitute for each other (Ambrosius and Cuecuecha 2016). Such coexisting loan options can have a substantial influence on migration decisions.

Third, another challenge impeding a study of the microcredit–migration link is the scarcity or unavailability of data. In developing countries, household survey data is often unavailable, especially longitudinal household data. Consequently, the researcher faces the challenge of trying to determine whether greater access to microcredit promotes migration or migration facilitates credit access (Tiwari and Winters 2019). Furthermore, there are certain methodological impediments and gaps in the empirical estimation technique for evaluating such relationships, thereby limiting our understanding of microcredit–migration links. Moreover, a potential empirical issue is endogeneity that may result from self-selection bias, reverse causation, and omitted variable bias. For example, previous studies have been able to determine self-selection bias in either household credit access or migration, but not in both (see Bylander and Hamilton (2015), Khandker, Khalily, and Samad (2012), and Shonchoy (2015)).

To address the above issues, we first obtained survey data concerning the pre- and post-migration economic situation of 422 Cambodian households, representing the movement of people in the Global South setting. We gathered information on household borrowing through formal and

informal channels prior to migration, migration decisions, migration networks, and household characteristics to gauge the direct effect of microcredit on migration decisions.

Second, to measure the causal effect of formal and informal loans on temporary migration decisions, we also consider the profit-seeking behaviour of microcredit organizations. To do this requires modelling the determinants of formal and informal household loans. Incorporating this estimation in our study can answer the question whether formal and informal borrowing may have differing effects on migration decisions, and enhance our understanding of how rapid credit market expansion, particularly in developing countries, may affect the decision to migrate.

Third, household borrowing from formal and informal sources depends on several factors that could link to household migration decisions. Consequently, the estimations could be biased due to endogeneity problems. We address this issue by exploiting the instrumental variables approach. We use two instrumental variables as proxies for formal borrowing decisions, landownership certificate possession and the number of MFIs located in the village, while informal borrowing uses the number of MFIs in the village as a proxy. Furthermore, since microcredit and migration are jointly determined, we use the endogenous switching probit model (ESP) to estimate borrowing and migration decision equations simultaneously. This model can explicitly account for endogenous selection bias in borrowing decisions. Likewise, it can explain structural differences between formal and informal borrowers and non-borrowers in terms of the household's function to make decisions concerning migration.

There are a number of important reasons for choosing to study labour migration from Cambodia to Thailand and investigate the microcredit – migration relationship. First, this labour migration corridor has several unique characteristics that give us the opportunity to examine closely the microcredit – migration link in the context of SSM, using the new economics of labour migration

(NELM) framework. As an example of South-South Migration (SSM), international labor migration from Cambodia to Thailand is characterized by temporary and seasonal movement. This movement consists of a large number of undocumented migrant workers who comprise approximately 72% of Cambodian migrants entering Thailand illegally. It is also estimated that the number of Cambodian irregular migrant workers could be more than twice as large as the number of Cambodian migrants who enter Thailand through official channels (ILO 2020f).

Second, Cambodia's microcredit sector has changed dramatically from existing as a conventional pro-poor segment to become a profit-driven sector. This transformation has facilitated credit access for borrowers in rural areas and for aspiring Cambodian migrant households who lack capital. As a result, Cambodian migrants who lack the capital to pay upfront costs can migrate by accessing formal credit through microcredit institutions and/or informal credit through informal moneylenders (Bylander 2014; Bylander and Hamilton 2015). For example, the World Food Programme (2019) found that about 58% of migrant households surveyed took loans to finance their move. About 85% of surveyed Cambodian migrants in Thailand had borrowed money from MFIs, employers, relatives, and friends, with a median loan amount of USD 1,500 per household (ILO 2020f; UN 2020a). This finding shows that Cambodian migrants are frequently indebted, mainly for loans incurred prior to their movement.

Third, another important factor is the segmentation of the Cambodian credit market, which is composed of formal and informal credits (Seng 2018a; Bateman 2017). To meet the financial demands, rural Cambodian households continue to rely on informal loans from family members, relatives, and friends, as well as from unofficial moneylenders. They do this because informal loans have the potential of substituting for or complementing formal loans, which usually have strict conditions, are time-consuming, and require collateral (Bylander and Hamilton 2015; Seng

2018a). With such prominent and important issues for labour migration and microcredit, there is a lacuna in terms of absorbing the role of microcredit in the decision to migrate in the Global South, where labour mobility is characterized by seasonal and temporary migration.

Using the IV approach and taking into account the endogenous selection bias in borrowing in both sectors, the results show that households that obtain prior credit are more likely to migrate afterwards. The findings imply that households that obtain formal credit are 5.6% more likely than non-borrowers to send a family member abroad, while households that access informal credit increase the probability of sending a family member abroad by 3.2%. Furthermore, in our findings migration networks remain an important factor in providing households with informal credit access and promoting migration.

In light of the findings, there are three suggestive pieces of evidence for the positive linkage between microcredit and migration in the Cambodia-Thailand migration corridor. First, through modelling the determinants of household borrowing, our findings also confirm the profit-seeking motivation of MFIs. Financial institutions, especially MFIs, have the tendency to target low-default-risk households with collateral (household landownership certificate). Secondly, systems providing insufficient irrigation may generate low yields from agriculture, so that households have a higher incentive to migrate. Remittances from migrant workers become one of the coping strategies to pay off loans. Finally, in the SSM setting, an evaluation of the link between microcredit and migration may deviate from previous studies emphasizing the SNM context, because labour mobility in the Global South is characterized by low- and semi-skilled, seasonal and temporary, and irregular migrant workers. Moreover, credit markets in Cambodia are comprised of formal and informal sources which affect migration decisions.

This chapter contributes to a growing body of literature on a number of fronts. First, our study sheds new light on the microcredit-migration link through the lens of Global South labour mobility. In particular, we contribute to the literature on migration by bringing evidence from an important migration corridor, where liquidity-constrained households, that may have access to credit through the rapid expansion of the lending activities of microfinance institutions, are likely to use microcredit to finance migration. Second, in contrast to previous research, this study advances our understanding of how credit influences migration decisions by taking into account the presence of formal and informal credit markets. By doing so, we make a distinct contribution to the literature by postulating several new integrated factors in the modelling of the microcredit-migration relationship, including formal and informal credit markets, the profit-seeking behaviour of microfinance organisations, and household characteristics in the South-South labour migration context. Moreover, our study provides important guidance for policymakers to reassess policies on credit availability and labour mobility infrastructure.

The remainder of the chapter is organized as follows. The Cambodian microcredit market is described in Section 2, followed by discussion of the empirical methodology and identification used to counter biases in Section 3. Section 4 presents the data and variables, followed by an illustration of the descriptive statistics. Section 5 presents and discusses evidence for factors influencing microcredit uptake and its impact on migration decisions. The last section provides our conclusions and avenues for future research.

3.2 Background: Cambodian Microcredit Development

Microcredit has played a significant role in poverty alleviation and development programmes in Cambodia over the last two decades (CMA 2014; Bylander and Hamilton 2015). In the absence of a proper banking system in the early 1990s, microfinance institutions operated on a non-profit

basis to supply credit and improve the livelihoods of the poor. This non-profit framework reflects the original purpose of the Yunus model of microcredit (Lanzavecchia 2011; Bylander 2015; Seng 2018a; Bateman 2014). With support from international donors, non-governmental organizations (NGOs), and government, microfinance flourished in the Cambodian credit market. According to the Cambodia Microfinance Association (CMA), there were only 14 registered microfinance institutions (MFIs) in 2005, but in 2017 this figure had rapidly increased to 69 MFIs and seven microfinance deposit-taking institutions (MDIs), with more than 1,341 offices (NBC 2017; MoP 2017). The total amount of outstanding loans increased from USD 50.13 million to USD 7.15 billion in 2019, accounting for USD 3,758 on average per borrower (NBC 2019). This figure is even higher than Cambodia's GDP per capita, which is only USD 1,643 (World Bank 2020b).

With the rapid growth of the microfinance sector, Cambodia has become one of the most microcredit-saturated countries in comparison with its neighbours (Bateman 2017; IOM 2019). On the supply side, recent studies examining this trend suggest that MFIs may have abandoned their traditional mission of assisting the poor in favour of economic self-sufficiency and profit maximization (Seng 2018a; Bateman 2017; Green and Estes 2019). The commercialisation of the microfinance sector has increased the accessibility and availability of microcredit, resulting in excessive lending and borrowing. For example, the average household total of outstanding loans increased by 85% compared to 2017 (MoP 2019). Such excessive lending and borrowing pushes households into unsustainable debt, decreased consumption, additional borrowing to pay off past loans, asset sales to pay off debt, and emigration (Seng 2018b; Green and Estes 2019). On the demand side, households have not utilized loans for productive investments, such as in agriculture or to buy productive assets. Thus, migration is necessary to pay off loans (Bylander and Hamilton 2015; IOM 2019). A recent socio-economic survey shows that loans have been primarily used for

household consumption, making up about 26%, followed by agricultural activities (17%) and home improvements (17%), while the main sources of loans are microfinance companies and credit operators (46%), banks (40%), and moneylenders and relatives (5%) (MoP 2019).

3.3 Empirical Methodology and Identification

3.3.1 Identification

The effort to gauge the effect of microcredit on migration decisions suffers from endogeneity bias related to reverse causality (migrant households are more likely to have greater access to loans), and endogenous selection bias (the unobservable factors that affect both microcredit borrowing and migration decisions).

First, the reverse causation between credit and migration is a concern. As mentioned earlier, the challenge stems from the fact that there is no evidence to verify whether greater access to microcredit promotes migration or if migration facilitates credit access for migrants (Bylander and Hamilton 2015; Tiwari and Winters 2019). Second, the estimation may be biased due to omitted variable bias. Thirdly, the endogenous selection bias of formal and informal borrowing presents a special concern in investigating the credit-migration nexus. A challenge emerges from the non-random assignment of credit participation among households and the characteristics of microcredit programs, such as the attractive location of MFI operation that may influence borrowing decisions (Pitt and Khandker 1998). The presence of unobservable attributes, for example differences in a household's entrepreneurial ability and the specific attributes of potential households or areas targeted by microfinance institutions providing microcredit, may then encourage households to borrow. This tends to generate bias and inconsistent estimation (Imai, Arun, and Annim 2010; Mohammad 2010). For example, household characteristics as well as loan-based selection criteria,

including the amount of land owned or other household assets, may determine credit participation (Shonchoy 2015; Chowdhury 2008).

It is also important to note that household characteristics are essential for financing options, particularly in the underdeveloped microcredit market (Chakrabarty and Chaudhuri 2001; Chhorn 2020; Turvey and Kong 2010). These options include both formal and informal loans. Informal loans are frequently used to substitute for or complement formal credit. Despite high interest rates, household demand for informal credit remains because informal borrowing plays a significant role in reducing short-term household liquidity constraints due to responsiveness and accessibility. In addition, access to informal loans is determined mainly by a person's social reputation and trustworthiness (Turvey and Kong 2010; Gathergood and Wylie 2018). Finally, selection bias in migration decisions presents another empirical challenge for estimation (McKenzie, Stillman, and Gibson 2010). Such migration selection bias derives from the fact that there are unobservable factors and household characteristics that potentially affect household migration decisions.

The first step in eliminating concerns about reverse causation is our adoption of the survey methodology used by Sabates-Wheeler, Sabates, and Castaldo (2008) and Orrenius and Zavodny (2005), drawing on retrospective data. This data allows us to account for the reverse causality problem (Funkhouser 2012; Taylor and Mora 2006). We collected retrospective data on both non migrant household and migrant households that had one or more family members currently working in Thailand. Those households also take out microcredit from formal or informal lenders or both prior to migration, thereby generating consistent estimates of the causal effect of microcredit on migration decisions. However, it is vital to emphasize that recall information bias in retrospective data must be addressed (Funkhouser 2012). This type of bias is commonly derived from information that dates back more than five years. To address this error, since our household

survey was conducted in 2019, we first obviate the disadvantages of retrospective data by not subjecting households to recall information beyond 2014. Second, recall bias is further reduced due to an important event in 2014, the immigration policy change by Thai authorities to crack down on irregular migrants, making recall easier (Bakewell 2020; Funkhouser 2012).

Secondly, although the retrospective survey data and the instrumental variable approach may lessen concerns about reverse causation, such methods do not adequately account for endogenous selection bias in borrowing (Crost et al. 2007; Dong and Lewbel 2015). Therefore, the endogenous switching probit model (ESP) is used. This method enables us to account for endogenous selection bias in borrowing, controlling particularly for the distinct characteristics of formal and informal borrowers and non-borrowers that may influence migration decisions. This model can also account for the non-confounding factors affecting borrowing and structural differences between non-borrowers and borrowers that are embedded in the migration decision function. Importantly, the model also allows us to posit a counterfactual scenario, which is the conditional probability of the same household migrating in the absence of borrowing. Using the seemingly bivariate probit model (see the Appendix), we also provide an additional estimation as a robustness check to determine the coexistence of formal and informal credit which may affect household migration decisions. It is vital to take this step because it offers a perspective on migration occurring when households decide to take out multiple loans, which may derive from formal or informal loan sources or both.

Finally, we address another methodological challenge of selection bias in migration. To ensure consistent estimation, we use the propensity score matching (PSM) technique for sampling correction. We use this approach to generate a new dataset that consists of households with comparable characteristics. From the PSM, we establish five common support areas that contain

households with comparable propensity scores. Thus, selecting households with migration propensity score estimates can alleviate concerns about self-selection bias in migration (See Oum, Hassan, and Holmes (2021)).

3.3.2 Empirical Strategies

As a starting exercise in examining the effect of microcredit on migration decisions and considering the endogeneity problems – reverse causality and omitted variable bias – , we use the instrumental variable probit model (IV-Probit) with maximum likelihood estimation. We gauge the impact on migration decisions of formal credit in structural Equation (1) and reduced form Equation (1.1) and informal credit in structural Equation (2) and reduced form Equation (2.1). Thus, the equations can be expressed as follows:

Migration with formal credit:

Structural equation

$$M_{it} = \alpha_0 + \alpha_1 C_{1i,t-k} + \alpha_2 X_{it} + \alpha_3 X'_{it-k} + \mu_i + \varepsilon_{1,it} \quad (1)$$

Reduced form equation

$$C_{1i,t-k} = \gamma_0 + \gamma_1 Z_{1i,t-k} + \gamma_2 X_{it} + \gamma_3 X'_{it-k} + \varphi_i + \theta_{1\,it-k} \quad (1.1)$$

Migration with informal credit:

Structural equation

$$M_{it} = \beta_0 + \beta_1 C_{0i,t-k} + \beta_2 X_{it} + \beta_3 X'_{it-k} + \mu_i + \varepsilon_{0,it} \quad (2)$$

Reduced form equation

$$C_{0i,t-k} = \gamma'_0 + \gamma'_1 Z_{0i,t-k} + \gamma'_2 X_{it} + \gamma'_3 X'_{it-k} + \varphi_i + \theta_{0it-k} \quad (2.1)$$

We use the following covariates to gauge the effect of microcredit on migration decisions: (i) M_{it} denotes the binary choice migration decision for household i sending a family member abroad at time t. (ii) C_{0it-k} and C_{1it-k} are the binary indicators identifying the household decision to obtain informal and formal microcredit prior to migration, taking the value of 1 and 0 otherwise. (iii) $X_{it}$is the set of observed household characteristics associated with migration at time t, including the characteristics of the household head — age, gender, education, and agricultural occupation. X'_{it-k} represents household characteristics, particularly before migration, including household dependency ratio, number of female members earning income, the amount of agricultural land, and migration network. (iv) μ_i and φ_i denote the village characteristic variables — irrigation infrastructure which takes the value of 1 if there is an irrigation system available in the village, and 0 otherwise. (v) $Z_{1i,t-k}$ and $Z_{0i,t-k}$ denote instrumental variables (IVs) for formal and informal borrowing, such as household possession of a land ownership certificate, and number of MFIs operating in the village. We will return to a discussion of the rationale and admissibility of these IVs later in the next section. α_1, α_2, α_3, and β_1, β_2, β_3 are the parameters for Equations (1) and (2), respectively. ε_{1it} and $\varepsilon_{0,it}$ are the random error terms and the subscripts i and t indicate household and time period, while k indicates the length of time that the migrant is absent from household i after migrating. k equals zero for a non-migrant household.

It is important to emphasize that there is a particular drawback with the IV-probit model that requires consideration. The model may yield inconsistent estimates due to the endogenous discrete choice variables (whether or not households access formal and informal loans). The IV-probit model performs better and provides a more consistent result with continuous endogenous variables

(Dong and Lewbel 2015). Accordingly, we cross-checked our IV-probit estimates with two-stage least squares estimation (2SLS). The results are presented in columns 5-8 of Table 3.3.

3.3.2.1 Addressing Endogeneity Selection Issue

Estimating the impact of microcredit on migration decisions is prone to making inconsistent estimates due to endogenous selection bias. This bias arises from the fact that household decisions to borrow from formal and informal sources are not exogenously determined. Also, factors that affect borrowing decisions may also determine household migration choices. To address this issue, it is necessary to employ the instrumental variable technique. Importantly, the selected instrumental variables we employ should satisfy the exclusion restriction and have economic implications. The admission of valid IVs must affect our dependent variable, migration decisions, only indirectly through microcredit borrowing, i.e., formal and informal loans, and not affect these decisions directly. Also, these IVs should not correlate with the error term ε_{it} (Khandker, Khalily, and Samad 2012). This ensures the orthogonality assumption of the validity of the instrumental variables.

Previous studies used a specific threshold for a household's agricultural landholding (i.e., whether a household owns more or less than 0.5 acres of land) as an IV (see Pitt and Khandker (1998), Khandker (2005), Islam and Maitra (2012), and Shonchoy (2015)). However, there is a counterargument to the use of this IV. It suggests that there is a link between a household's asset-based eligibility criteria and formal borrowing and migration decisions making this IV questionable (Pitt and Khandker 1998; Shonchoy 2015). For example, landless households may not be able to access credit, while landlessness is one of the push factors to migrate.

In our study, we use a dummy variable indicating a household's land ownership certificate and the number of MFIs operating in the village, these functioning as instrumental variables for formal and informal loans. Our identification strategy has a twofold advantage. First, it is observed that in the setting of formal borrowing, a land ownership certificate is considered to be a financial asset and may serve as one of the important documents when applying for and obtaining credit in the Cambodian credit market. The underlying assumption in our study is that a landownership certificate is strongly correlated with formal borrowing but has no direct effect on household decisions to migrate. It therefore constitutes a plausible exogenous variable for formal borrowing.

It is important to note that the land ownership certificate is typically viewed and evaluated by formal lending institutions as collateral for loans and as proof of the likelihood of future loan repayment (Petracco and Pender 2009; Green 2019). Rather than using the size of household agricultural landholding as an instrument, our study uses the household landownership certificate. It is vital to note that not all landholders in Cambodia possess a land ownership certificate because systematic land registration by the government only began in 2003. As of June 2018, around 68.5% of families eligible for land registration had received landownership certificates (Hem 2019). In addition, although a household may possess a certain amount of land, if they live on disputed or unregistered land they may not be awarded a land ownership certificate until the dispute is resolved. Thus, the amount of land owned is not equivalent to the possession of a land ownership certificate. Therefore, this instrumental variable may not be associated with a household's socio-economic status affecting their migration decisions.

Secondly, we employ another IV, the number of MFIs operating in the village, as a proxy for both formal and informal borrowing (Seng 2018b; Imai, Arun, and Annim 2010). Since we only have data for the number of MFIs at commune level, we divided the total MFIs in the commune by the

number of villages in the commune. This IV determines the supply of formal and informal loans but does not directly affect household migration decisions. The reason for using only one IV (number of MFIs) for informal borrowing is that loans from informal sources often do not require collateral (i.e., a landownership certificate) and commonly depend on trust and social reputation between lenders and borrowers (Chakrabarty and Chaudhuri 2001; Rabbani and Hasan 2021). Several validity tests, such as the falsification test, weak-instrument test, and over-identification test for both types of credit borrowing have been performed to ensure the admissibility and reliability of the selected instrumental variables (see Tables A.2, A.3, A.4, and A.5 in the Appendix).

To check the admissibility and validity of our instrument, we follow Di Falco, Veronesi, and Yesuf (2011) and Seng (2018a) to illustrate simple falsification tests for both borrowing sectors. It is suggested that if our instruments are valid, they will affect both types of borrowing but not household decisions to migrate. The estimates in Tables A.4 and A.5 use probit models and show that our instruments have a statistically significant effect on borrowing in both sectors at the 1% level but have an insignificant effect on household decisions to migrate. Therefore, the instruments can be treated as valid.

We also follow Finlay and Magnusson (2009) for the weak instrument and over-identification test (we use two instrumental variables for household formal borrowing) for both sectors. The results in Table A.2 and A.3 show that the confidence intervals drawn from the tests (CLR, AR, and LM) are not significantly wider than those of the Wald test. Also, the p-values of the test for both sectors reject the null hypothesis at the 5% and 10% levels, rejecting the presence of weak instruments. In addition, Table A.2 displays the J statistics; the LM-J statistics take the value of 1.68. Moreover, the p-values are greater than 5% and do not reject the null-hypothesis that our instrumental

variables are valid. Therefore, in the formal borrowing setting, our estimations do not violate the over-identification restriction.

3.3.2.2 Endogenous Switching Probit Model (ESP)

Although the IV approach allows us to alleviate endogeneity issues related to reverse causation and unobservable bias, the IV-probit model may yield inconsistent estimates due to the discrete choice of the endogenous variable, particularly the binary choice of formal and informal borrowing. Moreover, both IV-probit and 2SLS may not fully and adequately account for endogenous selection bias and the structural differences between borrowers and non-borrowers (Crost et al. 2007; Dong and Lewbel 2015; Seng 2018a; Lokshin and Sajaia 2011). However, the estimation can be enhanced by employing the endogenous switching probit model (ESP) with a full information maximum likelihood approach (FIML).

The ESP can provide more efficient and robust results than the IV approach in a number of ways (Khandker, Khalily, and Samad 2012; Seng 2018a; Lokshin and Sajaia 2011). First, the ESP method can account for endogenous selection bias in the form of borrowing by estimating a simultaneous equation. Second, it can control the structural differences between borrowers and non-borrowers in migration decision equations. Finally, unlike the IV technique, the ESP allows us to compute a counterfactual comparison of borrowing and non-borrowing (formal and informal borrowing) that affects migration decisions. The ESP models can be specified as follows:

$$\gamma_1 Z_{i,t-k} + \gamma_2 X'_{it-k} + \theta_{it-k} > 0 \text{ then } C_{i,t-k} = 1 \quad (3.1)$$

$$\gamma_1 Z_{i,t-k} + \gamma_2 X'_{it-k} + \theta_{it-k} \leq 0 \text{ then } C_{i,t-k} = 0 \quad (3.2)$$

$$M_{1it} = \alpha'_0 + \alpha'_{1,} X_{1it} + \alpha'_2 X_{1it-k} + \nu_{1it}, \text{ when a household obtains credit } (C_{i,t-k} = 1) \quad (4.1)$$

$$M_{0it} = \alpha'_0 + \alpha'_1 X_{0it} + \alpha'_2 X_{0it-k} + \nu_{0it}, \text{ when a household does not obtain credit } (C_{i,t-k} = 0) \quad (4.2)$$

C_{it-k} represents the binary indicators identifying the household decision to obtain informal and formal microcredit, and are equal to 1 if they borrow, otherwise 0. The error terms θ_{it-k}, ν_1, and ν_0, are assumed to have a contemporaneous correlation and jointly normal distribution with a zero mean vector and covariance matrix (Lokshin & Sajaia, 2011).

$$\text{Cov}(\theta_{it-k}, \nu_1, \nu_0) = \begin{bmatrix} \sigma^2_{\nu_1} & \sigma_{\nu_1\nu_0} & \sigma_{\nu_1\theta_{it-k}} \\ \sigma_{\nu_1\nu_0} & \sigma^2_{\nu_0} & \sigma_{\nu_0\theta_{it-k}} \\ \sigma_{\nu_1\theta_{it-k}} & \sigma_{\nu_0\theta_{it-k}} & \sigma^2_{\theta_{it-k}} \end{bmatrix} \quad (5)$$

where $\sigma^2_{\theta_{it-k}}$, $\sigma^2_{\nu_1}$, and $\sigma^2_{\nu_0}$ are the variances of θ_{it-k}, ν_1 and ν_0 while $\sigma_{\nu_1\theta_{it-k}}$ represents the covariance of θ_{it-k} and ν_1. $\sigma_{\nu_0\theta_{it-k}}$is the covariance of θ_{it-k} and ν_0. Finally, the covariance of ν_1 and ν_0 is $\sigma_{\nu_1\nu_0}$. To ensure the validity of employing the switching model, the validity of the endogenous switching model, based on the statistical test in which $\sigma_{\nu_1\theta_{it-k}}$ or $\sigma_{\nu_0\theta_{it-k}}$ is different from zero ($\rho_{\nu_1\theta_{it-k}}$ or ρ_1, represents the correlation coefficient between ν_1 and θ_{it-k}, and $\rho_{\nu_0\theta_{it-k}}$or ρ_0 denotes the correlation coefficient between ν_0 andθ_{it-k}). Otherwise, the model fits for the exogenous switching model (Maddala 1986; Seng 2018a) Furthermore, the signs ρ_1 and ρ_0 provide an intuitive interpretation of the model, which takes a value between -1 and 1. If the signs ρ_1 and ρ_0 are the same, we would expect that the unobservable terms affecting borrowing decisions (formal and informal borrowing) influence household migration decisions the same way. Otherwise if ρ_1 and ρ_0 have opposite signs, the effect on migration decisions would be the opposite (Khandker, Khalily, and Samad 2012).

Employing the propensity score matching method (Liu, Feng, and Brandon 2018; Roth and Tiberti 2017), we also take into account a non-random migration assignment. Households are clustered into five common support areas based on their propensity score estimates, ranging from a value of 0 and 1, where $0 < Pr(M_i = 1|X_i) < 1$ and X_i represents a set of exogenous factors affecting the decision to migrate M_i (See Oum, Hassan, and Holmes (2021)).[2]

Employing dummies for land ownership certificates and the average number of MFIs at village level as the identification restriction, as mentioned earlier, we simultaneously estimate the selection and outcome equations for the impact of both types of credit uptake on migration decisions. In the ESP model, it is necessary to gauge the expected conditional probability of a migrant household borrowing, and counterfactual cases, in which the same household would not have borrowed from either formal or informal sources. Therefore, the expected conditional probability of migrant households borrowing in Equation (6) and its counterfactual scenario in Equation (7) can be specified as follows (Khandker, Khalily, and Samad 2012; Seng 2018a; Lokshin and Sajaia 2011).

$$E(M_{1it}|C_{i,t-k}= 1) = \alpha'_{1,1}X_{1it} + \alpha'_{2,1}X_{1it-k} + \sigma_{\nu_1\theta_{it-k}}\lambda \quad (6)$$

$$E(M_{0it}|C_{i,t-k}= 1) = \alpha'_{1,0}X_{0it} + \alpha'_{2,0}X_{0it-k} + \sigma_{\nu_0\theta_{it-k}}\lambda \quad (7)$$

The term $\sigma_{\nu_1\theta_{it-k}}\lambda$ corrects for sample selection bias in household access to formal and informal loan sources (Seng, 2018). $\sigma_{\nu_1\theta_{it-k}}\lambda$ can be obtained by computing regime selection Equations (3.1) and (3.2) where $E(\nu_1|C_{i,t-k}= 1, Z_{i,t-k}, X_{1it}, X_{1it-k}) = \sigma_{\nu_1\theta_{it-k}}\lambda$ and $E(\nu_0|C_{i,t-k}= 0, Z_{i,t-k}, X_{0it}, X_{0it-k}) = \sigma_{\nu_0\theta_{it-k}}\lambda$. Therefore, the impact of borrowing on migration decisions can

be calculated by subtracting the coefficient in Equations (6) and (7). This method is also known as the average treatment effect on the treated (ATT), which can be described as follows:

$$\text{ATT} = E(M_{1it}|C_{i,t-k}= 1) - E(M_{0it}|C_{i,t-k}= 1) \quad (8)$$

$$\text{ATT} = \left(\alpha'_{1,1} - \alpha'_{1,0}\right)X_{it} + \left(\alpha'_{2,1} - \alpha'_{2,0}\right)X_{it-k} + \left(\sigma_{v_1\theta_{it-k}} - \sigma_{v_0\theta_{it-k}}\right)\lambda \quad (9)$$

3.4 Data and Variables

3.4.1 Data

This study uses a dataset collected from 422 households in December 2019. It covers 17 villages in three northern provinces of Cambodia, namely, Banteay Meanchey, Battambang, and Siem Reap. The selected provinces account for more than 50% of total international migrants from Cambodia (MoP 2015; Dickson and Koenig 2016). Multi-stage random sampling is used to determine survey locations while probability proportional to size (PPS) sampling is employed to estimate the study area's sample distribution. The sample size is proportionally distributed according to MoP (2017) data indicating that overall, approximately 21% of households reside in urban areas and 79% in rural areas.

Table 3.1. *Sample distribution by migration and borrowing status*

Province	Number of Villages	Non-Migrant Households	Migrant Households	Total Samples
Banteay Menchey	6	90	52	142
Battambang	6	96	49	145
Siem Reap	5	89	46	135
Total		275	147	422

Migration Status	Formal credit		Informal Credit		Total
	Non-Borrower	Borrower	Non-Borrower	Borrower	
Non-migrant household	220	55	234	41	275

Migrant household	111	36	121	26	147
Observations	237	91	355	67	422

Source: Author's fieldwork

All information was collected in face-to-face interviews with household members, employing a questionnaire with sections exploring household demographic characteristics: household income and expenditure; migration history and experience; the monetary cost of migration; household loan history before and after migration, and shock and coping strategies in cases where the household has experienced adverse shocks. After validating, we obtained 422 completed household questionnaires, of which 35% were migrant households and 65% non-migrant households. It is vital to note that to be considered migrant households, they had to have at least one or more family members currently residing and working away from home. We also asked households whether, prior to migration, they had borrowed money from formal institutions (banks, MFIs, NGOs, and licensed rural credit operators) or from informal moneylenders (pawnshops, brokers, employers, or other informal lenders). From our survey, among 422 households, 37% had taken out loans from both formal and informal lenders, and of those who received credit, about 57% had access to formal credit, and 43% obtained credit from informal lenders.

3.4.2 Descriptive Statistics

In Table 3.2, this section outlines the descriptive statistical analysis results on household characteristics by borrowing status, and Table A.1 in the Appendix presents additional results.

The summary statistics reported in Table 3.2 indicates significant differences between borrowing households and their non-borrowing counterparts in the variables of interest. In particular, the results show that household heads who receive wages from on-farm occupations and have no formal education are less likely to have access to formal loans.[3] Moreover, there is a statistically

significant difference in borrowing status for households owning large amounts of agricultural land. Households with a larger proportion of agricultural land are less likely to take out formal loans, implying that they are unlikely to confront liquidity constraints. Furthermore, households in villages with existing irrigation systems are more likely to resort to a formal source of credit. This result implies that when a particular village possesses an irrigation system, this establishes favourable conditions for cultivating paddy rice. Accordingly, farmers are likely to receive a yield that can generate income, granting them greater ability to borrow from formal money lenders and make repayments. Table 3.2 also shows a statistically significant difference in borrowing status for households with land ownership certificates. Such households are more likely to access formal loans since the ownership certificate usually serves as collateral when seeking formal loans from financial institutions.

In the informal sector, the results in Table 3.2 indicate a significant difference between non-borrowers and informal borrowers in terms of household head age, migration networks, and our instrumental variable, the average numbers of MFIs in the village. Household head age and its square term are statistically significant at the 10% and 5% levels, suggesting that older household heads are less likely to resort to informal borrowing. Moreover, households with migrant networks are more likely to seek informal loans. Finally, the instrumental variable, the average number of MFIs operating in the village as a proxy for informal borrowing, shows a statistically significant difference at the 5% level. This indicates that as MFIs expand their services and operations, households have greater access to formal financial services and are less likely to borrow from informal lenders.

Table A.1 in the Appendix reports additional results showing the statistically significant differences between formal and informal credits obtained by households in loan details,

particularly loan size, loan maturity, and interest rate per month. Also, there is a statistically significant difference between loan amounts in formal and informal credit uptake. Informal household borrowing totals USD 764.75 on average with an interest rate of 3.03% per month, while the maturity of a formal loan is about 9 months. For formal credit, the results show that the amount households borrow, at USD 2831.6 on average, is relatively higher than an informal loan, with an interest rate of 1.8% per month and maturity of about 26 months.[4]

Table 3.2 *Household characteristics by borrowing status*

VARIABLES	Formal Borrowing					Informal Borrowing				
	Non-Borrower [a]		Borrower		Diff. Mean	Non-Borrower [a]		Borrower		Diff. Mean
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Migration decisions	0.3246	0.4691	0.39560	0.49168	0.0409	0.3246	0.4611	0.3880	0.4909	0.063
Household head characteristics										
Household head age	51.6530	13.2768	49.9890	11.9411	1.6640	51.653	13.277	48.478	11.817	3.175*
Household head age squared	2843.646	1352.3120	2639.9230	1208.6060	203.7224	2843.64	1352.31	2487.64	1177.50	356.00**
HH female head	0.3657	0.4825	0.2967	0.4593	0.0690	0.366	0.483	0.269	0.447	0.097
HH head no formal education	0.2799	0.4498	0.1429	0.3519	0.137***	0.280	0.450	0.194	0.398	0.086
HH head on-farm occupation	0.4291	0.4959	0.3077	0.4641	0.1214**	0.429	0.496	0.478	0.503	-0.049
Household Characteristics										
Rural area	0.7127	0.4534	0.7253	0.4488	-0.0126	0.713	0.453	0.746	0.438	-0.034
HH dependency ratio	86.7964	95.2550	82.8599	80.3117	3.9365	86.796	95.255	95.896	121.926	-9.099
HH female earnings	1.2313	0.7924	1.3516	0.8612	-0.1203	1.231	0.792	1.254	0.910	-0.022
Agricultural land (hectare)	1.3257	2.5135	0.7746	1.4280	0.5510**	1.326	2.514	1.073	1.852	0.253
Agricultural land squared	8.0516	56.1213	2.6168	7.2935	5.4348	8.052	56.121	4.531	17.307	3.521
Migration network	0.6866	0.4648	0.7253	0.4488	-0.0387	0.687	0.465	0.866	0.344	-0.17***
Village characteristics										
Irrigation	0.3806	0.4864	0.4835	0.5025	-0.1029*	0.381	0.486	0.373	0.487	0.007
Instrumental Variables (IV)										
Land ownership certificate	0.3172	0.4662	0.5824	0.4959	-0.265***	0.317	0.466	0.239	0.430	0.078
Average number of MFIs per village	0.2419	0.3104	0.1959	0.2819	0.0460	0.242	0.310	0.155	0.205	0.087**

*Note: a- households that do not borrow from formal or informal sources of credit. The Wald test is performed to test the null hypothesis of equal means. * p<0.1, ** p<0.05, *** p<0.01*
Source: Author's calculation

3.5 Results

3.5.1 First Stage Estimation

Table 3.3 indicates the results from the IV-probit model which estimates the impact of formal and informal credit borrowing in separate equations — Equations (1) and (2). Columns 1 and 3 in Table 3.3 display the first stage estimations on the determinants of household formal and informal borrowing. As mentioned in the section above, the simple falsification tests for the exclusion restriction, over-identification, and the weak instrumental variables test show that the instruments are valid (see Table A.2, A.3, A.4, and A.5 in the Appendix).

The main coefficients of first stage estimation using IV-probit are shown in Table 3.3 in columns 1-4. In formal loan settings, our instrumental variables, landownership certificates and the number of MFIs, are statistically significant at the 1% level. First, the landownership certificate has an expected sign confirming that it is one of the determinants in a household's access to formal credit. Therefore, the landownership certificate may serve as collateral for formal borrowing. Second, the number of MFIs operating in a village turns out to be negatively statistically significant. However, this result contradicts the prior understanding that the expansion of microfinance supplies more loans in rural areas, thereby increasing a household's likelihood of borrowing from formal sources.

There are at several possible explanations for this contrasting evidence. First, in the samples included in our study, the majority of households surveyed were located in rural areas. Rural households may be less likely to gain immediate access to formal loans despite the rapid expansion of microfinance institutions. This may indicate that microfinance institutions operating in a new rural region tend to devote more time for the outreach activities, whereas rural households may require more time to absorb information about formal microcredit availability, so that informal

sources remain a borrowing option. Secondly, despite the fact that the microfinance sector has expanded the number of its operational offices in rural Cambodian regions in an effort to provide greater access to loans, the limited financial knowledge of rural households may impede a household's ability to borrow from them. Consequently, the relationship between the number of MFIs in villages and formal borrowing may be negative, because marginalized households are less likely to access formal loans. In this connection, first stage estimation shows that household heads without formal education are less likely to access formal loans. Finally, the number of MFIs operating in a village has statistically significant negative effects on formal borrowing, which can be explained by the imposition of an interest rate cap. The National Bank of Cambodia has imposed an annual interest rate cap of 18 percent on loans from MFIs (NBC, 2017a). The purpose of this requirement is to reduce the borrower's burden regarding the high interest rates charged by MFIs and to promote financial inclusion. However, the introduction of the interest rate cap has a negative impact on small loans because MFIs tend to shift their loan target toward larger loans; as a result, the number of borrowers immediately decreased (Heng, Chea, & Heng, 2021). This is because MFIs seek to maintain their revenues by increasing processing fees; as a result, applications for small loans are more likely to be denied and processing fees for poor households are likely to be high. Consequently, although there is an increase in outreach activities and the number of MFIs, they would target wealthy households with large loan amounts. Given that the majority of our household sample resides in rural areas and consists primarily of smallholder farmers and poor families, it yields an intriguing result, observing a negative association between the number of MFIs and access to formal borrowing.

In Table 3.3 showing access to formal loans, some of our household control variables indicate statistical significance at the 5% and 10% levels. A household head with no education is less likely to borrow from formal institutions, suggesting that complicated application forms for taking out loans can be a challenge for such a person, because they require knowledge and a good understanding of loan requests. Furthermore, household heads who are farmers are less likely to take out formal loans because the low return from agricultural yields bars them from being accorded a loan from a financial institution. We found a positive and statistically significant relationship at the 10% level between the age of the household head, the number of female family members contributing to household income, and formal borrowing. As expected, the availability of an irrigation system in the village increases the likelihood of household access to loans from financial institutions.

In the informal loans setting, in Table 3.3 column 3, the instrumental variable has the expected sign and is statistically significant at the 1% level. Similar to the findings of the previous study by Islam, Nguyen, and Smyth (2015), our finding implies that the expansion of MFIs into rural areas is more likely to reduce the likelihood of households borrowing from informal sources. As expected, migration networks continue to serve as a crucial channel for household access to informal financing. Since the presence of a migration network has no statistically significant impact on formal borrowing, this result shows that such a network may only affect borrowing decisions, because obtaining informal credit is built on trust without the requirement of collateral, thus making loans more accessible. However, migration networks do not influence the successful operation of formal credit, since taking out loans from formal financial institutions requires collateral, basic household financial knowledge, and credit evaluation carried out by credit officers prior to loan approval.

3.5.2 Second Stage Estimation

From columns 2 and 4 in Table 3.3 , our variables of interest – formal and informal borrowing – indicate statistically positive significance at the 5% and 1% levels, respectively. The results suggest that credit uptake and migration decisions are complementary. Households obtaining formal or informal credit are more likely to have a family member migrating afterwards. Therefore, the findings suggest that relaxing credit constraints tends to encourage outward migration.

In the second stage estimation of the formal borrowing setting, several important findings emerge. Migration networks are positive and statistically significant at the 5% level. This finding implies that migration networks play an important role in facilitating and encouraging outward migration. Moreover, households living in rural areas are more likely than urban households to include one or more migrants. Other household variables, such as household dependency ratio and the number of income-earning female household members, remain positive and statistically significant at the 1% and 5% levels in determining household migration decisions. Finally, the availability of an irrigation system in the village is likely to stem outward migration. This may also suggest that the availability of such a system may provide rural households with incentives to engage more in farming activities and work in plantations, providing on-farm jobs, and subsequently reducing migration.

Table 3.3, column 4, shows that informal borrowing is positive and statistically significant at the 1% level. This result suggests that households that obtain loans from informal sources are also more likely to migrate afterwards. Likewise, households taking out formal loans and migration networks still remain positive and statistically significant at the 1% level. Therefore, regardless of the empirical estimated models (IV-Probit and 2SLS), we still find consistent results for migratory networks as it facilitates informal borrowing and enabling migration if households had accessed

to formal borrowing. Household characteristics, such as the age of the household head, occupation, education, residing in a rural area, and household dependency ratio are statistically insignificant.

Table 3.3 *The Effects of Credit Uptake on Migration Decision (IV-Probit and 2SLS)*

VARIABLES	IV- Probit				Two Stage Least Squares (2SLS)			
	Formal Borrowing		Informal Borrowing		Formal Borrowing		Informal Borrowing	
	First Stage (1)	Second Stage (2)	First Stage (3)	Second Stage (4)	First Stage (5)	Second Stage (6)	First Stage (7)	Second Stage (8)
Formal borrowing		1.185**				0.409*		
		(0.576)				(0.240)		
Informal borrowing				2.207***				1.192
				(0.610)				(0.810)
Instrumental Variable								
Land ownership certificate	0.175***				0.184***			
	(0.0452)				(0.0485)			
Number of MFIs per village	-0.243***		-0.147**		-0.222***		-0.147***	
	(0.0722)		(0.0709)		(0.0749)		(0.0561)	
Household head characteristics								
HH head's age	0.0223*	0.0396	0.00932	0.0269	0.0220**	0.0103	0.00932	0.00956
	(0.0114)	(0.0456)	(0.0106)	(0.0434)	(0.0110)	(0.0146)	(0.0101)	(0.0191)
HH head's age squared	-0.000220*	-0.000255	-0.000106	-0.000137	-0.000218**	-5.25e-05	-0.000106	-2.53e-05
	(0.000114)	(0.000447)	(0.00010)	(0.000415)	(0.000108)	(0.000146)	(9.89e-05)	(0.000197)
HH female head	-0.0174	-0.0341	-0.0261	0.0107	-0.0169	-0.0107	-0.0261	0.0104
	(0.0454)	(0.156)	(0.0423)	(0.141)	(0.0465)	(0.0542)	(0.0425)	(0.0740)
HH head no formal education	-0.151***	0.251	0.00541	0.0177	-0.148***	0.0820	0.00541	0.000609
	(0.0513)	(0.182)	(0.0478)	(0.158)	(0.0476)	(0.0673)	(0.0478)	(0.0816)
HH head farmer	-0.114**	0.149	0.0625	-0.134	-0.113**	0.0489	0.0625	-0.0760
	(0.0485)	(0.177)	(0.0452)	(0.155)	(0.0481)	(0.0629)	(0.0466)	(0.0940)
Household Characteristics								
Rural areas	0.00851	0.367**	-0.0292	0.296	0.0123	0.130**	-0.0292	0.154**
	(0.0476)	(0.183)	(0.0445)	(0.192)	(0.0499)	(0.0558)	(0.0437)	(0.0722)
HH dependency ratio	-8.62e-05	0.00325***	0.000267	0.00157	-8.48e-05	0.00109***	0.000267	0.000732*
	(0.000211)	(0.000853)	(0.00019)	(0.00131)	(0.000204)	(0.000252)	(0.000243)	(0.000399)
Number of HH female members earning	0.0421*	0.301***	0.000465	0.248*	0.0418	0.106***	0.000465	0.127***
	(0.0246)	(0.114)	(0.0228)	(0.136)	(0.0262)	(0.0321)	(0.0239)	(0.0384)
Agricultural land (hectares)	-0.0225	-0.0610	-0.0277*	-0.00199	-0.0221	-0.0245	-0.0277*	-0.00249
	(0.0172)	(0.0666)	(0.0160)	(0.0677)	(0.0153)	(0.0209)	(0.0142)	(0.0337)
Agricultural land squared	0.000758	-7.30e-05	0.000648	-0.000857	0.000749	0.000348	0.000648	-0.000100
	(0.000754)	(0.00452)	(0.00070)	(0.00345)	(0.000493)	(0.000903)	(0.000453)	(0.00126)
Migration network	0.0334	0.477***	0.108**	0.132	0.0317	0.155***	0.108***	0.0493
	(0.0454)	(0.180)	(0.0422)	(0.259)	(0.0450)	(0.0543)	(0.0379)	(0.108)
Village fixed effect								
Irrigation	0.0925**	-0.271*	0.0530	-0.189	0.0874*	-0.0898*	0.0530	-0.0946
	(0.0455)	(0.148)	(0.0426)	(0.139)	(0.0478)	(0.0526)	(0.0445)	(0.0698)
Provincial dummies	YES	YES	YES	YES	YES	YES	YES	YES
athrho2_1		-0.471*		-1.060*				
		(0.282)		(0.571)				
lnsigma2		-0.957***		-1.028***				
		(0.0355)		(0.0355)				
Constant	-0.367	-3.204***	-0.000934	-2.490*	-0.352	-0.540	-0.116	-0.691
	(0.283)	(1.235)	(0.263)	(1.445)	(0.279)	(0.349)	(0.260)	(0.444)
Wald test of exogeneity	2.79*		3.45*					
Prob > Chi2		0.000		0.000		0.000		0.000
Observations	396	396	396	396	396	396	396	396

*Note: IV-Probit employed the maximum likelihood estimator. MFI, microfinance institute. WeakIV test, over-identification (Formal borrowing), and exclusion and restriction test are available in the Appendix (See Table A.2, A.3, A.4, and A.5). * p<0.1, ** p<0.05, *** p<0.01*

Source: Author's calculation

Columns 5-8 of Table 3.3 provide the results of the 2SLS estimation. They show that the 2SLS estimates do not deviate significantly from the IV-probit estimate. First, the 2SLS results show that both estimates for the instrumental variables in the formal and informal loan sector remain consistent with the IV-probit model, statistically significant at the 1% level in the first stage estimation. In addition, household control variables, such as household head, and household and village characteristics, consistently show the expected signs and are statistically significant, aligning with IV-probit estimates. However, the second stage estimates show that formal borrowing has a positive sign and is statistically significant at the 10% level, while informal borrowing remains positive but statistically insignificant. Since both IV-probit and 2SLS have potential drawbacks, as discussed in the above section, the next section discusses the results employing the ESP model.

3.5.3 Endogenous Switching Probit Model

Table 3.4 columns 1-6, shows the result of full information maximum likelihood (FIML) estimates of the ESP model for both formal and informal credit uptake, and for migration decision estimation. The estimated correlation coefficients of ρ_1 and ρ_0 are statistically significant and provide results for the models in both sectors. It indicates that decisions to access formal and informal credit are not randomly distributed. Thus, there is the presence of endogenous selection bias in both formal and informal borrowing. Moreover, the signs of ρ_1 and ρ_0 are the same. Therefore, unobservable factors in the same way may affect formal and informal borrowing stemming from household migration decisions. Furthermore, the likelihood ratio test of the joint independent equations is statistically significant at the 1% level in both sectors, rejecting the null hypothesis of the independent equations. Therefore, employing the ESP model is appropriate for the estimation.

Columns 1 and 4 in Table 3.4 present the determinants of formal and informal credit uptake and their effect on migration decisions for both borrowing scenarios. Our instrumental variable, particularly

landownership, remain statistically significant for both sectors with the expected signs and consistent with earlier empirical estimations while the estimated negative coefficient on number of MFIs is not as expected Also, the determinants of borrowing in both sectors are consistent with the IV-probit and the 2SLS estimations, including the household head's age, education, on-farm occupation, and household characteristics. The availability of irrigation systems remains positive and statistically significant for accessing formal loans. The existence of migrant networks is more likely to increase the likelihood of household borrowing from informal lenders rather than seeking formal credit.

Based on the estimated results from Table 3.4, Table 3.5 shows the results of the estimation of the potential impact of microcredit borrowing on migration decisions. It is evident that households taking out formal and informal loans are more likely to include migrant family members than their non-borrowing counterparts. The conditional expected probability for migrant households that borrow formally is 13.33 percentage points, but is 9.41 percentage points for migrant households that borrow informally. Computing counterfactual estimated probability, the conditional expected likelihood of migrating for households if they do not borrow from formal sources is 7.61 percentage points, and 6.19 percentage points if they do not borrow from informal sources. From Equation (9), considering the differences between the conditional expected probability of migration and borrowing and their counterfactual scenarios, households show an increased likelihood of migration by 5.6 percentage points for formal borrowing and 3.2 percentage points for informal borrowing. Given the advantage of the counterfactual comparison, we find that households that take out credit are more likely to migrate afterwards, in contrast with the view of migration as a substitute for credit. These results are consistent with various studies that have found that borrowing encourages migration (see Phan (2012), Cai (2020), Bylander and Hamilton (2015), and Tiwari and Winters (2019)).

Table 3.4 *The Impacts of Credit Uptake on Migration Decisions (Endogenous Switching Probit model)*

VARIABLES	Formal Borrowing			Informal Borrowing		
	Formal Borrowing	Migration decision (Regime1)	Migration decision (Regime0)	Informal Borrowing	Migration decision (Regime1)	Migration decision (Regime0)
	(1)	(2)	(3)	(4)	(5)	(6)
Instrumental Variables						
Land ownership certificate	0.591***					
	(0.140)					
Number of MFIs per village	-0.740**			-0.939***		
	(0.293)			(0.302)		
Household head characteristics						
HH head's age	0.0872*	-0.104*	0.0502	0.0564	0.0915	0.0542
	(0.0510)	(0.0578)	(0.0666)	(0.0478)	(0.0843)	(0.0491)
HH head's age squared	-0.000901*	0.00121**	-0.000370	-0.000598	-0.000875	-0.000323
	(0.000525)	(0.000592)	(0.000657)	(0.000471)	(0.000832)	(0.000472)
HH female head	-0.0157	-0.0721	-0.000448	-0.139	0.187	0.0243
	(0.186)	(0.208)	(0.184)	(0.187)	(0.249)	(0.168)
HH head no formal education	-0.584**	1.791***	-0.0470	0.00542	-0.219	0.131
	(0.232)	(0.488)	(0.280)	(0.218)	(0.370)	(0.192)
HH head farmer	-0.456**	0.141	0.103	0.205	-0.666*	0.0570
	(0.198)	(0.243)	(0.257)	(0.186)	(0.354)	(0.173)
Household characteristics						
Rural areas	0.108	-0.322	0.485**	-0.103	0.679*	0.416**
	(0.218)	(0.285)	(0.237)	(0.181)	(0.360)	(0.180)
HH dependency ratio	-0.000428	0.00464**	0.00328***	0.00112	0.00315**	0.00275***
	(0.00088)	(0.0018)	(0.0009)	(0.000807)	(0.00159)	(0.00083)
Number of HH income-earning females	0.178*	0.228	0.391*	0.0270	0.222	0.379***
	(0.0996)	(0.151)	(0.218)	(0.0858)	(0.140)	(0.0915)
Agricultural land (hectares)	-0.0837	-0.174	-0.123	-0.113	0.0406	-0.101
	(0.0705)	(0.169)	(0.0966)	(0.117)	(0.256)	(0.0644)
Agricultural land squared	0.00206	0.0518	0.00119	-0.00237	0.0224	0.000747
	(0.00252)	(0.0316)	(0.00427)	(0.0163)	(0.0338)	(0.00246)
Migration network	0.138	0.665**	0.432*	0.541***	-0.995**	0.532***
	(0.187)	(0.272)	(0.237)	(0.198)	(0.503)	(0.175)
Village fixed effect						
Irrigation	0.300*	-0.424	-0.319*	0.310	-0.293	-0.238
	(0.172)	(0.353)	(0.177)	(0.190)	(0.231)	(0.163)
Provincial DUMMIES	YES	YES	YES	YES	YES	YES
Constant	-3.034**	1.766	-3.210**	-2.733**	-1.523	-3.998***
	(1.232)	(1.418)	(1.544)	(1.218)	(2.083)	(1.281)
Observations	396	396	396	396	396	396
/athrho1		-14.400			-15.329***	
		(1.7439)			(1.8255)	
Rho1		-1***			-1***	
		(2.14)			(3.54e-13)	
/athrho0		-3.6159**			-5.420	
		(1.546)			(8.2566)	
Rho0		-0.346			-.9999***	
		(1.3415)			(0.0006)	
Log likelihood		-380.3330			-362.8064	
LR test of indep. eqns.		69.67***			70.60***	
Prob. > chi2		0.0000			0.0000	

Note: Estimations use the Full Information Maximum Likelihood (FIML) method to estimate simultaneously

*borrowing status and migration decisions (Lokshin and Sajaia 2011). Migration selection bias is corrected via PSM. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: Author's calculation.*

Table 3.5 *The impact of formal and informal borrowing on migration decisions (Average Treatment Effect on the Treated)*

	ATT	Std. Dev.
Formal Borrowing		
$E(M_1 \mid Formal = 1)$	0.1333	0.01635
$E(M_0 \mid Formal = 1)$	0.0761	0.00584
	0.056***	
Informal Borrowing		
$E(M_1 \mid Informal = 1)$	0.0941	0.0108
$E(M_0 \mid Informal = 1)$	0.0619	0.0039
	0.032***	

*Note: *** p<0.01, ** p<0.05, * p<0.1 Source: Author's calculation*

Table A.6 in the Appendix presents robustness check estimations and takes into consideration the coexistence of formal and informal borrowing, giving households access to multiple loans. First, to account for such credit coexistence, we used the seemingly unrelated bivariate probit model and the simple probit model. The findings match our earlier empirical estimates. Households that obtain formal loans prior to migrating are more likely to migrate later but the opposite seems to be the case for informal loans.[5] Other explanatory variables have the expected signs as migration determinants. For example, an uneducated farmer with a high dependency ratio is more likely to have a family member migrate. Furthermore, households with large agricultural landholdings and living in villages with an irrigation infrastructure are less likely to include migrant family members.

Our empirical findings offer a fresh perspective on the Cambodian credit market and labour migration. A few possible explanations for the positive linkage between microcredit and migration can be suggested. First, recent works contributing to the microfinance literature in Cambodia, such as Liv (2013), Bylander et al. (2019), and Green (2020), explain that the expansion of financial

services that maximize MFI profits tends to increase indebtedness among borrowers. This adds significantly to stress on household livelihoods instead of mitigating it. By modelling the determinants of household borrowing, our findings similarly confirm MFI profit-oriented motives, which diverge from the non-profit MFI model of the 1990s. Financial institutions, particularly MFIs, have a tendency to target households with low risk of default and that have collateral, thereby excluding poor and marginalized households from access to credit. Therefore, with the relaxing of credit constraints, households from the less affluent areas are more likely to migrate in the first place.

Second, the positive association found between credit and migration may be linked to the terms of loan repayment, which often include strict, inflexible repayment schemes (Shonchoy 2015; Bylander and Hamilton 2015). When formal borrowing does not generate substantial income to repay debts, households are more likely to opt for migration, where remittances provide additional income to pay off loans. Furthermore, as a result of their overdependence on environmental conditions for agricultural activities, households are vulnerable because in rural Cambodia, irrigation systems and other forms of agricultural infrastructure are scarce. Therefore, resorting to loans for a household's on-farm investment can be precarious and possibly generate a low return. To diversify their livelihoods and coping strategies, households will borrow in order to finance migration, by sending one or more family members abroad.

Finally, the migration-microcredit link is frequently examined via the lens of South-North labour movement, which may have several limits when viewed from the perspective of the Global South. In particular, labour mobility in SSM is characterised by low- and semi-skilled and temporary migrant workers. Such characteristics may affect the outcome in a different way from an assessment of the microcredit-migration link in the SNM framework. Moreover, structural

differences in credit and migration infrastructure in the SSM, which include the informal sector and irregular labour mobility, may add further complications to an evaluation of labour migration decisions. Thus, studies that use conventional migration theory, mostly applied in the SNM, will not adequately explain the link between microcredit and migration.

3.6 Conclusion

Prior research on the relationship between microcredit and migration has yielded mixed findings. Studies that view migration and microcredit as either substitutes or complementary do not distinguish between formal and informal credit and their respective effects on household migration decisions. In addition, the structural differences between formal and informal borrowers and non-borrowers may have a significant influence on migration decisions. This study examines the relationship between microcredit and migration decisions using a survey of 422 households in Cambodia, with a focus on Cambodia's credit market, which includes both formal and informal microcredit institutions. The endogenous switching probit model is used in this study primarily to assess the determinants of both formal and informal credit and their effects on labour migration decisions. A robust identification technique is used to investigate the credit-migration nexus, with instrumental variables serving to mitigate endogeneity issues caused by self-selection and omitted variable bias.

Our empirical findings show that households that obtain credit are more likely to include migrant family members. Households that obtain formal credit are 5.6 percentage points more likely to send a family member abroad, while households that access informal credit increase the probability of sending a family member abroad by 3.2 percentage points. This result implies that formal credit is not a substitute for migration. Furthermore, in our findings, migration networks remain an important factor in providing households with informal credit and encouraging migration.

The positive relationship between credit and migration necessitates a reassessment of the policy on credit availability and labour mobility infrastructure. Policymakers should examine the contemporary context of microcredit, which has evolved from a poverty alleviation instrument to a commercial enterprise. Furthermore, financial institutions should re-examine their financial products in order to encourage households to invest in productive investments. A better understanding of the microcredit-migration link will also help to reduce irregular migration, allowing migrants to travel more easily and enhance the welfare of their families and communities. In future, researchers should pay greater attention to seasonal and temporary migration, including the informal sector and undocumented labour mobility (Bylander and Hamilton 2015).

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Notes

(1) Several points of divergence can be seen in SSM and SNM characteristics, including: (1) insignificant wage differentials, (2) sharing common borders, (3) gender-based migration, (4) temporary and seasonal migration, (5) remittance size, transaction costs, and remittance channels, (6) weakened immigration policy leading to irregular migration (7) intra-ethnic or network migration; (8) environmental degradation, and (9) less selective migration (Dilip Ratha and Shaw 2007b; Anich et al. 2014).

(2) The result of the Propensity Score Matching estimation can be found in Oum, Hassan, and Holmes (2021).

(3) Formal loans can be obtained from formal institutions, such as banks, microfinance institutions and NGOs, while informal credit is considered to be that received from informal lenders, relatives or friends, overseas employers, pawnshops, and the migrant's network.

(4) According to MoP (2017), loans a household took out from an informal money lender amounted to approximately 2,747,000 riel (USD 686) on average in 2013, and 3,492,000 riel (USD 873) on average in 2017, while households obtained credit from microfinance and credit operators amounting to 7,310,000 riel (USD 1,827) in 2017 on average.

(5) We estimated the average marginal effect (AME) on the effect of both sources of debt on migration decisions (see Table A.8).

(6) The pre-existing debt before migration (defined as low debt if the amount is less than USD 250; medium debt if the amount is USD 250 to less than USD 3000; and high debt if the amount owed is more than USD 3000). These variables would allow us to accommodate a concept of debt-induced migration (Bylander and Hamilton 2015; Coleman 2006; ILO 2018; Loschmann and Siegel 2014; Phan 2012; Rahman 2015).

(7) The pre-existing debt before migration (defined as low debt if the debt is less than USD 250; medium debt if the debt is USD 250 to less than USD 3000 and high debt if the debt is more than USD 3000). These variable would allow use to commodate a concept of debt-induced migration (Bylander and Hamilton 2015; Coleman 2006; ILO 2018; Loschmann and Siegel 2014; Phan 2012; Rahman 2015).

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3.8 Appendix

Table A.1. *Loan Size, Maturity and Interest Rate by Borrowing Status*

Variables	Informal Credit		Formal Credit		Difference in Mean	
	Mean	SD	Mean	SD		
Loan size	764.754	698.1348	2831.604	3214.868	-2066.85	***
Loan maturity	9.333333	12.76209	25.97802	15.94573	-16.64469	***
Interest rate	3.035714	4.490249	1.840984	0.697227	1.194731	**

*Notes: The Wald test was performed to test the null hypothesis of equal means. * p<0.1, ** p<0.05, *** p<0.01*

Table A.2. *Weak Instrumental Variable Robust Test (Formal Borrowing)*

Test	Statistics		P-Value	Conf. Level	Confidence interval	
CLR	Stat (.)	3.45	0.0689	95%	-0.044695	1.09475
AR	Chi2(2)	4.93	0.0852	95%	-0.788061	1.161821
LM	Chi(1)	3.24	0.0717	95%	-4.332837	-2.274219
J	Chi(1)	1.68	0.1946	95%	-0.051421	1.1105212
LM-J |			H0 not rejected at 5% level			
Wald	Chi(1)	2.90	0.0884	95%	-0.061372	0.878728

Note: CLR: the conditional likelihood-ratio; AR: Anderson–Rubin (AR) statistic; LM: the Kleibergen–Moreira Lagrange multiplier; J: the over-identification test (Finlay and Magnusson 2009).
Source: Author's calculation.

Table A.3. *Weak Instrumental Variable Robust Test (Informal Borrowing)*

Test	Statistics		P-Value	Conf. Level	Confidence interval	
AR	Chi2(1)	4.23	0.0396	95%	0.0327303	31.33023
Wald	Chi(1)	13.08	0.1413	95%	-0.396128	2.78011

Source: Author's calculation.

Table A.4 *The Falsification Test of Exclusion Restrictions (Estimating the Impact of IVs on the Outcome Variable (Migration Decision))*

VARIABLES	Migration decisions (1)	Formal borrowing (2)
Instrumental variable		
Land ownership certificates	0.109	0.658***
	(0.164)	(0.171)
Number of MFIs per village	-0.336	-1.033***
	(0.298)	(0.295)
Household head characteristics		
HH head's age	0.0533	0.0892*
	(0.0497)	(0.0483)
HH head's age square	-0.000358	-0.000909*
	(0.000492)	(0.000494)
HH female head	-0.110	-0.0584
	(0.166)	(0.184)
HH head no formal education	0.108	-0.685***
	(0.211)	(0.234)
HH head farmer	-0.0187	-0.415**
	(0.171)	(0.197)
Household Characteristics		
Rural areas	0.420**	-0.00513
	(0.176)	(0.194)
HH dependency ratio	0.00313***	8.28e-05
	(0.000876)	(0.000839)
HH female earning	0.392***	0.116
	(0.0939)	(0.100)
Agricultural land (Hectar)	-0.0871	-0.0845
	(0.0623)	(0.0719)
Agricultural land Square	0.000299	0.00229
	(0.00259)	(0.00254)
Migration network	0.609***	0.0728
	(0.176)	(0.183)
Village fixed effect		
Irrigation	-0.126	0.374**
	(0.171)	(0.172)
Provincial Dummy	YES	YES
Constant	-3.537***	-3.020**
	(1.256)	(1.187)
Observations	396	396
Prob> Chi2	0.0000	0.0000
Pseudo R-square	0.1555	0.1340
Log likelihood	-11.631642	-9.6073094

*Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Household Sampling weight applied. MFI, microfinance institute.*

Table A.5. *The Falsification Test of Exclusion Restrictions (Estimating the Impact of IVs on the Outcome Variable (Migration Decision))*

VARIABLES	Migration Decisions (1)	Informal Borrowing (2)
Instrumental Variable		
Number of MFIs per village	-0.314	-0.881***
	(0.300)	(0.334)
Household head characteristics		
HH head's age	0.0539	0.0667
	(0.0497)	(0.0469)
HH head's age square	-0.000364	-0.000726
	(0.000492)	(0.000476)
HH female head	-0.115	-0.157
	(0.165)	(0.187)
HH head no formal education	0.106	0.0685
	(0.210)	(0.218)
HH head farmer	-0.0199	0.206
	(0.171)	(0.200)
Household Characteristics		
Rural areas	0.422**	-0.0853
	(0.175)	(0.195)
HH dependency ratio	0.00311***	0.00111
	(0.000878)	(0.000852)
HH female earning	0.398***	-0.0160
	(0.0927)	(0.0986)
Agricultural land (Hectare)	-0.0875	-0.0565
	(0.0623)	(0.131)
Agricultural land Square	0.000229	-0.00939
	(0.00259)	(0.0203)
Migration network	0.615***	0.547***
	(0.176)	(0.209)
Village fixed effect		
Irrigation	-0.121	0.288
	(0.172)	(0.188)
Provincial Dummies	YES	YES
Constant	-3.532***	-2.438**
	(1.261)	(1.149)
Observations	396	396
Prob> Chi2	0.0000	0.0024
Pseudo R-square	0.15.46	0.0943
Log likelihood	-11.37439	-8.37701

*Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Household Sampling weight applied. MFI, microfinance institute.*

Table A.6. *The Impacts of Credit Uptake on Migration Decisions*

VARIABLES	Formal Borrowing (1)	Informal Borrowing (2)	Migration Decisions (3)
Household head characteristics			
HH head's age	0.0766*	0.0842*	0.0291
	(0.0458)	(0.0453)	(0.0586)
HH head's age square	-0.000803*	-0.000887*	-0.000121
	(0.000473)	(0.000465)	(0.000590)
HH female head	-0.0603	-0.127	-0.0219
	(0.178)	(0.183)	(0.178)
HH head no formal education	-0.658***	0.0682	0.0950
	(0.226)	(0.213)	(0.266)
HH head farmer	-0.418**	0.209	0.0352
	(0.190)	(0.193)	(0.259)
Household characteristics			
Rural areas	-0.0357	-0.106	0.434**
	(0.186)	(0.198)	(0.184)
HH dependency ratio	-4.49e-05	0.00105	0.00302***
	(0.000839)	(0.000846)	(0.00104)
HH female earning	0.115	-0.0261	0.447***
	(0.0995)	(0.0950)	(0.112)
Agricultural land (Hectare)	-0.0833	-0.0723	-0.0943
	(0.0698)	(0.0667)	(0.0921)
Agricultural land Square	0.00239	0.00151	-0.000727
	(0.00234)	(0.00222)	(0.00927)
Migration network	0.0936	0.585***	0.532*
	(0.178)	(0.203)	(0.277)
Village fixed effect			
Irrigation	0.342**	0.271	-0.270
	(0.168)	(0.183)	(0.174)
Instrumental Variables			
Land ownership certificate	0.590***	-	-
	(0.168)	-	-
Average MFIs per village	-0.996***	-0.882***	-
	(0.288)	(0.338)	-
Formal			4.868***
			(1.125)
Informal			-5.101***
			(0.511)
IMR_1			0.0832
			(0.553)
IMR_0			0.652
			(1.297)
Formal (1= No outstanding debt)			-5.362***
			(1.152)
Informal (1= No outstanding debt)			4.922***
			(0.494)
Financing Migration			0.669**
			(0.335)
Amount of formal debt			
Loan of USD 250- USD3000			1.545**
			(0.745)

Loan of > USD 3000			1.636**
			(0.832)
Amount of informal debt			
Loan of USD250- USD3000			4.883***
			(0.832)
Province Dummies	YES	YES	YES
Constant	-2.631**	-2.908***	-3.369**
	(1.110)	(1.096)	(1.338)
\athrho	-0.472***		
	(0.138)		
Rho	-0.4402		
	(0.111)		
Wald test of rho	11.7277***		
Log pseudolikelihood	-18.255721		-10.685805
Adj. R-Squared			0.2058
Prob > Chi2	0.000	0.000	0.000
Observations	407	407	407

*Note: We employed the propensity score estimates to attain only samples situated in the common support areas. Household sampling weight applied based on Deaton (1997). MFIs, microfinance institutes. Robust standard error in the parenthesis. * p<0.1, ** p<0.05, *** p<0.01*

Table A.7. *Correlations Matrix between Variables of Interest and Predicted Probability of Household Formal and Informal Borrowings*

VARIABLE	Migration Decisions	Formal Borrowing	Informal Borrowing	(1)	(2)	(3)
Migration Decisions	1					
Formal Borrowing	0.0520	1				
Informal Borrowing	0.0362	-0.164***	1			
(1)	0.0572	0.363***	-0.0587	1		
(2)	0.1004**	-0.0339	0.265***	-0.1098**	1	
(3)	0.1895***	0.22***	0.0651	0.63***	0.358***	1
(4)	-0.1222**	-0.29***	-0.1053**	0.80***	-0.497***	-0.810***

Note: (1) $P_{10t-k} = \Phi_2(\gamma_1 Z_{1t-k}, -\gamma_0 Z_{0t-k}, -\rho)$: Predicted probability when households access for formal borrowing and do not access to informal borrowings.

(2) $P_{01t-k} = \Phi_2(-\gamma_1 Z_{1t-k}, \gamma_0 Z_{0t-k}, -\rho)$: Predicted probability when households access to informal borrowing and do not access to formal borrowings.

(3) $P_{11t-k} = \Phi_2(\gamma_1 Z_{1t-k}, \gamma_0 Z_{0t-k}, \rho)$: Predicted probability when households access to both formal and informal borrowings.

(4) $P_{00t-k} = \Phi_2(-\gamma_1 Z_{1t-k}, -\gamma_0 Z_{0t-k}, \rho)$: Predicted probability when households access to neither formal nor informal borrowings.

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

Source: Author's calculations

Table A.8. *Average Marginal Effects of Variables of Interest*

VARIABLES	Delta-method dy/dx	Std. Err.	z	P>z	[95% Conf.	Interval]
Financing migration	0.1902	0.093	2.04	0.042	0.0072782	0.3731887
Amount of formal debt						
Loan of USD 250-USD 3000	0.4643	0.17997	2.58	0.01	0.1115947	0.8170791
Loan of > USD 3000	0.4859	0.1906	2.55	0.011	0.112243	0.8597416
Amount of informal debt						
Loan of USD 250-USD 3000	0.6602	0.021	30.77	0	0.6182213	0.7023428
Migration network	0.1513	0.0788	1.92	0.055	-0.003283	0.3059875
Rural area	0.1235	0.05073	2.44	0.015	0.0241288	0.223005
HH head's age	0.0082	0.01663	0.5	0.618	-0.0243202	0.0409064
HH head's age square	-0.00003	0.00016	-0.21	0.837	-0.0003635	0.0002946
HH female head	-0.0062	0.05056	-0.12	0.902	-0.1053511	0.0928744
HH head no formal education	0.0270	0.07586	0.36	0.721	-0.1216518	0.1757382
HH head farm occupation	0.0100	0.07382	0.14	0.892	-0.134681	0.1547247
HH dependency ratio	0.0008	0.0002	3.04	0.002	0.0003042	0.0014134
HH female earning	0.1272	0.0296	4.3	0	0.0692399	0.1853301
Agriculture land (hectare)	-0.0268	0.0259808	-1.03	0.302	-0.0777551	0.0240877
Agriculture land square	-0.0002	0.0026393	-0.08	0.938	-0.0053796	0.0049661
Irrigation	-0.0768	0.0494399	-1.56	0.12	-0.173788	0.020013

Source: Author's Calculations

Household Sampling Weight

Household weight W_i^h is constructed based on Deaton (1997):

$$W_i^h = \frac{W_i^v}{H_i^s \sum_{i=1}^{n} W_i^v}$$

Where W_i^v denotes the gross weight for the village while H_i^s is the total number of surveyed households in village *i*. W_i^v is calculated as:

$$W_i^v = \frac{T_i^v}{H_i^s} \cdot \frac{\sum_{j=1}^{n} T_i^v}{\sum_{i=1}^{n} H_i^S}$$

Where T_i^v denotes the total number of households located in the village *i* and H_i^s is the number of households from which information has been collected information in village *i*. Household weights are standardized sum to one.

Deaton, A. (1997). *The analysis of household surveys: a microeconometric approach to development policy*: The World Bank.

Finlay, K., & Magnusson, L. M. (2009). Implementing weak-instrument robust tests for a general class of instrumental-variables models. *The Stata journal, 9*(3), 398-421.

CHAPTER 4
DO REMITTANCES INCREASE HOUSEHOLD INDEBTEDNESS? EVIDENCE FROM A CAMBODIAN HOUSEHOLD SURVEY

4.1 Introduction

International remittances- the money sent home by migrant workers abroad, have been embraced as a significant source of external finance fuelling the economic engine of recipient economies. Global remittance flows doubled in size between 2009 and 2019, increasing from USD 433 billion to USD 719 billion (World Bank 2021a). Remittance flows to Low and Middle-Income Countries (LMICs) increased from USD 302 billion in 2009 to USD 548 billion in 2019, double the size of remittances flowing into high-income countries (World Bank 2021a). This makes remittance flows into LIMCs the largest external source of finance, larger than foreign direct investment (FDI) and three times the size of official development assistance (World Bank 2019a). Because remittance flows are such a large and significant source of income for many recipient households in the LMICs, researchers and policymakers often argue that remittance inflows generate a profound impact on development outcomes, particularly among households in LMICs.

A large and growing body of theoretical and empirical literature has studied the motivations to remit and the impact of such remittances.[1] In particular, researchers have debated the link between remittances and financial development (Giuliano and Ruiz-Arranz 2009; Ambrosius and Cuecuecha 2016; Aggarwal, Demirgüç-Kunt, and Pería 2011; S. Gupta, Pattillo, and Wagh 2009).

For example, remittances reduce liquidity and credit constraints by improving greater access to financial services which in previous studies have suggested a positive impact of remittances on financial development, including the amount of deposit, deposit account per capita, saving account, numbers of bank branches (Ambrosius and Cuecuecha 2016; Aggarwal, Demirgüç-Kunt, and Pería 2011). Remittances also serve as collateral, enhancing household access to credit because financial institutions tend to evaluate the creditworthiness of the household's application (Orozco and Fedewa 2006). In contrast, remittances substitute for borrowings. Remittances, therefore, relax household liquidity and credit constraints and enhance household's financial condition allowing households to invest in production/ business (Woodruff and Zenteno 2007), and human capital (Cox and Ureta 2003), and, importantly, respond to health shocks (Ambrosius and Cuecuecha 2013).

Although the nexus between remittances and financial development has been clearly established in the literature, the link between remittances and household indebtedness, is not obvious and has been poorly studied. Therefore, the unexplored nature and ambiguity of the relationship of remittances and household indebtedness necessitates a thorough investigation. The literature shows that indebtedness or over-indebtedness is a consequence of a greater access to financial services, particularly borrowings causing rapid financial inclusiveness of the household (Guha and Chowdhury 2013; Ganle, Afriyie, and Segbefia 2015). A large volume of borrowing tends to amplify the risk of household financial vulnerability and over-indebtedness, forging overall financial system fragility (Debelle 2004; Svirydzenka 2016; Campbell and Hercowitz 2005; Leclaire 2021). A positive association between household private debt [2] [3] and financial development is often found in relation to the change in the financial market's structure that through financial deregulation and liberalisation the complexity of borrowing and lending processes is

reduced (Svirydzenka 2016; Debelle 2004). It is suggested that there is a link between financial development indices and household debt in European countries. Svirydzenka (2016) suggested that relaxing credit constraints and a shift in financial innovation are highly correlated with an increase in household debt levels. In this view, financial deregulation is more likely to ease borrowing restrictions that can trigger potential debt growth among borrowers as they can take multiple loans (Bylander 2020; Campbell and Hercowitz 2005; Svirydzenka 2016). Such a relationship between household indebtedness and financial development may also derive from a competition among financial institutions. The competitiveness of lending rates, borrowing costs, and new financial products among MFIs enables borrowers to accumulate more debt and potentially become vulnerable by losing the ability to repay it. Evidence from India, Bangladesh, and Cambodia suggests borrowers take advantages of the microfinance institutions' (MFIs) competition in terms of the services they provide, particularly the lending rate and borrowing cost, to access a larger amount of loan and multiple sources of borrowing. In doing so, borrowers in developing countries are taking additional or multiple loans to pay off existing debts that they owe to another microfinance institution (Srinivasan 2010; McIntosh and Wydick 2005; World Bank 2019b).

As households accumulate more debts through multiple borrowings that could result in an inability to repay, households could opt for several coping mechanisms. Such strategies include decreasing consumption, selling assets to pay off debt, and default decisions (Green and Estes 2019; Seng 2018a). Moreover, when debt accumulates to a certain threshold that is higher than household average income, households could opt for migration in which remittances could serve as a potential coping mechanism (Bylander and Hamilton 2015; IOM 2019; Green and Estes 2019). For

example, according to IOM (2019), approximately 40 percent of remittance-recipient households utilise remittances to pay off debt.

As remittances can be a source and one of the significant sources households use to cope with debt repayment, it has not gained much attention in the economics literature. There is a large gap in the literature regarding an understanding of how remittances respond to household debt. We explore this emerging phenomenon by addressing two important questions. First, what are the determinants of remittances inflows to recipient households? And second, to what extend do remittances impact a household's ability to repay debt or debt performance and level of indebtedness?

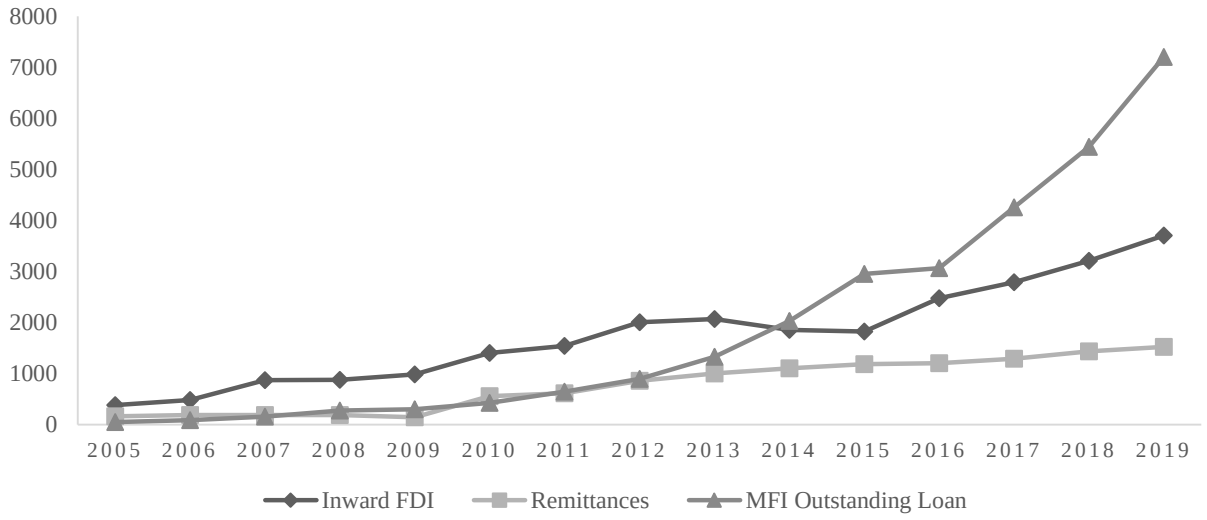
Two income hypotheses could allow us to empirically examine the relationship between remittances and household debt and to answer the above questions. First, according to the permanent income hypothesis (PIH), remittances sent to households on a relatively regular basis are often considered a stable source of income (Friedman 1957). Thus, remittances are to be used for consumption because the expected income tends to be regular and permanent, allowing the left-behind families to enjoy consumption for a period of time. Chami, Fullenkamp, and Jahjah (2003) show that when remittance inflow is regular, remittances are not utilized for immediate productive investment but rather for consumption. Moreover, remittances tend to be permanent income when migrants stay and work at the destination for a longer period, so the remittances they send are reliable over time. Lim and Simmons (2015) examined remittance inflow into the Caribbean community and show that remittances do not impact GDP per capita but impact consumption in the long run. Remittances flowing to the Caribbean community tend to be more stable as migrants reside in the United States for an extended period of time and when migrants may earn US citizenship. The left-behind households, therefore, receive a constant flow of remittances and use them for consumption.

Second, the transitory income hypothesis suggests that households would opt to save and invest instead of consuming with the additional source of income (Lim and Basnet 2017). Remittances are often found to have positive and long-term impacts on human capital development, entrepreneurship and health expenditure (Cox and Ureta 2003; Kapri and Jha 2020; Woodruff and Zenteno 2007). Furthermore, due to temporary and seasonal migration, remittance inflows are frequently irregular and unpredictable (Lucas and Stark 1985). Therefore, when remittances are uncertain, households are more cautious when utilising and channelling them towards more productive investments. In such a situation, remittances tend to be a transitory form of income. Consequently, it would reduce the household's debt burden and have a positive effect on the household's debt performance. Another explanation is that expected remittances sent to the left-behind households is a function of the migrant's length of stay at the destination. This implies that if household members are prone to temporary or short term migration, the remittances may decrease overtime (Hunte 2004). Thus, households tend to mobilise remittances toward productive investments.

In Cambodia, remittance inflows have lately surged, while microfinance has expanded dramatically, allowing for wider borrowing access. Figure 4.1 illustrates that remittance inflows has gained momentum over the last decades. The inflows of remittances to Cambodia has increased significantly from USD 142 million in 2009 to USD 1,524 million in 2019, equivalent to 5.6 percent as a share of GDP in 2019 (World Bank 2020b). The largest proportion of incoming overseas remittances in 2020 flowed from Cambodian migrant workers in Thailand (78.18 percent), South Korea (16.31 percent), Japan (3.55 percent), Malaysia (1.84 percent), and others (0.13 percent). The Ministry of Labour and Vocational Training (MoLVT) (2020) indicates that remittances inflow at the end of April 2020 was close to double its size comparing to the previous

year, reaching USD 2,809 million. However, a recent study shows that about 72 percent of remittances sent home are facilitated by private agencies and unofficial channels, mainly from Thailand (Hing et al. 2014). The informal transfers may suggest that migrants and left-behind households possess low financial literacy, limiting the use of formal transfer services. Harkins, Lindgren, and Suravoranon (2017) suggest that only one in five migrant workers possesses a bank account. This impedes them from using a formal channel to send remittances home (Harkins, Lindgren, and Suravoranon 2017; ILO 2020f).

Figure 4.1. *Foreign Direct Investment, Remittances, and microfinance institution (MFI) Outstanding Loans (2005-2019) (USD in millions)*



Source: World Bank (2020), , the National Bank of Cambodia (NBC) (2019)

Due to the significant increase in credit demand and borrowings in recent years, the microfinance sector has expanded, making Cambodia one of the region's most microcredit-saturated countries, alongside Laos and Myanmar. (IOM 2019; Green 2020). According to the Credit Bureau of Cambodia (CBC) (2018) , about two million borrowers accessed MFI in 2019, an increase of more than 1.5 million compared to 2005. The outstanding loans increased from USD 50.13 million in

2005 to USD 7.2 billion in 2019, and about 32 percent increase in loan value in 2019 compared to the outstanding loan value in 2018 (NBC 2019). The average amount of borrowing per person is about USD 3,415 exceeding the Cambodian GDP per capita in 2019, which was only USD 1,650. Total outstanding loans, including the banking sector and MFI, had reached 103 percent of GDP in 2018, and there was a 28.3 percent increase in credit growth compared to the total outstanding loans in 2018 (NBC 2019).[4] The household debt-to-income ratio has been growing at a fast rate, increasing from 23 percent in 2013 to 30 percent in 2017 in Phnom Penh, the capital city, and 46 percent to 49 percent in other urban areas, which is about 24 percent annually (MoP 2017). Household borrowings were primarily channelled toward consumption rather than productive purposes (MoP, 2017). The proportion of borrowing used for consumption increased from 18.6 percent in 2013 to 55.1 percent in 2017.

Using survey data from 422 households located in three provinces in the northern part of Cambodia, we investigate the impact of remittances on household debt performance and indebtedness. Assessing the impact of remittances on these factors can be complicated due to endogeneity issues in self-selection and omitted variable bias. We lessen this concern by using the Two-step Heckman Selection Model and the Two-Stage Least Square regression model. We then use the generated regressor of remittances to estimate the impact on household debt performance and household level of indebtedness with the Tobit model in the second stage.

Our findings show that the motive to remit is dominated by altruistic aspiration. Remittances are also found to be transitory incomes that tend to decay over a migrant's length of stay at the destination. Thus, as migrant’s length of stay increases, the amount of remittances decline. Secondly, the impacts of remittances on household debt performance is found positive with a 10% increase in remittances leading to a 0.7% increase in debt performance among households with

low debt performance level and a 1% increase at aggregate household samples. Finally, remittances are found to have a statistically significant negative impact on household-level indebtedness, suggesting a reduction in household debt severity. Remittances indicate strong and statistically significance in reducing the household level of indebtedness by 1.7%.

The paper contributes to the literature on the impacts of remittances in a number of ways. First, this paper pioneers the examination of the effects of remittances on household indebtedness, specifically in Cambodia as most previous studies have used descriptive and qualitative analyses. Secondly, this study overcomes the limitations of previous studies due to measurement errors in remittances. In particular, because the remittances data recorded in the balance of payments is often used to account for officially recorded remittances sent through formal channels, it fails to capture remittances being transferred through informal channels such as friends/ relatives, informal brokers, and informal transferred agencies. Moreover, the majority of Cambodian labour migrants are irregular migrant workers; thus, most of the remittances sent home are processed through private agencies and informal transactions. Finally, we also provide evidence regarding motivation to remit and its impact on household debt. Given the importance of remittances in household's debt reduction, policy promoting remittance transferring options and fee deduction should be endorsed in order to maximise remittances received by recipient households.

The rest of the paper is organized as follows. Section 2 outlines empirical approaches used in this study and empirical strategies to overcome bias estimation, followed by data and variable description in section 3. Section 4 provide insights and findings from the empirical estimation. The last section forms the conclusion and provides avenues for future research.

4.2 Empirical Specification

As an initial exercise, our baseline model to estimate the impact of remittances on household indebtedness and debt performance uses the Ordinary Least Square (OLS) regression.

$$Debt_i = \alpha_0 + \alpha_1 I_i + \alpha_2 X_i + \psi_i + \varepsilon_i \quad (1)$$

where $Debt_i$ denotes household debt variables. I_i is a binary variable equal to one if household i received remittance in the last 12 months and zero otherwise. X_i represents a set of household head and household characteristics associated with household indebtedness and debt performances. ψ_i denotes village characteristics. ε_i is the unobservable term, and α_1, α_2 are the parameters to be estimated.

However, employing OLS to evaluate the impact of remittances on household indebtedness and debt performance potentially yields inconsistent and biased estimates. Previous studies suggest that several empirical challenges are derived from self-selection bias in remittances and an unobservable factor can be poorly performed by OLS estimation. Moreover, OLS is unlikely to account for the differences between censored and uncensored observations (Piracha and Saraogi 2011). Therefore, the two-step Heckman Selection model can improve the estimation and control for selection bias in household receipt of remittances (Heckman 1979). This approach provides more robust estimates because it does not depend on the unobservable bivariate distribution. Therefore, we followed Agarwal and Horowitz (2002) by utilizing the two-step Heckman selection model (Heckman 1979) which can be expressed in equations (2) and (2.1) as follows:

$$Remit_i = \beta_0 + \beta_1 X_i + \psi_i + u_i \quad (2)$$

$$I_i = \gamma_0 + \gamma_1 X_i + \gamma_2 IV_i + \psi_i + \theta_i \quad (2.1)$$

where $Remit_i$ denotes the logarithm of the total amount of remittances received by a household in the last 12 months. IV_i represents the instrumental variable. It is important to note that admissibility of the instrument depends on two key conditions. First, the instrumental variable should satisfy the exclusion restriction condition, that the instrumental variable affects the amount of remittances a household received only through the dichotomous remittance variable I_i. Secondly, the value of the F statistics corresponds to the estimates of the instrumental variables in the first stage regression should be above 10, suggesting the selected instrumental variable is not a weak instrument. u_i and ε_i are the error terms that follow jointly normal distribution $N(0,1)$and $N(0, \sigma_\varepsilon)$. Therefore, the $Cov(u_i, \theta_i)$ is equal to ρ. After estimating equation (2.1) using the Probit Model, the Inverse Mill Ratio (λ_i) is calculated as the ratio of a normal density function $\varphi(\gamma_1 X_i + \gamma_2 IV_i)$ and cumulative density function $\phi(\gamma_1 X_i + \gamma_2 IV_i)$ which can be expressed as follows (Heckman, 1979):

$$\lambda_i = \frac{\varphi(\gamma_1 X_i + \gamma_2 IV_i)}{\phi(\gamma_1 X_i + \gamma_2 IV_i)} \tag{2.2}$$

We substitute the Inverse Mill's Ratio (λ_i) into our structural equation as a second stage estimation. Therefore, it can be estimated as follows:

$$Remit_i = \eta_0 + \eta_1 X_i + \rho\sigma_\varepsilon \lambda_i + \psi_i + u_i \tag{3}$$

where u_i is the error term and uncorrelated with X_i and λ_i. η_1 and $\rho\sigma_\varepsilon$ are the parameters to be estimated. Then, utilizing the $\widehat{Remit}_\iota$ predicted value of each household from equation (3), we substitute it into the Tobit Model in equation (4) and (5) in order to estimate the impact of

remittances on household indebtedness ($Debt\_I_i$) and debt performance ($Debt_{P_i}$) using the maximum likelihood method.

Impacts of remittances on household indebtedness:

$$Debt\_I_i^* = \alpha_0' + \alpha_1' \widehat{Remit}_\iota + \alpha_2' X_i + \psi_i + \eta_i$$

$$Debt\_I_i = 0 \;\; if \;\; \alpha_0' + \alpha_1' \widehat{Remit}_\iota + \alpha_2' X_i + \psi_i + \eta_i \;\leq 0 \qquad (4)$$

$$Debt\_I_i = Debt\_I_i^* \;\; if \;\; \alpha_0' + \alpha_1' \widehat{Remit}_\iota + \alpha_2' X_i + \psi_i + \eta_i > 0$$

Impacts of remittances on household debt performance:

$$Debt\_P_i^* = \phi_0' + \phi_1' \widehat{Remit}_\iota + \phi_2' X_i + \psi_i + \eta_i$$

$$Debt\_P_i = 0 \;\; if \;\; \phi_0' + \phi_1' \widehat{Remit}_\iota + \phi_2' X_i + \psi_i + \eta_i \;\leq 0 \qquad (5)$$

$$Debt\_P_i = Debt\_P_i^* \;\; if \;\; \phi_0' + \phi_1' \widehat{Remit}_\iota + \phi_2' X_i + \psi_i + \eta_i \;> 0$$

Our dependent variable $Debt\_P_i^*$ and $Debt\_I_i^*$ are continuous latent variables that can be observed when their value is greater than zero, and η_i is the error term with zero mean and constant variance σ^2. Therefore the likelihood function derived from equation (4) and (5) can be expressed as:

$$L = \prod_{Debt\_I_i | Debt_{I_i}=0} \left[1 - \Phi\left(\frac{\alpha_1' \widehat{Remit}_\iota + \alpha_2' X_i}{\sigma}\right)\right] . \prod_{Debt\_I_i | Debt_{I_i}>0} \left[\frac{\phi((\alpha_1' \widehat{Remit}_\iota + \alpha_2' X_i)/\sigma}{\sigma}\right] \qquad (4.1)$$

$$L = \prod_{Debt\_P_i | Debt\_P_i=0} \left[1 - \Phi\left(\frac{\alpha_1' \widehat{Remit}_\iota + \alpha_2' X_i}{\sigma}\right)\right] . \prod_{Debt\_P_i | Debt\_P_i>0} \left[\frac{\phi((\alpha_1' \widehat{Remit}_\iota + \alpha_2' X_i)/\sigma}{\sigma}\right] \qquad (5.1)$$

where $\Phi(.)$ and $\phi(.)$ denote the cumulative distribution and the probability distribution function. From equation (4.1) and (5.1), the first parts of the likelihood function denote $Debt\_I_i$ and

$Debt\_P_i$ which equal zero, using a simple form of the Probit Model. The second parts of the function represent the estimation on the uncensored continuous outcomes. When $Debt\_I_i$ and $Debt\_P_i$ are positive, OLS is used to estimate the effect of remittances on household indebtedness and debt performance.

We employed the Tobit model to account for the censored observations and the uncensored continuous outcomes (Greence 2018; Tobin 1958). Our survey design aims to capture households' borrowing behaviours and borrowing information before and after their family members migrated. About 36% of migrant households reported that they had borrowed from formal or informal moneylenders after their family members migrated, but about 11 % of the borrowing households reported that they had paid off their debts, and the recorded amount of outstanding loans was zero. Behind this intuition, there are unobservable factors, such as a sudden increase in income expectations or family members' entrepreneurship skills which may affect loan repayment and debt performance. Therefore, it cannot be directly observed from the survey. This unobservable factor triggers us to pay attention and suggests we should be cautious when estimating the impacts of remittances. Moreover, households obtain loans through informal channels, including family or friends (12.28 % of the borrowing households) and these do not have an exact maturity date. Thus, loans are commonly repaid through a lump sum amount of the principal and interest when it is feasible. In such cases, monthly repayment of the informal borrowing is also reported as zero.

4.2.1 Household Indebtedness and Debt Performance Measurement

We construct household indebtedness levels under the so-called "objective approach"[5] by calculating the ratio of the total household monthly debt repayment (sum of formal and informal loans monthly repayment) to the disposable income (Haas 2006; Keese 2009). Therefore, the household indebtedness measurement can be expressed:

$$Debt\_I_i = \frac{m_i}{y_i - e_i} \quad (6)$$

where $Debt\_I_i$ represents the level of indebtedness, m_i denotes the monthly instalment on the household's debt including all forms of debt, y_i is the monthly household income and e_i is household expenditure excluding debt expenses.

We construct household debt performance by taking the ratio of net income after monthly loan repayments to the household financial vulnerability level which is a household poverty line multiplied by the number of household members (Keese 2009). Therefore, debt performance can be expressed as follows:

$$Debt\_P_i = \frac{y_i - m_i}{PV_i \times HH_i} \quad (7)$$

where $Debt\_P_i$ denotes household debt performance, PV_i refers to the poverty line at household level, and HH_i is the size of household i.

4.2.2 Endogeneity and Identification

Based on the literature, we follow Murakami, Shimizutani, and Yamada (2021) to construct our instrumental variable (IV), which can be expressed as:

$$IV_i = \ln\left(\frac{\sum_{j\in J(i)} GDPPC_j \times M_{ij}}{\sum_{j\in J(i)} WA_i}\right) \quad (8)$$

where IV_i denotes the instrumental variable, $GDPPC_j$ is the country of destination's GDP per capita, M_{ij} is the total migrant members from household i who are currently working in country j. WA_i represents the total number of family members who are aged above 15 in household i at the country of origin i .

To ensure a valid instrumental variable, our rationale is that the economic conditions and changes at the host countries affect the decision to send remittances and should not affect the amount of remittances sent to the left-behind households. Therefore, the instrumental variable should not be a predictor of the outcome variable, the amount of remittances when controlling for the binary remittance variable. Doing so requires a validation on the admissibility of the instrumental variables. Therefore, we verified our instrumental variable with the simple falsification test and the test for weak instruments.

Our result from Table 4.3 shows that F-statistic after the first stage estimation is 17.24, higher than the value of 10, and the adjusted R square of 0.507. Table A. 2 and A. 3 shows the test of weak instrument and the exclusion restriction test. The Kleibergen-Paap test for weak instruments takes the value of 42.99 with a p-value of 0.000, indicating the validity and strength of our instrumental variable. Importantly, our exclusion restriction test confirms the instrumental variable's admissibility and validity because it affects the outcome variable (the amount of remittances) only through the endogenous variable (binary remittances) (See Table A.2 and A.3 in Chapter 4 Appendix).

4.3 Data and Variables Descriptions

4.3.1 Data

The data consist of 422 households located in three northern provinces of Cambodia (Banteay Menchey, Battambang, and Siem Reap). These three provinces comprise more than 50 % of the total international migrants from Cambodia and is one of the highest borrowings penetration regions (USD 1.5 billion outstanding loans, and 1.2 million active borrowers) (Dickson and Koenig 2016; MoP 2015; CBC 2018). To determine the study's area, we used multi-stage random

sampling, followed by the probability proportional to size (PPS) sampling to determine the sample size in the selected village. Household selection is entirely based on random selection.

The survey data covers household head characteristics and household demographic characteristics such as each household member's education, employment, and income. Data on household assets is later constructed into a household wealth index through the Polychroric PCA; and household experience with adverse shocks such as income shocks and shocks derived from natural disasters.

Table 4.1 *Distribution of Sample Size and Recipient Households of Remittances*

Province	Number of Villages	Non-Migrant Households	Migrant Households	Non-Recipient Households	Recipient Households	Total Samples
Banteay Menchey	6	90	52	75	67	142
Battambang	6	96	49	92	53	145
Siem Reap	5	89	46	79	56	135
Total		275	147	246	176	422

Source: Author's fieldwork

The survey also contains information on household remittances, including the amount of remittances and the origin of the sources of international remittances (Thailand, Malaysia, Arab Emirates, USA, and France) during the last 12 months. Our data consists of approximately 42% of remittances-recipient households and 58% are non-recipient households. It is noteworthy that approximately 13% of migrant households did not receive remittances during the last 12 months and about 27% of the remittance-receiving households did not have international migrants. Such cases have been mentioned by previous studies which suggests that households may receive remittances from friends or relatives to repay migration loans (Adams 2011; Amuedo-Dorantes

and Pozo 2010). For households receiving remittances from more than one source, we computed the total remittances by adding all reported remittances regardless of whether they were sent via formal or informal channels, thus reducing measurement error. In addition, the survey obtained data on households' access to formal credit (i.e. banks, microfinance institutions, NGOs, and rural formal credit operators) and informal borrowings (i.e. relatives/friends, informal moneylenders, and pawnshops). The total amount of outstanding loans, maturity periods, and amount of monthly loan repayment were also captured to construct a household level of both debt performance and indebtedness.

4.3.2 Description of Variables

Four different dependent variables were employed in this study. The first two dependent variables are the binary remittances used in the selection equations (2.1) and the amount of remittances used in the structural equation (2). Both dummy and amount of remittances indicate whether households received remittances from overseas in the last 12 months and the total amount of remittances households received from overseas in the last 12 months. Our survey captures not only remittances sent/received via official channels (banks, MFIs, Money-posts) but also informal channels (family/friend, brokers, sender's visit, or other informal routes). The dependent variables in outcome equations (4) and (5) are household debt performance and household indebtedness. Our explanatory variables consist of the household head's information, household characteristics, and household's adverse effect from shocks.

The household head's characteristics include age, gender, occupation, and education (i.e., no formal education). At the household level, we include whether or not the household is located in a rural or urban area, household members under the age of 15, household members over the age of 65, and the dependency ratio in the regression model (2)-(5). These variables capture the

remittances' determinants and the effects on household debt performance and indebtedness. We also check with the Remittance Decay Hypothesis (RDH) by incorporating household income and the length of period migrants stay outside the household into models (2)-(3) (Hunte 2004; Lucas and Stark 1985). It is important to check whether remittances households received link to the RDH. This is because the implications from the RDH enable us to understand whether remittances decrease over time as the migrant's length of stay at the host country increase or vice versa. In such case, if the transfers decay, the remittance-receipt households would view remittances as precarious and unstable (Lim and Simmons 2015; Friedman 1957). Households are more likely to manoeuvre remittances toward saving and investment, supporting the transitory income hypothesis.

In an examination of whether or not remittances are being sent in the form of altruism or self-interested behaviour (Lucas and Stark 1985), if the transfers are sent altruistically, we would expect household dependency and household adverse shock dummies, such as whether or not households experienced business shutdown and household members lost wages, to have a significant positive effect on the amount of remittances. Household economic conditions, such as household incomes and agricultural land, have negative effects on remittances.

In contrast, if the expected signs of the relationships between the above variables of interest and remittances are opposite to the altruism motive, we would expect that the transfers are made based on the migrant's self-interest (Carling 2008; Vanwey 2004). Additionally, we included household borrowings from formal and informal sources and numbers of loans to capture how these variables affect the amount of remittances (Poirine 1997). Village control variables such as the availability of irrigation systems and poverty rates are included in the estimation models.

The RDH and the motives of remittances are being sent in either form of altruism or self-interest have implications for household debt performance and indebtedness. We would expect that remittances increase household debt performance and reduce the likelihood of being over-indebted if it is an altruistic transfer and transitory income. Otherwise, we would expect negative or no impact on household debt performance or indebtedness. Also, if the transfers received by the receipt households are primarily self-interest and being considered as permanent incomes, there is a tendency to increase the level of household indebtedness.

4.3.3 Descriptive Statistics

Table 4.2 reports the descriptive statistics of the independent variables by comparing the difference in means across household characteristics by remittance-receiving household status. The simple statistical test of differences in means demonstrates several significant differences between non-recipient and recipient households. The results show that households with a female head, a head without formal education, and elder household heads are more likely to receive remittances. Similarly, households living in rural areas and households with more family members aged below 15 and above 65 are more likely to receive remittances. This finding suggests that the household is more likely to receive a remittance when there are more non-working and elderly family members. Remittances increase when households have a high level of the dependency ratio. Furthermore, there is a statistically significant difference at 5 % level between non-recipient households and recipient households on informal borrowing and numbers of loans. However, there was no difference when households obtained formal loans. Finally, the results show that the longer migrants are absent from the household, the more households are likely to receive remittances.

Table 4.2 *Household Characteristics by Receiving Remittances*

Variable	Non-Recipient Households		Recipient households		Diff in Means
	Mean	SD	Mean	SD	
Household head Characteristics					
HH head age	47.7642	12.4120	55.1591	12.2254	-7.3949***
Head age Square	2434.8540	1219.93	3191.1360	1294.82	-756.282***
Head Female	0.2724	0.4461	0.4205	0.4950	-0.1481***
Head Farmer	0.3821	0.4869	0.4545	0.4994	-0.0724
Head no Education	0.1951	0.3971	0.2955	0.4575	-0.1003**
Household characteristics					
HH Rural Area	0.6748	0.4694	0.7784	0.4165	-0.1036**
Log Household Income	5.9053	1.2797	4.6671	2.1622	1.2382***
HH member below 15	1.3740	1.1842	1.9034	1.5989	-0.5294***
HH member above 65	0.2154	0.4848	0.4205	0.6274	-0.2050***
HH dependency ratio	224.302	116.711	293.950	173.299	-69.6481***
HH migrant members	0.1341	0.4805	1.4375	1.0884	-1.3034***
HH Formal borrowing	0.3049	0.4613	0.2727	0.4466	0.0322
HH informal borrowing	0.1585	0.3660	0.0852	0.2800	0.0733**
HH number of loans	0.5122	0.6924	0.3750	0.5412	0.1372**
Loan financing migration	0.0447	0.2071	0.1080	0.3112	-0.0632**
Migrant network	0.6341	0.4827	0.8409	0.3668	-0.2068***
HH agricultural land (hectare)	1.0785	2.3636	1.1715	1.6441	-0.0930
HH agricultural land Square	6.7268	42.3290	4.0599	9.5976	2.6669
Average length of migrant stay outside HH	2.2520	11.0225	26.0909	26.3835	-23.8389***
Household Shocks					
Business shutdown dummy	0.0000	0.0000	0.0057	0.0754	-0.0057
HH member loss wages dummy	0.0285	0.1666	0.0057	0.0754	0.0228*
Village fixed effect					
Poverty rate	0.1733	0.1007	0.1530	0.0933	0.0203***
Irrigation system dummy	0.4146	0.4937	0.3807	0.4869	0.0340
Provincial Dummy					
Siem Reap	0.3211	0.4679	0.3182	0.4671	0.0030
Banteay Menchey	0.3049	0.4613	0.3807	0.4869	-0.0758
Battambang	0.3740	0.4848	0.3011	0.4601	0.0728

*Note: The Wald test was performed to test the null hypothesis of equal means. *** p<0.01, ** p<0.05, * p<0.1.*

4.4 Results

This section summarises and discusses the main findings of the paper. First, we analyse and address the self-selection bias and identify factors motivating migrants to remit and the amount of remittances received by recipient households in Table 4.3. Second, we estimate the impacts of remittances on household debt performance and level of indebtedness, as presented in Table 4.4 and Table 4.5.

4.4.1 Motivations to Remit

Table 4.3 presents the estimated results of the two empirical models, the two-step Heckman selection and the two-stage least square (2SLS) model.

Two issues must be addressed. First, the results from Table 4.3 columns 1 and 2, show that the Inverse Mill's Ratio (λ_i) is statistically insignificant, suggesting that there is no evidence of self-selection bias issues present in our model. Secondly, the value of rho (ρ) is close to zero, implying that the correlation between the unobservable terms from the selected equation θ_i and the outcome equation u_i is not sufficiently large enough to validate the robustness and consistent estimates of the two-step Heckman selection model.

Therefore, we compare our results with the 2SLS estimation. The results suggest that the 2SLS model performs better than the two-step Heckman selection model as the model is estimated with robust standard errors and the adjusted R-square is 0.92. In addition, the instrumental variables satisfy the exclusion restriction and the statistical test of weak instruments. Therefore, the 2SLS model can be relied upon to assess factors motivating to remit and the amount of remittances households received.

In the 2SLS estimation result, the motivation to remit is driven by altruistic aspiration. Household economic conditions, such as the natural logarithm of household incomes and agricultural land, household dependency, and household adverse shock dummies have expected signs, statistically significant at 1 % and 5 % level. The results from column (4) show that household income has a significant negative effect on a migrant's likelihood to remit, consistent with the finding of Hunte (2004). As household incomes increase, migrants are more likely to reduce their propensity to send remittances. This is due to the fact that the household may not confront liquidity constraints or financial hardship. Household agricultural land and its quadratic term indicate a statistically significant and non-linear relationship with remittances. This result implies that as household agricultural land increases by one hectare, remittances increase by 8.49 %. The agricultural land quadratic term is negative, suggesting the transfer would decline if the household holds a certain threshold size of agricultural land. The household dependency ratio has a significant positive effect on the amount of remittances, showing that households tend to receive more transfers whenever households consist of a large proportion of non-earning family members. The last evidence to support the altruistic motive is the positive effect of household adverse shock on remittances. Migrants would send more remittances when their left-behind households experience or confront the adverse effects. A business shutdown shock was related to a remittance increase of 2.07 %.

Our empirical results also reveal evidence of the RDH. We gain insight into this with two sets of variables: 1) negative effect of household income and 2) the length of migrant stay outside the households. In column 4, the migrant's length of stay is positive and statistically associated with the amount of remittances. Its quadratic term is statistically significant and negative, implying a non-linear relationship. This finding may suggest that the longer migrants stay at their destination,

the more likely they are to access a stable job and income, and thus they are more likely to send remittances but decline over a period of time (Durand et al. 1996; Lim and Basnet 2017).

Based on the above findings confirming the remittance decay hypothesis, the receipt households tend to view remittances as transitory incomes. The evidence of the transitory income is also supported by the fact that Cambodian labour mobility is typically characterized by temporary and seasonal migration. As a result, there is a high likelihood of migrants returning home within a short period. If labour mobility falls into a short-term and seasonal category, remittances sent home can be uncertain and irregular in terms of frequency and amount. The recipient households thus channel remittances toward saving or investment instead of immediate consumption.

Table 4.3 *The Determinants of Remittances*

VARIABLES	Heckman Selection		Two-Stage Least Square (2SLS)	
	First Stage	Second Stage	First Stage	Second Stage
	Binary remittances (1)	Log Remittances HH received (2)	Binary remittances (3)	Log Remittances HH received (4)
Instrumental Variable (IV)	0.186**		0.0630***	
	(0.0794)		(0.0152)	
Binary Remittances				3.747***
				(0.571)
Household Head's Characteristics				
HH Head age	0.0199	0.0640	0.00634	0.0329
	(0.0515)	(0.0488)	(0.0128)	(0.0216)
Head age Square	-2.34e-05	-0.000636	-0.000032	-0.000318
	(0.000519)	(0.000481)	(0.00013)	(0.000239)
Head Female	0.319	0.189	0.03819	0.154
	(0.207)	(0.166)	(0.0410)	(0.0940)
Head Farmer	0.296	-0.325	0.07069	-0.123
	(0.241)	(0.203)	(0.04388)	(0.0968)
Head No Education	0.230	-0.328*	0.07383	-0.159
	(0.217)	(0.178)	(0.0511)	(0.104)
Household's Characteristics				
HH Rural Area	-0.128	-0.331	-0.0211	-0.0357
	(0.220)	(0.214)	(0.0428)	(0.0833)
Log Household Income	-0.103*	-0.104**	-0.0116	-0.0812***
	(0.0600)	(0.0440)	(0.0129)	(0.0285)
HH member below 15	0.0727	-0.0386	0.0077	0.0109
	(0.0920)	(0.0716)	(0.0153)	(0.0345)
HH member above 65	0.181	-0.170	0.0535	-0.0645
	(0.201)	(0.162)	(0.0499)	(0.0956)
HH Dependency Ratio	0.000970	0.00106	0.00027	0.000593**

Table 4.3 *The Determinants of Remittances*

VARIABLES	Heckman Selection		Two-Stage Least Square (2SLS)	
	First Stage	Second Stage	First Stage	Second Stage
	Binary remittances (1)	Log Remittances HH received (2)	Binary remittances (3)	Log Remittances HH received (4)
	(0.000858)	(0.000692)	(0.0002)	(0.000286)
Number of migrants per HH	0.0117	0.236**	-0.0112	0.252**
	(0.281)	(0.115)	(0.0386)	(0.111)
HH Formal borrowing	-0.108	0.0936	-0.0189	0.00251
	(0.211)	(0.170)	(0.0377)	(0.0884)
HH Informal borrowing	-0.621**	-0.566**	-0.1166*	-0.329**
	(0.260)	(0.284)	(0.0676)	(0.150)
Loan financing migration	0.0438	0.507**	0.02804	0.230
	(0.337)	(0.241)	(0.04291)	(0.149)
Migration network	0.802***	-0.130	0.1543***	0.0961
	(0.228)	(0.228)	(0.00429)	(0.109)
HH Agricultural Land (Hectare)	0.299**	0.295**	0.0225	0.0815**
	(0.146)	(0.141)	(0.0171)	(0.0332)
HH Agricultural land Square	-0.0332*	-0.0281	-0.00176**	-0.00345**
	(0.0193)	(0.0213)	(0.00071)	(0.00156)
Length of Stay (Months)	0.0251	0.0219*	0.00491	0.0229**
	(0.0188)	(0.0113)	(0.000359)	(0.00959)
Length of Stay Square	-0.000243	-0.000161	-5e-05	-0.000191**
	(0.000188)	(0.000111)	(3.35e-05)	(9.10e-05)
Household Shocks				
Business Shutdown Dummy	6.132	1.996**	0.06364***	2.071***
	(0)	(1.007)	(0.0750)	(0.409)
HH member loss wages Dummy	-1.785*	0.0748	-0.1589*	0.0748
	(1.077)	(1.000)	(0.0913)	(0.164)
Village Effect				
Village Poverty Rate	-1.778	-0.972	-0.3227	-0.122
	(2.056)	(1.823)	(0.4524)	(0.837)
Irrigation System Dummy	-0.0932	0.130	-0.0117	0.0357
	(0.216)	(0.192)	(0.042)	(0.0841)
Household Wealth Dummy	YES	YES	YES	YES
Provincial Dummy	YES	YES	YES	YES
Inverse Mills Ratio (λ_i)		0.0484		
		(0.307)		
Constant	-2.419*	2.840**	-0.215	-0.696
	(1.367)	(1.347)	0.3279	(0.519)
Observations	418	418	418	418
Rho	0.053			
Sigma	0.9023			
R-squared			0.5431	0.929
Prob > Chi2		0.0000	0.0000	0.0000

*Note: Instrumental variable: log[(Destination GDPPC*number of migrants)/(Total adults in household)]. An instrumental variable admissibility satisfies the Exclusion Restriction condition. Heckman selection model: Selected case: 174 and non-selected case: 244. Two stage least square First Stage F-test= 17.24, p-value=0.000; Household sampling weight applied based on Deaton (1987). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.*

Our finding contrasts to Vatana. Chea and Wongboonsin (2019), who examined education impact of remittances in Cambodia. They suggest that remittance-recipient households tend to view remittances as permanent income because migrant households utilise remittances for consumption instead of investment while our findings suggest transitory income of remittances. There is a key reason explaining the differences. Vatana. Chea and Wongboonsin (2019) used the Cambodian socio-economic survey data from 2009, when labour migration to and remittances sent from Thailand were stable. It is important to note that Thailand's immigration policy changes in 2014 and 2017 were significant turning points contributing to the change of Cambodian labour migration and remittances behaviour afterward. The Thai authorities launched a policy to crackdown on illegal migrants working in 2014 and 2017, leading to a mass movement of migrant workers while Cambodian irregular migrants were detained and deported. Therefore, the post-2014 immigration policy shift in Thailand increases the volatility of remittances sent home and labour mobility became more difficult afterwards, particularly for illegal migrant workers. Doing so profoundly created uncertainty among Cambodian migrant workers as well as the remittances sent to the recipient households. This finding also aligns with Bodvarsson and Van den Berg (2013) suggesting that a shift in immigration policy at the destination country tends to influence migration decisions in terms of migration channel and period of time and the benefits a migrant receives and remittances sent home. The transitory income of remittances found in our study may link to those temporary and seasonal Cambodian migrant workers. The frequency and amount of remittances thus could be unexpected and irregular. Consequently, this would lead to a change in both recipient household's expectation of remittances and the utilisation of remittances that tend to shift toward transitory incomes.

Finally, migration network remains a vital determinant explaining the motivation to remit, a finding that is consistent with Anzoategui, Demirgüç-Kunt, and Martínez Pería (2014). However, there is no evidence suggesting that the amount of remittances migrants sent from abroad increases with the migration networks that households have. Also, there is no statistically significant relationship between remittances and formal household borrowings after a family member migrated. Households with informal borrowings, however, are less likely to receive remittances.

4.4.2 Debt Performance Impacts of Remittances

Table 4.4 presents the estimation results for the impact of remittances on household debt performance, categorized as low, medium, and high debt performance. The predicted value of remittances from equation (3) is substituted into equations (4) and (5). The results show that remittances positively and significantly impact household debt performances across various estimated models in columns 2–4 and 7 in Table 4.4.

Estimated models in columns 2–3 in Table 4.4 show consistent results across covariates including household characteristics and household experiences with adverse shock events. The estimation results show that the estimated coefficients on remittances are positive and statistically significant at 1% level, suggesting that increasing remittances by 10% would lead to a 1% increase in household debt performance. As remittances tend to be transitory income commonly sent by temporary labour migrants (Modigliani and Ando 1957; Lucas and Stark 1985), remittances are commonly invested in productive assets to generate income.

The natural logarithm of household income effect indicates positive and statistically significant at 1% level, suggesting that households with sufficient and stable income can secure their loan repayments and ensure their consumption level exceeds the sustainable level. Additionally, it

appears to allow households to achieve better debt performance. Results from columns 2 and 3 in Table 4.4 also suggest that having household family members aged below 15 and above 65 is likely to hamper debt performance because they often do not contribute to household income. Households with a higher number of working-age adults (aged 15–65) had a higher likelihood of decreasing in debt performance. This result is consistent with the life-cycle hypothesis which predicts that in the early stages of working life, households take out more loans to smooth consumption (Modigliani, 1966). This hypothesis is also confirmed by the number of loans households took out. In model 2 and 3 of Table 4.4, on average, the addition of one loan per household decreased household debt performance by 0.161 and 0.159, respectively. This finding is consistent with prior research such as Guha and Chowdhury (2013) who suggested that multiple loans represent inefficient use of credit and a predominance of loan utilization for consumption. This subsequently leads to over-indebtedness and reduces the ability to repay debts.

Table 4.4 *Impacts of Remittances on Household Debt Performance*

VARIABLES	Model	Model	Model	Log (Low Debt Performance)	Log(Medium Debt Performance)	Log(High Debt Performance)	Full Sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\widehat{Remittances}$	0.0242	0.102***	0.102***	0.0728***	-0.00231	-0.00231	0.103***
	(0.0155)	(0.0107)	(0.0112)	(0.0140)	(0.00745)	(0.00745)	(0.0121)
HH Head Characteristics							
HH Head age	0.0227			-0.0197	0.00978	0.00978	-0.00339
	(0.0185)			(0.0162)	(0.00711)	(0.00711)	(0.0170)
Head age Square	-0.000262			0.000188	-0.000102	-0.000102	4.55e-05
	(0.000190)			(0.000158)	(7.58e-05)	(7.58e-05)	(0.000186)
Head Female	-0.0677			-0.00506	0.0271	0.0271	0.0229
	(0.0921)			(0.0609)	(0.0318)	(0.0318)	(0.0664)
Head Farmer	-0.188*			-0.0238	-0.0263	-0.0263	-0.117*
	(0.0969)			(0.0625)	(0.0319)	(0.0319)	(0.0632)
Head No Education	0.00516			-0.101	-0.0173	-0.0173	-0.179***
	(0.0762)			(0.0740)	(0.0312)	(0.0312)	(0.0616)
Household Characteristics							
HH Rural Area		0.134***	0.133**	0.0777	0.0212	0.0212	0.161***
		(0.0496)	(0.0548)	(0.0780)	(0.0259)	(0.0259)	(0.0548)
Log Household Income		0.299***	0.299***	0.133***	0.0462***	0.0462***	0.295***
		(0.0245)	(0.0248)	(0.0240)	(0.0121)	(0.0121)	(0.0243)
HH Poor ID		-0.0631	-0.0623	-0.0493	0.0447	0.0447	-0.0545
		(0.0582)	(0.0589)	(0.0646)	(0.0301)	(0.0301)	(0.0578)
HH members below 15		-0.0855***	-0.0854***	-0.00154	-0.00188	-0.00188	-0.0821***
		(0.0200)	(0.0201)	(0.0230)	(0.0116)	(0.0116)	(0.0201)
HH members above 65		-0.0941**	-0.0931**	-0.0629	0.0301	0.0301	-0.112*
		(0.0428)	(0.0437)	(0.0707)	(0.0301)	(0.0301)	(0.0638)
HH members 15–65		-0.109***	-0.109***	0.00579	-0.0255**	-0.0255**	-0.105***
		(0.0188)	(0.0189)	(0.0231)	(0.0102)	(0.0102)	(0.0192)
HH Dependency Ratio		-0.000315	-0.000316	6.62e-05	-0.000135	-0.000135	-0.000445**
		(0.000195)	(0.000196)	(0.000184)	(0.000134)	(0.000134)	(0.000203)
Numbers of Loans per HH		-0.161***	-0.159***	-0.157***	0.00936	0.00936	-0.157***
		0.0469)	(0.0480)	(0.0468)	(0.0227)	(0.0227)	(0.0472)
Agricultural Land (Hectare)		-0.0343	-0.0340	-0.0168	0.00188	0.00188	-0.00602
		(0.0217)	(0.0223)	(0.0694)	(0.0153)	(0.0153)	(0.0232)
Agricultural Land (Square)		0.00245***	0.00244***	-0.00527	-0.00102	-0.00102	0.00164*
		(0.000911)	(0.000936)	(0.0117)	(0.00131)	(0.00131)	(0.000972)
Village Fixed Effect							
Irrigation System Dummy			0.00990	0.0489	-0.00257	-0.00257	0.0159

VARIABLES	Model	Model	Model	Log (Low Debt Performance)	Log(Medium Debt Performance)	Log(High Debt Performance)	Full Sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			(0.0585)	(0.0595)	(0.0288)	(0.0288)	(0.0577)
Village Poverty Rate			0.0370	0.687	0.0285	0.0285	-0.105
			(0.582)	(0.686)	(0.309)	(0.309)	(0.578)
Household Shock After Members Migrate							
Crop failure			0.00559	0.113	0.0692	0.0692	0.0268
			(0.106)	(0.144)	(0.0582)	(0.0582)	(0.106)
Crop damage due to flood			-0.123	0.0615	-0.162***	-0.162***	-0.0949
			(0.145)	(0.143)	(0.0462)	(0.0462)	(0.172)
Business shutdown			-0.0264	-	-	-	0.0664
			(0.0955)				(0.104)
Provincial dummies	YES	YES	YES	YES	YES	YES	YES
var(e.lndd1)	0.438***	0.224***	0.224***	0.0892***	0.0154***	0.0154***	0.217***
	(0.0399)	(0.0241)	(0.0241)	(0.0142)	(0.00129)	(0.00129)	(0.0240)
Constant	1.056**	0.203	0.190	0.449	1.066***	1.066***	0.350
	(0.428)	(0.143)	(0.220)	(0.428)	(0.189)	(0.189)	(0.410)
Observations	418	418	418	153	136	136	418

*Note: Low Debt Performance: 0 to less 2.5; Medium Debt Performance: 2.5 to less than 4.5; and High Debt Performance: 4.5 and Above. Household sampling weight applied based on Deaton (1987). Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Although the estimation results do not provide strong evidence of how household agricultural landholdings impact on household debt performance, the agricultural land's quadratic term suggests a non-linear relationship between remittances and agricultural land a household possesses. The agricultural land may be used, initially, as collateral to obtain loans that could deter household debt performance. However, as the agricultural land quadratic term suggest, this relationship becomes positive, implying that households having more land leads to higher outputs generating household income which can then be used to repay debts.

We divided the level of household debt performance into low, medium, and high and assessed how remittances affected debt performance at different clusters. Doing so allows us to understand how remittances impact different subsets of household debt performance. Results from columns 4–7 in Table 4.4 show that remittances appear to significantly affect only low debt performance. Households with low debt performance have a high debt burden (0–2.5 level of debt performance), slightly above the sustainable level compared to their household counterparts. On average, a 1% increase in remittances leads to a 0.072 % increase in debt performance among low debt performance households, but there is no significant effect of remittances on medium and high debt performance households. This implies that remittances play an important role in reducing household financial burden from being indebted and reduce the likelihood of being over-indebtedness.

We find a consistent effect of household income across all different levels of household debt performance. The results show that higher income levels positively enhance household debt performance. The household dependency ratio is negatively associated with household debt performance, suggesting that the high number of non-generating household incomes may increase the severity of household debt and may trigger a debt trap. Additionally, households with a higher

number of loans have lower debt performance. This analysis shows that on average, each additional loan taken by a household causes a 0.157 % decline in its debt performance. The effect of a household's agricultural land area appears to be statistically insignificant, yet its quadratic term indicates a strongly positive association.

4.4.3 Household Indebtedness Impacts of Remittances

Finally, Table 4.5 presents the estimation results of remittances' impact on household indebtedness. Our empirical estimations show that remittances are negatively and significantly and consistently impact household indebtedness in all models from columns 1 to 4. The results show that 1% increases in remittances received by a household, there is 0.104–0.175 reduction in household indebtedness, respectively. As expected, the result shows that households are less likely to be prone to a higher level of indebtedness when household income increases.

We continue to find that the number of working-age members of households is essential in lowering in household indebtedness as they generate household income, as the life-cycle hypothesis predicted. Column 5 shows that when household increases by one working-age member (15-65) who generates income, the level of household indebtedness declines by 0.13 %, holding other factors constant. The number of loans taken by households remains a crucial determinant in increasing household level of indebtedness.

Table 4.5 *Impacts of Remittances on Household Indebtedness*

VARIABLES	Model (1)	Model (2)	Model (3)	Full Samples (4)
$\widehat{Remittances}$	-0.104**	-0.147***	-0.145***	-0.175***
	(0.0408)	(0.0447)	(0.0496)	(0.0532)
HH Head Characteristics				
HH Head age	0.0236			0.0861
	(0.0477)			(0.0530)
Head age Square	-8.88e-05			-0.000743
	(0.000488)			(0.000556)
Head Female	0.507**			0.257
	(0.232)			(0.201)
Head Farmer	0.266			0.221
	(0.236)			(0.218)
Head No Education	0.235			0.238
	(0.191)			(0.246)
Household Characteristics				
HH Rural Area		-0.0927	-0.113	-0.194
		(0.204)	(0.191)	(0.187)
Log Household Income		-0.334***	-0.335***	-0.281***
		(0.0780)	(0.0793)	(0.0746)
HH Poor ID		0.171	0.184	0.0419
		(0.207)	(0.207)	(0.200)
HH members below 15		-0.00866	-0.000771	0.0431
		(0.0655)	(0.0678)	(0.0666)
HH members above 65		0.156	0.155	0.122
		(0.177)	(0.180)	(0.215)
HH members 15-65		-0.0830*	-0.0823*	-0.130**
		(0.0498)	(0.0492)	(0.0515)
Numbers of Loans per HH		0.238**	0.231**	0.179
		(0.112)	(0.115)	(0.109)
Dependency Ratio		0.000181	9.65e-05	-0.000128
		(0.000911)	(0.000941)	(0.000912)
Agricultural Land (Hectare)		-0.107	-0.104	-0.133
		(0.101)	(0.110)	(0.146)
Agricultural Land (Square)		0.0345**	0.0337**	0.0339*
		(0.0145)	(0.0151)	(0.0196)
Village Characteristics				
Irrigation System Dummy			-0.00594	0.00634
			(0.210)	(0.212)
Village Poverty Rate			0.682	0.291
			(2.045)	(2.120)
Household Shock After Members Migrate				
Crop failure			0.219	0.0867
			(0.375)	(0.342)
Crop damage due to flood			-0.300	-0.445
			(0.442)	(0.543)
Business shutdown			0.228	0.0924
			(0.333)	(0.400)
Provincial dummies	YES	YES	YES	YES
var(e.lndd3)	1.174***	0.950***	0.949***	0.884***
	(0.248)	(0.193)	(0.194)	(0.176)
Constant	-0.594	2.536***	2.352**	0.0438
	(1.045)	(0.654)	(0.961)	(1.359)
Observations	169	169	169	169

Note: Household sampling weight applied based on Deaton (1987). Robust standard errors in parentheses.

*Level of household indebtedness is in log form. *** p<0.01, ** p<0.05, * p<0.1*

Though a household's agricultural land area indicates an insignificant negative effect on indebtedness, its quadratic term of the size of agricultural land is positive and a significant effect across all models in Table 4.5. This result may suggest that households could first possess a sufficient size of agricultural land that yields sufficient outputs and income with which to repay loans. As households obtain a greater size of agricultural land, a household would choose to use their land as collateral to secure borrowings; therefore, as debt accumulates, households increase their level of indebtedness. Finally, there is no evidence suggesting that village characteristics and household adverse events influence the household level of indebtedness.

4.5 Conclusion

The impact of remittances on development outcomes in recipient economies has received attention from many researchers and policymakers. In developing countries, however, household indebtedness remains problematic, requiring attention since it could amplify financial fragility. Unlike previous studies on remittances, we explore the effect of remittances on household indebtedness and debt performance. Two critical questions are asked in this chapter. First, what are the determinants of remittance inflows to Cambodian recipient households? Second, to what extent do remittances impact on household debt performance and level of indebtedness? To answer these questions, we first employ the Two-Step Heckman Selection Model and the Two-Stage Least Square regression to determine the motivation to remit. After instrumenting, the Tobit model is then used to estimate the impact of remittances on household debt performance and level of household indebtedness.

The estimated results show that remittance inflows are motivated by the altruistic aspiration that links the left-behind household economic conditions. Notably, Cambodian labour migration tends to be temporary and seasonal. The evidence suggests that remittance-receiving households view

remittances as transitory income that may decay over time as a migrant's length of stay outside the household increases. After instrumenting, remittances are found to have a positive and statistically significant effect on enhancing household debt performance. The estimation remains consistent at the aggregate household level. It shows that a 10 % increase in remittance inflows to the recipient household leads to a 0.103 improvement in household debt performance. Similarly, a 1 % increase in remittance inflows to the recipient household reduces the household level of indebtedness by 0.17 .

Our empirical results have policy implications and are suggestive of further research. Given the importance of remittances as an external source of income that reduces household debt and as remittances sent to left-behind households are not always sufficiently large, policy initiatives maximising remittances received by the receipt households should be endorsed. This can be done through promoting a wide range of transfer options in both sending and receiving countries. Providing a variety of transfer options and channels can also encourage the use of formal remitting channels and transaction fee reduction. Consequently, it can leverage household benefits from remittances. However, policy direction that aims to promote the use of formal remitting options in sending and receiving remittances should also evaluate migrants' and households' financial literacy. To do so requires further research. Therefore, more research is needed to determine mechanisms that could induce household technology adaptation, financial literacy, and remittances, particularly in the global south migration.

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Notes

(1) From a standard approach, the New Economic of Labour Migration (NELM) theoretical model is often used as a benchmark theoretical model to answer motivation to remit. Remittances being transmitted to households come in various forms such as (1) the pure altruism, (2) the pure self-interest, and (3) the tempered altruism or enlightened self-interest including risk sharing, loan repayment, and exchange behaviour (Lucas and Stark 1985; Carling 2008; Vanwey 2004). Other motivations include as loan repayment (Poirine 1997; Rapoport and Docquier 2006), risk-sharing (Yang and Choi 2007), and exchange behaviours (Rapoport and Docquier 2006).

(2) According to Modigliani and Ando (1957), the LCH explains that households maximize their utility function over the life-cycle. Households thus smooth their consumption pattern based on their lifetime income expectation. As in the early periods, households would decide to smooth their consumption from debt, and then households pay off their debt as income increases in the later period.

(3) The PIH is embedded in the LCH of consumption (Friedman 1957). This hypothesis suggests that current household consumption is based on future and permanent income levels as borrowing and saving levels may change throughout time.

(4) The total share of household debt to GDP in Thailand is 69 percent, Malaysia 68 percent, Singapore 57 percent, and Indonesia 17% (Chantarat et al. 2020).

(5) According to Liv (2013, p. 11-12), the objective measure determines the "a borrower to be over-indebtedness when his/her debt service is higher than his/her net income during a defined timeframe.

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4.7 Appendix

Table A.1. *The Polychoric PCA*

	Appropriateness of the Polychoric PCA
The determinant of the Correlation Matrix	0.367
Bartlett test of sphericity	
Chi-square	415.74
Degree of freedom	105
P-value	0.000
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy	0.633

Note: The Bartlett test of Sphericity indicates a small p-value suggesting a correlation matrix is suitable for factor analysis. The KMO test of sampling adequacy shows the statistical value is 0.633, which is above the threshold of 0.5, underlying a valid evidence to proceed with the factor analysis and suggest appropriateness to construct household wealth index with Polychoric PCA.
Source: Author's calculation

Table A.2. *Weak Instrumental Variable Robust Test*

Test	Statistics		P-Value	Conf. Level	Confidence interval	
AR	Chi2(1)	9.18	0.0024	95%	2.36665	4.9915
Wald	Chi2(1)	42.99	0.0000	95%	2.62681	4.867004

Note: This test uses the Lagrange Multiplier approach based on Kleibergen–Paap Test for weak instruments (Pflueger & Wang, 2015). The null hypothesis is that our instrumental variable is weak. Table A2 shows that AR and Wald tests indicate the chi-square statistics are 9.18 (AR test) and 42.99 (Wald Test) and the P-values are statistically significantly different from zero. Therefore, we reject the null hypothesis; we do not have enough evidence to suggest our selected instrument is not weak.
Source: Author's calculation

Table A.3. *The Test of Exclusion Restrictions*

VARIABLES	(1) Binary Remittances	(2) Binary Remittances	(3) Binary Remittances	(4) Amount of Remittances
Binary Remittances				4.287***
				(0.173)
Instrumental Variable	0.0769***	0.0634***	0.0632***	-0.0351
	(0.00451)	(0.0152)	(0.0152)	(0.0386)
HH Head age	-0.00239		0.00672	0.0303
	(0.0117)		(0.0128)	(0.0213)
Head age Square	7.21e-05		-3.42e-05	-0.000305
	(0.000121)		(0.000138)	(0.000236)
Head Female	0.0414		0.0309	0.131
	(0.0401)		(0.0407)	(0.0834)
Head Farmer	0.107***		0.0751*	-0.137
	(0.0382)		(0.0439)	(0.0929)
Head No Education	0.0284		0.0699	-0.202*
	(0.0488)		(0.0510)	(0.106)
HH Rural Area		-0.00713	-0.0212	-0.0139
		(0.0427)	(0.0426)	(0.0876)
Log Household Income		-0.0188	-0.0120	-0.0753***
		(0.0128)	(0.0129)	(0.0256)
HH member below 15		0.00205	0.00764	0.00525
		(0.0159)	(0.0153)	(0.0349)
HH member above 65		0.0861**	0.0538	-0.0814
		(0.0351)	(0.0499)	(0.0948)
HH Dependency Ratio		0.000272	0.000292	0.000503
		(0.000200)	(0.000200)	(0.000317)
Number of migrants per HH		-0.00798	-0.0156	0.257**
		(0.0381)	(0.0386)	(0.119)
HH Formal borrowing		-0.0166	-0.0133	0.0329
		(0.0385)	(0.0379)	(0.0874)
HH Informal borrowing		-0.120*	-0.118*	-0.265**
		(0.0687)	(0.0673)	(0.130)
Loan financing migration		0.0217	0.0277	0.207
		(0.0815)	(0.0774)	(0.129)
Network effect		0.143***	0.156***	0.0139
		(0.0434)	(0.0426)	(0.0793)
HH Agricultural Land (Hectare)		0.0325**	0.0225	0.0668**
		(0.0163)	(0.0171)	(0.0305)
HH Agricultural land Square		-0.00204***	-0.00177**	-0.00248*
		(0.000721)	(0.000713)	(0.00126)
Length of Stay (Months)		0.00508	0.00516	0.0200***
		(0.00346)	(0.00356)	(0.00768)
Length of Stay Square		-4.74e-05	-5.13e-05	-0.000162**
		(3.30e-05)	(3.33e-05)	(7.24e-05)
Poverty rate		-0.393	-0.373	0.0339
		(0.457)	(0.449)	(0.845)
Irrigation System		-0.0186	-0.0125	0.0362
		(0.0425)	(0.0419)	(0.0819)
Household Wealth Dummy		YES	YES	YES
Provincial Dummy		YES	YES	YES
Constant	0.0121	0.0960	-0.220	-0.608
	(0.278)	(0.188)	(0.326)	(0.554)
Observations	422	418	418	418
R-squared	0.490	0.522	0.538	0.932

*Note: Household sampling weight was applied based on Deaton (1987). Robust standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1*

Table A.4. *Determinants of Remittances (Binary Endogenous Treatment Effects)*

VARIABLES	Maximum Likelihood Estimation		Two-Step Estimation	
	First Stage (1)	Second Stage (2)	First Stage (3)	Second Stage (4)
	Binary Remittances	Log amount Remittances	Binary Remittances	Log amount Remittances
Instrumental Variable	0.207***		0.187**	
	(0.0727)		(0.0785)	
Remittances (Binary)		4.222***		4.104***
		(0.181)		(0.313)
HH Head age	0.0361	0.0313	0.0198	0.0293
	(0.0529)	(0.0204)	(0.0512)	(0.0198)
Head age Square	-0.000197	-0.000313	-1.35e-05	-0.000290
	(0.000550)	(0.000227)	(0.000516)	(0.000204)
Head Female	0.223	0.137	0.265	0.126
	(0.193)	(0.0837)	(0.204)	(0.0772)
Head Farmer	0.341	-0.133	0.315	-0.132
	(0.221)	(0.0902)	(0.237)	(0.0901)
Head No Education	0.283	-0.200**	0.199	-0.180**
	(0.234)	(0.102)	(0.216)	(0.0862)
HH Rural Area	-0.0902	-0.0136	-0.133	-0.0197
	(0.204)	(0.0842)	(0.219)	(0.0834)
Log Household Income	-0.0809	-0.0709***	-0.102*	-0.0708***
	(0.0595)	(0.0237)	(0.0598)	(0.0230)
HH member below 15	0.0518	0.00913	0.0687	0.00546
	(0.0729)	(0.0359)	(0.0915)	(0.0333)
HH member above 65	0.174	-0.0745	0.147	-0.0931
	(0.198)	(0.0902)	(0.197)	(0.0808)
HH Dependency Ratio	0.00122	0.000515*	0.00101	0.000596*
	(0.000858)	(0.000301)	(0.000844)	(0.000334)
Number of migrants per HH	-0.0379	0.173**	-0.0144	0.179**
	(0.205)	(0.0706)	(0.278)	(0.0704)
HH Formal borrowing	-0.0195	0.0275	-0.0669	0.0363
	(0.193)	(0.0879)	(0.206)	(0.0756)
HH Informal borrowing	-0.499*	-0.284**	-0.608**	-0.258**
	(0.282)	(0.133)	(0.257)	(0.109)
Loan financing migration	0.0638	0.199	0.0556	0.218*
	(0.314)	(0.125)	(0.334)	(0.131)
Network effect	0.791***	0.0230	0.800***	0.0263
	(0.226)	(0.0741)	(0.225)	(0.0948)
HH Agricultural Land (Hectare)	0.279**	0.0697**	0.304**	0.0773**
	(0.133)	(0.0297)	(0.145)	(0.0346)
HH Agricultural land Square	-0.0331**	-0.00264**	-0.0340*	-0.00304
	(0.0158)	(0.00122)	(0.0193)	(0.00193)
Length of Stay (Months)	0.0223	0.0164**	0.0267	0.0216***
	(0.0183)	(0.00648)	(0.0188)	(0.00693)
Length of Stay Square	-0.000231	-0.000133**	-0.000255	-0.000182***
	(0.000165)	(6.30e-05)	(0.000186)	(6.95e-05)
Village Poverty Rate	-1.967	0.0962	-1.843	-0.262
	(1.967)	(0.808)	(2.033)	(0.811)

Irrigation System Dummy	-0.132	0.0368	-0.114	0.0170
	(0.200)	(0.0800)	(0.214)	(0.0813)
Household Wealth Dummies	YES	YES	YES	YES
Provincial Dummies	YES	YES	YES	YES
Constant	-2.925**	-0.698	-2.392*	
	(1.476)	(0.519)	(1.363)	
Observations	418	418	418	418
athrho		0.0365		
		(0.0729)		
lnsigma		-0.441***		
		(0.0729)		
lambda				0.0715
				(0.181)
Wald Chi2		7648.23		4007.95
Prob > Chi2		0.0000		0.0000

*Note: Household sampling weight was applied based on Deaton (1987) in Columns 1 and 2. Robust standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1*

Table A.5. *Impacts of Remittances on Housheold Debt Performances (IV-TOBIT)*

VARIABLES	Model (1)		Model (2)		Model (3)		Model (4)	
	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
Remittances		0.0401		0.597***		0.602***		0.606***
		(0.111)		(0.0807)		(0.0834)		(0.0898)
HH Rural Area			0.00290	0.131**	0.0175	0.122**	0.00470	0.154***
			(0.0381)	(0.0511)	(0.0410)	(0.0567)	(0.0405)	(0.0563)
Log Household Income			-0.00806	0.298***	-0.00952	0.298***	-0.00274	0.292***
			(0.0128)	(0.0239)	(0.0132)	(0.0241)	(0.0136)	(0.0238)
HH PoorID			0.0673	-0.0804	0.0691	-0.0793	0.0616	-0.0702
			(0.0478)	(0.0597)	(0.0473)	(0.0603)	(0.0482)	(0.0589)
HH members below 15			0.00789	-0.0862***	0.00710	-0.0857***	0.0103	-0.0821***
			(0.0146)	(0.0211)	(0.0145)	(0.0212)	(0.0144)	(0.0211)
HH members above 65			0.0966***	-0.121***	0.0940***	-0.120***	0.0675	-0.130**
			(0.0353)	(0.0443)	(0.0354)	(0.0453)	(0.0496)	(0.0639)
HH members 15-65			-0.0382	-0.163***	-0.0378	-0.163***	-0.0333	-0.161***
			(0.0248)	(0.0483)	(0.0248)	(0.0492)	(0.0243)	(0.0477)
Dependency Ratio			-0.00804	-0.106***	-0.00590	-0.106***	-0.0110	-0.100***
			(0.0138)	(0.0191)	(0.0141)	(0.0192)	(0.0140)	(0.0196)
Numbers of Loans per HH			0.000212	-0.000293	0.000207	-0.000300	0.000248	-0.000449**
			(0.000199)	(0.000210)	(0.000197)	(0.000211)	(0.000198)	(0.000217)
Agricultural Land (Hectare)			0.0520***	-0.0355	0.0495***	-0.0347	0.0323**	-0.00161
			(0.0141)	(0.0225)	(0.0148)	(0.0230)	(0.0157)	(0.0236)
Agricultural Land (Square)			-0.00270***	0.00261***	-0.0025***	0.00257***	-0.00194***	0.00164*
			(0.000664)	(0.000960)	(0.000678)	(0.000985)	(0.000665)	(0.000996)
HH Head age	-0.00239	0.0240					0.00770	-0.00204
	(0.0116)	(0.0186)					(0.0135)	(0.0168)
Head age Square	7.21e-05	-0.000268					-4.66e-05	2.66e-05
	(0.000120)	(0.000192)					(0.000144)	(0.000182)
Head Female	0.0414	-0.0561					0.0320	0.0376
	(0.0397)	(0.0920)					(0.0394)	(0.0663)
Head Farmer	0.0284	-0.191**					0.0266	-0.149**
	(0.0483)	(0.0958)					(0.0482)	(0.0631)
Head No Education	0.107***	0.0113					0.0949**	-0.207***
	(0.0379)	(0.0760)					(0.0417)	(0.0647)
Irrigation System					-0.0115	0.0200	-0.00928	0.0277
					(0.0408)	(0.0600)	(0.0403)	(0.0589)
Poverty					-0.538	0.257	-0.558	0.0823

VARIABLES	Model (1)		Model (2)		Model (3)		Model (4)	
	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
					(0.435)	(0.607)	(0.426)	(0.599)
HH Crop Fail					-0.0821	0.0288	-0.0898	0.0532
					(0.0800)	(0.109)	(0.0761)	(0.108)
HH Crop damage due to flood					0.197	-0.178	0.172	-0.138
					(0.301)	(0.182)	(0.269)	(0.194)
Business Shutdown					0.764***	0.0530	0.680***	0.168
					(0.0615)	(0.0966)	(0.0692)	(0.105)
Instrumental Variable	0.0769***		0.0756***		0.0753***		0.0734***	
	(0.00446)		(0.00505)		(0.00520)		(0.00530)	
Provincial Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Constant	0.00295	1.028**	0.0623	0.167	0.205	0.0960	-0.0991	0.260
	(0.265)	(0.430)	(0.104)	(0.141)	(0.169)	(0.223)	(0.320)	(0.412)
athrho2_1	0.120		-0.196***		-0.198***		-0.189***	
	(0.0751)		(0.0701)		(0.0708)		(0.0719)	
lnsigma1	-0.417***		-0.725***		-0.725***		-0.746***	
	(0.0457)		(0.0550)		(0.0553)		(0.0577)	
lnsigma2	-1.055***		-1.065***		-1.075***		-1.088***	
	(0.0465)		(0.0466)		(0.0469)		(0.0458)	
F- Statistics		279.29		224.22		209.64		191.60
Observations	422	422	418	418	418	418		

*Note: Household sampling weight applied based on Deaton (1987). Robust standard errors in parentheses, Instrumental variable: log[(Destination GDPPC*number of migrants)/(Total adults in the household)]. *** p<0.01 ** p<0.05, * p<0.1*

Table A.6. *Impacts of Remittances on Household Indebtedness (IVTOBIT)*

VARIABLES	Model (1)		Model (2)		Model (3)		Model (4)	
	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
Remittance		-0.518		-1.153***		-1.157***		-1.288***
		(0.328)		(0.397)		(0.422)		(0.421)
HH Head age	-0.0149	0.0159					0.00293	0.0820
	(0.0164)	(0.0467)					(0.0199)	(0.0556)
HH Head age Square	0.000215	-1.46e-05					1.83e-05	-0.000681
	(0.000164)	(0.000473)					(0.000212)	(0.000578)
Head Female	0.151**	0.495**					0.168***	0.318
	(0.0660)	(0.235)					(0.0617)	(0.200)
Head No Education	-0.0109	0.300					-0.0330	0.283
	(0.0785)	(0.238)					(0.0777)	(0.230)
Head Farmer	0.173***	0.227					0.0781	0.308
	(0.0630)	(0.189)					(0.0789)	(0.251)
HH Rural Area			-0.0417	-0.0797	-0.0141	-0.0606	-0.0175	-0.156
			(0.0626)	(0.203)	(0.0654)	(0.197)	(0.0687)	(0.196)
Log Household Income			-0.0204	-0.358***	-0.0228	-0.359***	0.00307	-0.285***
			(0.0227)	(0.0822)	(0.0223)	(0.0839)	(0.0250)	(0.0741)
HH PoorID			0.115	0.273	0.105	0.271	0.0670	0.104
			(0.0764)	(0.223)	(0.0754)	(0.218)	(0.0767)	(0.199)
HH members below 15			0.0140	-0.0126	0.0142	-0.00834	0.0232	0.0385
			(0.0244)	(0.0697)	(0.0234)	(0.0724)	(0.0239)	(0.0714)
HH members above 65			0.108*	0.254	0.101*	0.255	0.0588	0.190
			(0.0611)	(0.183)	(0.0599)	(0.185)	(0.0803)	(0.229)
HH members 15-65			-0.0149	0.242**	-0.0115	0.236*	-0.0196	0.170
			(0.0284)	(0.123)	(0.0286)	(0.125)	(0.0329)	(0.119)
Dependency Ratio			-0.0174	-0.0914*	-0.0136	-0.0905*	-0.0195	-0.143**
			(0.0209)	(0.0523)	(0.0210)	(0.0518)	(0.0211)	(0.0566)
Numbers of Loans per HH			6.79e-05	0.000285	2.66e-05	0.000238	-8.47e-07	-1.93e-05
			(0.000347)	(0.000895)	(0.000330)	(0.000939)	(0.000314)	(0.000908)
Agricultural Land (Hectare)			0.135***	-0.0441	0.111**	-0.0484	0.0936*	-0.0951
			(0.0429)	(0.113)	(0.0450)	(0.123)	(0.0504)	(0.154)
Agricultural Land (Square)			-0.0138**	0.0277*	-0.0114**	0.0274*	-0.0105*	0.0286
			(0.00543)	(0.0148)	(0.00546)	(0.0157)	(0.00579)	(0.0202)
Irrigation System					-0.0654	-0.0743	-0.0444	-0.0591
					(0.0724)	(0.215)	(0.0728)	(0.217)
Poverty rate					-1.220	-0.508	-1.332*	-0.854
					(0.751)	(2.146)	(0.756)	(2.234)

VARIABLES	Model (1)		Model (2)		Model (3)		Model (4)	
	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
HH Crop Fail					0.000982	0.149	-0.0212	0.0123
					(0.141)	(0.378)	(0.146)	(0.354)
HH Crop damage due to flood					0.126	-0.257	0.121	-0.412
					(0.297)	(0.293)	(0.233)	(0.427)
Business shutdown					0.726***	0.207	0.672***	0.00906
					(0.108)	(0.355)	(0.104)	(0.392)
Provincial Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Instrumental Variable	0.0653***		0.0650***		0.0648***		0.0639***	
	(0.00785)		(0.00902)		(0.00904)		(0.00895)	
Constant	0.183	-0.406	0.151	2.715***	0.497*	2.866***	0.174	0.487
	(0.388)	(1.026)	(0.211)	(0.651)	(0.301)	(0.993)	(0.466)	(1.355)
athrho2_1	-0.0481		0.232		0.235		0.245*	
	(0.115)		(0.143)		(0.145)		(0.141)	
lnsigma1	0.0690		-0.00949		-0.0101		-0.0420	
	(0.105)		(0.107)		(0.108)		(0.104)	
lnsigma2	-1.046***		-1.043***		-1.067***		-1.100***	
	(0.0656)		(0.0659)		(0.0681)		(0.0664)	
F- Statistics		69.25		51.85		51.37		50.87
Observations	171	171	169	169	169	169	169	169

*Note: Household sampling weight was applied based on Deaton (1987). Robust standard errors in parentheses, Instrumental variable: log[(Destination GDPPC*number of migrants)/(Total adults in the household)]. *** p<0.01 ** p<0.05, * p<0.1*

Deaton, A. (1997). *The analysis of household surveys: a microeconometric approach to development policy*: The World Bank.

CHAPTER 5
RETHINKING THE LABOUR RECRUITMENT PRACTICES AND DEBT-RELATED MIGRATION: CAMBODIA-THAILAND LABOUR MIGRATION AMIDST THE GLOBAL PANDEMIC

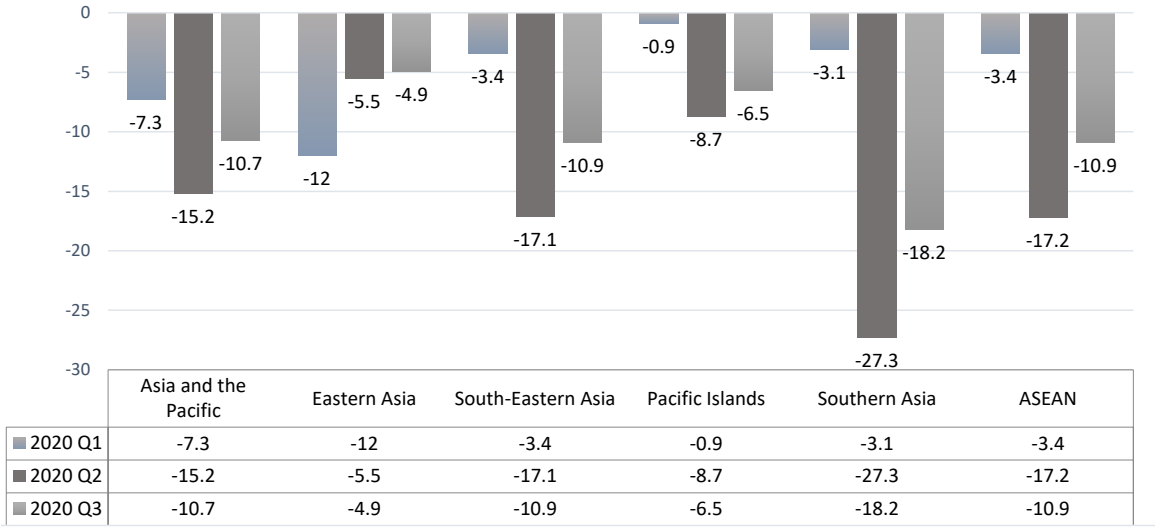
5.1 Introduction

Since the COVID-19 global pandemic breakout in 2020, societies and economies around the globe have experienced an unprecedented path of development. Containment strategies instituted by governments, such as lockdowns, social distancing, and travel restrictions, have resulted in profound economic disruption. Millions of workers have been facing reductions in working hour or losing their employment. Not only has the COVID-19 shown a significant shift in their current employment, but it has also negatively impacted current likelihoods, increasing global inequality, and thereby undermining efforts to achieve the Sustainable Development Goals (SDGs) by 2030.

The International Labour Organisation (ILO) estimates that over 144 million workers would lose their jobs in 2020, resulting in a 6.5 percent rise in the worldwide unemployment rate (ILO 2020d). It is almost four times the magnitude of the 2008 global financial crisis (ILO 2020d). Global working hours decreased by 8.8% from 2019 levels, equating to a loss of 255 million full-time jobs. As a result, this employment deprivation cost the world economy USD 3.7 trillion, or 4.4 percent of global GDP. In Asia alone, incomes fell by between USD 359 billion and USD 550 billion (ADB 2021a). In particular, Southern Asia and Southeast Asia have been the areas most

affected by COVID-19 in terms of lost work hours in 2020, compared to the rest of Asia (ILO 2020d). In Southern Asia, there was a remarkable decrease in lost working hours of 27.3 percent and 18.2 percent in the second and third quarters of 2020, respectively, while Southeast Asian nations saw a fall of 17.2 percent and 10.9 percent (see Figure 5.1).

Table 5.1 *Working Hour's Losses by Regions*



	Asia and the Pacific	Eastern Asia	South-Eastern Asia	Pacific Islands	Southern Asia	ASEAN
2020 Q1	-7.3	-12	-3.4	-0.9	-3.1	-3.4
2020 Q2	-15.2	-5.5	-17.1	-8.7	-27.3	-17.2
2020 Q3	-10.7	-4.9	-10.9	-6.5	-18.2	-10.9

Source: (ILO 2020d)

Migrant workers, as frontline workers, have been identified as one of the most marginalised groups impacted by the pandemic (ILO 2020d; World Bank 2020a, 2021a). During the COVID-19 lockdown, it was estimated that over 3 million migrants were stranded in host countries (ILO 2021a). Consequently, sudden job losses and decreases in working hours have had a devastatingly negative impact on wages, translating into a significant decline in remittances. Global remittance inflows into recipient countries are expected to shrink by 14% by 2021 (World Bank 2021a), while remittance inflows to Asia are expected to decline by 7.4% (World Bank 2021a; ADB 2021a). Such a substantial interruption in remittance inflows to the countries of origin has a detrimental effect on the consumption, health, savings depletion, debt accumulation, and household welfare of remittance-dependent families (World Bank 2021a; ILO 2021a; Brickell et al. 2020)

Evidence from India, Bangladesh, Nepal, the Philippines, Cambodia, and Indonesia, all of which rely heavily on remittances for households' livelihoods, indicates that families who rely heavily on remittances are more likely to confront economic shortfalls. For example, massive employment and wage losses occurred following the Indian government's March 25 2020 announcement of a lockdown. Migrant workers, in particular, had no choice but to be forced to return home. Evidence from a recent study by A. Gupta et al. (2021) shows that weekly household consumption declined by 13%, while non-consumption item expenditures plummeted by 103%. Similarly, Murakami, Shimizutani, and Yamada (2021) examine the potential impact of COVID-19 on household welfare in the Philippines using three scenarios and find that remittance inflows to the left-behind households declined by between 23.2 and 32.4 percent, leading to a 2.2 to 3.3 percent fall in consumption per capita. Mandal et al. (2021) investigated fish consumption and household food security in Dhaka, Bangladesh, and found that almost 80% of families reported income loss and 25% reported job loss, leading to a substantial decline in fish consumption. The fall in fish intake and household food security is supposed to have long-term implications for health and nutrition deficiency, particularly for women and children they being among the most seriously impacted. Additionally, in a country such as Cambodia, where the average outstanding debt per borrower exceeds GDP per capita, remittance-dependent households face a substantial risk of over-indebtedness, further escalating consumption reduction and health and nutrition insufficiency (Brickell et al. 2020; IOM 2019). Current COVID-19-related issues have exacerbated the existing issues, thus adding new challenges and risk-filled dimension to the post-COVID-19 recovery plan.

As of April 2020, there were 1.6 million Cambodian migrant workers living and working in four main host countries (MoLVT 2020). Thailand has been the primary destination country for Cambodian migrant workers, accounting for over 1.2 million workers, followed by the Republic

of Korea (68,843 workers), Malaysia (46,711 workers), and Japan (14,583 workers). The amount of remittances sent home by migrant workers has increased from USD 142 million in 2009 to USD 1.5 billion in 2019, equivalent to 5.6 percent of the country's GDP in 2019 (World Bank 2020b). Existing research examining the impact of remittances prior to the pandemic shows that remittance inflows substantially affected poverty reduction, consumption, health, education attainment, and investment (Roth and Tiberti 2017; Vatana Chea and Wongboonsin 2020).

Prior to the pandemic, unauthorised migration from Cambodia to Thailand was one of the most difficult issues to address.[1] According to ILO (2020f), approximately, 72% of Cambodian migrant workers entered Thailand illegally, accounting for more than two-thirds of all migrant workers entering the country through the official route.[2] While undocumented migrants confront challenges such as subsistence pay and deployment to 3D jobs—Difficult, Dirty, and Dangerous and exploitation, discrimination, violence, and human trafficking, this mode of migration persists (Bylander 2019; IOM 2019). Undocumented labour migration issues are frequently linked to inefficient bureaucratic systems and infrastructure, which result in high migration costs, unethical labour recruitment practices, migrants' level of education, migration network, geographical proximity between Cambodia and Thailand, and the two countries' labour migration policies (Chan 2012; Hing et al. 2014; ILO 2020f; IOM 2019).

As Cambodia is one of the significant labour exporters in Southeast Asia, the epidemic has also begun to add layers of challenges to the already existing ones, severely affecting the lives of Cambodian migrant workers, especially undocumented migrant workers, and their left-behind families. Government non-pharmaceutical actions, such as large-scale restrictions and business closures in Thailand, put significant stress on the livelihoods of current migrant workers and on their reintegration and labour migration plans (Central 2021). Migrant workers who are stranded

face economic uncertainty in the host country as they do not receive adequate assistance and are often excluded from social safety programmes, even if there is no crisis (IOM 2020b; Suresh, James, and Balraju 2020; ILO 2020c). Cambodian migrant workers are usually excluded from host country response programmes such as welfare and healthcare (i.e. vaccination programme) support (ILO 2020c; IOM 2021b). For example, a recent survey from IOM (2022) show that all survey Cambodian migrant workers reported that they have not received or accessed social benefits or government schemes in Thailand. Also, Cambodian migrants are often found to be unprotected by employers including wage reduction below the minimum wage, and the adverse effects are exacerbated by their immigration status as undocumented migrant workers (ILO 2020e, 2021a, 2020b). Furthermore, private recruitment agencies (PRAs) who benefit from sending migrant workers overseas have mostly remained silent throughout the COVID-19 period.

The pandemic also affects Cambodian return migrants and their families in profound ways. Migrant employment losses and the repatriation of migrant workers has resulted in an interruption of remittance inflows. First, debt-related migration can have even more adverse effects and become more excruciating for migrant households who did borrow credit to finance migration or those households with existing debts (ILO 2017; IOM 2019). Second, the pandemic escalates and intensifies financial pressure on remittance-dependent households, especially debt-inducing and debt-financing migrant households. Without remittances, the left-behind households would not be able to meet the repayment schedule causing profound distress to their livelihoods, potentially leading to them being over-indebted (Brickell et al. 2020; ILO 2020c). Third, the economic undermining caused by COVID-19 also leaves no alternatives at home as employment demands in the local community shrink. Therefore, return migrants become a burden for households that have been adversely impacted their livelihood. In order to survive in the face of such a precarious

situation, migrant workers from deprived socio-economic backgrounds are more likely to re-enter the host country illegally, subjecting themselves to a high risk of exploitation, imprisonment, and human trafficking.

This chapter examines two interconnected labour migration issues: labour recruiting practices and debt-financed migration. This study addresses such challenges using our current research results to formulate policy suggestions, notably pre-COVID-19 research and current source country policy responses to COVID-19. The issues confronting Cambodian migrant workers should be a policy priority in order to secure migrants' safety and protection. An understanding of these issues is crucial for Cambodian policymakers and stakeholders to sustain and establish effective and pragmatic policy actions aimed at mitigating COVID-19's negative impacts on migration and development. Additionally, it is critical for the post-COVID-19 recovery plan and to minimize the adverse effect of future migration-related crises.

The chapter is structured as follows. Section 2 begins by examining Cambodian labour migration policy, with a focus on labour mobility in the Cambodia-Thailand corridor. Section 3 investigates labour mobility issues by emphasising pre-existing labour recruitment malpractices and debt-related migration prior to and during the COVID-19 pandemic. In Section 4, we illustrate Cambodian policy responses to COVID-19 and its challenges. The final section concludes with policy recommendations to mitigate the impact of COVID-19 and future labour migration management.

5.2 Cambodia Labour Migration Policy and Regulatory Frameworks

We begin by highlighting current Cambodian labour migration rules and frameworks, and then investigate policy gaps in labour practices.

Cambodia's institutional framework for labour management is mainly composed of the Ministry of Labour and Vocational Training (MoLVT) (MoLVT 2019b). The Ministries of Interior (MoI) and Foreign Affairs and International Cooperation (MoFAIC) are also in charge of migrant worker registration and oversight abroad. Several additional inter-ministerial collaborations at the national and sub-national levels, such as the MoI, MoLVT, MoFIAC, MoSAVY, MoWA, and MEF, assist with labour migration management (MoLVT 2019b). The Cambodian government also partners with international organisations such as the International Labour Organization, the International Organization for Migration, and UN Women to safeguard labour mobility and promote responsible migration management practices.

Cambodian labour migration is not a new phenomenon. However, the Cambodian authorities are unaccustomed to the developing challenges surrounding labour mobility and its rapid growth. Prior to 2010, Cambodia's national instruments for labour migration were primarily and only governed by two national regulatory frameworks: the 1995 sub-decree No. 57, "Sending Khmer Migrants Abroad," and the 2006 Prakas (Guideline/Regulation) No. 108, "Education on HIV/AIDS safe migration and labour rights for Cambodian migrant workers abroad."

In response to an increase in migrant workers, especially undocumented migration to Thailand, Cambodia's government implemented its first labour migration policy in 2010. Sub-decree No. 190 was also adopted to assist in implementing the labour migration strategy, highlighting "the administration of transferring Cambodian migrant workers through private agencies." This sub-decree permits commercial recruiting agencies to engage in the labour migration process and administration, establishing mechanisms to promote legal migration. Eight Prakas were incorporated in August 2013, a year before the mass exodus of Cambodian migrant workers from Thailand, to support previous sub-decrees and Prakas and to highlight critical labour recruitment

processes, licensing of private recruiting agencies (PRAs), migrant workers' protection, and complaint mechanisms, contract durations for workers in destination countries, and the impact of migration on development (MoLVT 2014). The first Cambodian policy on worker migration, on the other hand, was criticised for lacking regulatory structures and mechanisms to facilitate labour migration governance (Chan 2009; Tunon and Rim 2013). The policy shows inconsistency with the National Strategic Development Plan (NSDP), rectangular strategy III, and the national employment policy (NEP).

Cambodia's second labour migration policy (2015-2019) was adopted in 2015, building on the previous policy. This policy lists 94 operations aimed at achieving 17 policy goals, including ensuring the protection and empowerment of labour migrants and maximising the positive return on Cambodia's development. Several institutional frameworks such as Prakas on ensuring compliance with labour practices (Prakas No. 046), an inspection of PRAs (Prakas 252), and awarding and punishing PRAs (Prakas No. 251) have been put in place since 2013. However, ILO (2017) has shown that the second labour policy on labour migration has not lived up to its promises. Three primary activities performed inadequately, including supervision of recruitment and placement, with 31% of activities falling short of the target, migration in the development agenda performing poorly off target by 38%, and return and integration falling short of the target by 50%.

The MoLVT released the third version of the Cambodian labour migration policy (2019-2023) in 2018, rectifying inadequacies and unattainable policy goals in previous policy versions. There are 13 objectives in this iteration of the Cambodian labour migration policy: 1) "Strengthening labour migration governance framework," 2) "Protection and promotion of migrant workers' rights," and 3) "Harnessing labour migration to optimise social and economic development" (MoLVT 2019b).

Besides the national policy instrument, the Cambodian government signed the Memorandum of Understandings (MoU)[3] and bilateral agreements with host countries, particularly ASEAN states, to promote formal labour movement and management via PRAs.[4] In particular, the Cambodia-Thailand MoU, signed in 2003, stressed the increasing expansion of Cambodian irregular migrant workers and inaugurated pathways to assure stable labour deployments and workers' return. However, the MoU was implemented in 2006, which was three years later. Due to lax enforcement and Thailand's crackdown on unauthorised migrant workers in 2014, a significant number of Cambodian migrant workers departed Thailand. Fearing arrest and detention, some 250,000 Cambodian migrant workers returned home (MMN 2014). Both nations decided to strengthen the MoU in 2015 and create sub-decree No. 205 to enable migrant worker repatriation and re-emigration.

Although the national policies, national regulations, bilateral, regional, and international frameworks have been developed, recognizing the importance of tools to promote and protect migrant workers, the issue of migrant labour recruitment practices remains. Previous national regulations such as Prakas No. 46, 47, 250, 251, and 252 and a recent ethical code of conduct for PRAs being demonstrated as good labour practice and migration cost reduction harnessing "a zero fee migration model," there are no clear-cut mechanisms to address how migration cost reduction can be achieved. Consequently, worker-paid migration cost remains excessively high in the Cambodia-Thailand labour migration corridor.

Furthermore, the growing pattern of problems in debt-related migration has remained silent in all policy levels. Debt-related migration policy has not been established or addressed, although recent research and evidence-based reports have been suggesting the significant adverse effects on migration, such as increasing forced labour, intensifying illegal migration, and causing

exploitation among migrant workers (IOM 2019; Bylander 2020). The policy itself has a loophole that demands policymakers to consider the promotion of financial literacy and access to financial services of migrant workers to maximize return on migration.

5.3 Cambodia Labour Mobility Challenges

To understand policy responses and provide suggestions to curb COVID-19 impacts, there is a need to unfold policy and implementation issues in labour recruitment practices and debt-related migration prior to and during the times of COVID-19.

5.3.1 Issues in Labour Recruitment Practices

The immediate adverse effects of COVID-19 in early 2020 have put PRAs' labour management and existing practices to the test. The sudden interventions from the government of Thailand such as a travel ban, lockdowns, and new regulations on health-related measures, have created a new migration system and a tendency for PRAs to become compliant with the evolving environment. Unfortunately, PRAs labour malpractices prior to the COVID-19 further obstruct the implementation of the new system to curb the excesses of the existing dire situation.

5.3.2 Roles of the Private Recruiting Agency

The foundation ensuring a positive return on migration is fair and ethical recruitment practice. Cambodian government's adaption of Sub-Decree No. 190, which regulates PRAs used to recruit migrant workers, and the recruitment ethic codes of conduct clearly highlighted the important improvement in labour migration management (ILO 2020a), although there are perquisite shortfalls being recognized such as an unethical practice of labour recruitment.

A particular issue that has been recognized in labour recruitment practices is PRAs' motive of profit-orientation. As a lucrative business, PRAs are more likely to maximize profit over the

migrant worker's protection (Sakulsri, Nurick, and Oeur 2020). Prior to COVID-19, PRAs tended to justify quantity of labour recruitment rather the quality, suggesting evidence of malpractice such as PRA not carefully screening applicants (Bylander 2019). PRAs tend to recruit an excess numbers of migrant workers more than provided within quotas or even before employers provide quotas in the host country (Dickson and Koenig 2016; Martin 2017). In addition, due to the low literacy rate among Cambodian migrants and information asymmetry, some PRAs deceive migrant workers by processing tourist visas instead of working visas with the promise of employment and wages that do not necessarily exist in the labour market (Bylander 2019; Sakulsri, Nurick, and Oeur 2020). This is because PRAs frequently ignore complying with Prakas 252, emphasizing PRA responsibility to monitor and assist migrant workers in the host country. Due to weak implementation of regulations governing this improper recruitment behaviour, the resulting silence after inspections and dispute mechanisms, introducing punishment of PRAs for the violation of codes of conduct was introduced post-2013, PRAs have often failed to be held to account for their fraudulent recruitment practices.

The PRA's insufficient pre-departure training provision for migrant workers creates an environment where the adverse effect of COVID-19 can rapidly escalate. The pre-departure training is an essential pathway that protects and empowers migrant workers. It not only forms a bridge for migrant workers to their prospective host country employment but also informs them about compliances and regulations of the host country in order for them to be aware of the rights and services they are entitled to avoid all potential forms of exploitation (MoLVT 2013). Limited information offered by the pre-departure training further places migrants in a dire situation. As the Thailand government launched the intervention policy in early April to curb the spread of the virus, a recent study by ILO (2020) shows that Cambodian migrant workers find themselves in a highly

precarious situation not being able to access supporting systems. Migrant workers were even forced to work without safety protection. It is obvious that migrant workers are not aware of their basic rights, working conditions, and entitlement to health and safety protection. This is because the labour mobility training for migrant workers to Thailand has been inadequate and not carried out as officially designed.

There are three main reasons responsible for the malpractice in pre-departure training. First, each PRA seems to develop its own standard training agendas based on employment prospects in the country of destination and the PRAs' and employers' common interests. Second, PRAs appear to maximize profits by reducing the duration of training sessions. A recent survey indicates that PRAs deliver a mere 2 to 3 hours of pre-departure training and briefing to migrant workers, particularly on the day of departure, when the required standard is up to 13 hours of pre-departure training (ILO 2020f; VERITE 2019; USAID 2020). Third, as most migrant workers are from a low educational category, they are less likely to maximize the benefits of the pre-departure training, assuming that working and living conditions in the host country are better than the source country (Chan 2012). As a result, because of the insufficient pre-departure training, migrant workers may not know clearly how to utilize information regarding their working and living conditions in the host country, leading to more adverse impacts from COVID-19.

There is also little evidence that PRAs have played a major role in lessening the COVID-19 impacts that they were supposed to (ILO 2021a). This is due to the fact that recruitment agencies have inadequately robust management structures capable of generating resilience in the face of a crisis. In addition, PRAs have often been found to be lacking the responsibility for monitoring labour migrant workers even before the crisis. Explicitly stated in the Sub-Decree 190 and Prakas 249, the roles of PRAs are to monitor and assist migrant workers in the event of abuse, exploitation,

or labour conflicts via their host country representative. Also, according to Baruah and Cholewinski (2006), PRAs should serve as the first point of contact for migrant workers or as the first tier of support. However, this has been acknowledged as minimal (Harkins and Åhlberg 2017). Studies conducted by The Asia Foundation (2011), UN (2013b), and ILO (2016a) show a series of inconsistent PRAs' performance through interviews and surveys with Cambodian migrant workers in Thailand. The results reveal that PRAs have abrogated their responsibilities, especially discouraging migrant workers from lodging complaints regarding abusive and exploitative employer practices. IOM (2020a) also finds that only 9% of migrant workers in Thailand received assistance from PRAs, based on a study of 3,127 Cambodian return and outbound migrant workers in Thailand. This is because PRAs operate with two motives. First, PRAs tend to favour employers in the host country over migrant employees when it comes to sustaining the commercial labour supply chain. Second, the mechanisms for executing Prakas No. 46 and 251, punishing PRAs for fraud and deceptive practice, have been inadequate. Only a few PRA sanctions have been imposed for violations of the code of conduct (Harkins and Åhlberg 2017).

As the community cases of COVID-19 spiked in Thailand, a study conducted by Central (2021) shows that only a significant small proportion of migration workers received support from PRAs. Furthermore, ILO (2020c) conducted a rapid survey with 244 migrant workers in ASEAN, including Cambodia, and found that about 98% of migrant workers receive information about COVID-19 from their network, social media, and local news. Unfortunately, none of them reported that information was obtained from their recruiter. The USAID (2020) survey of returning Cambodian migrant workers also reveals the same result regarding how migrants received information. As a consequence of poor monitoring systems and communication from PRAs, the migrant's desertion may also emerge, especially during lockdown and travel restriction. Migrant

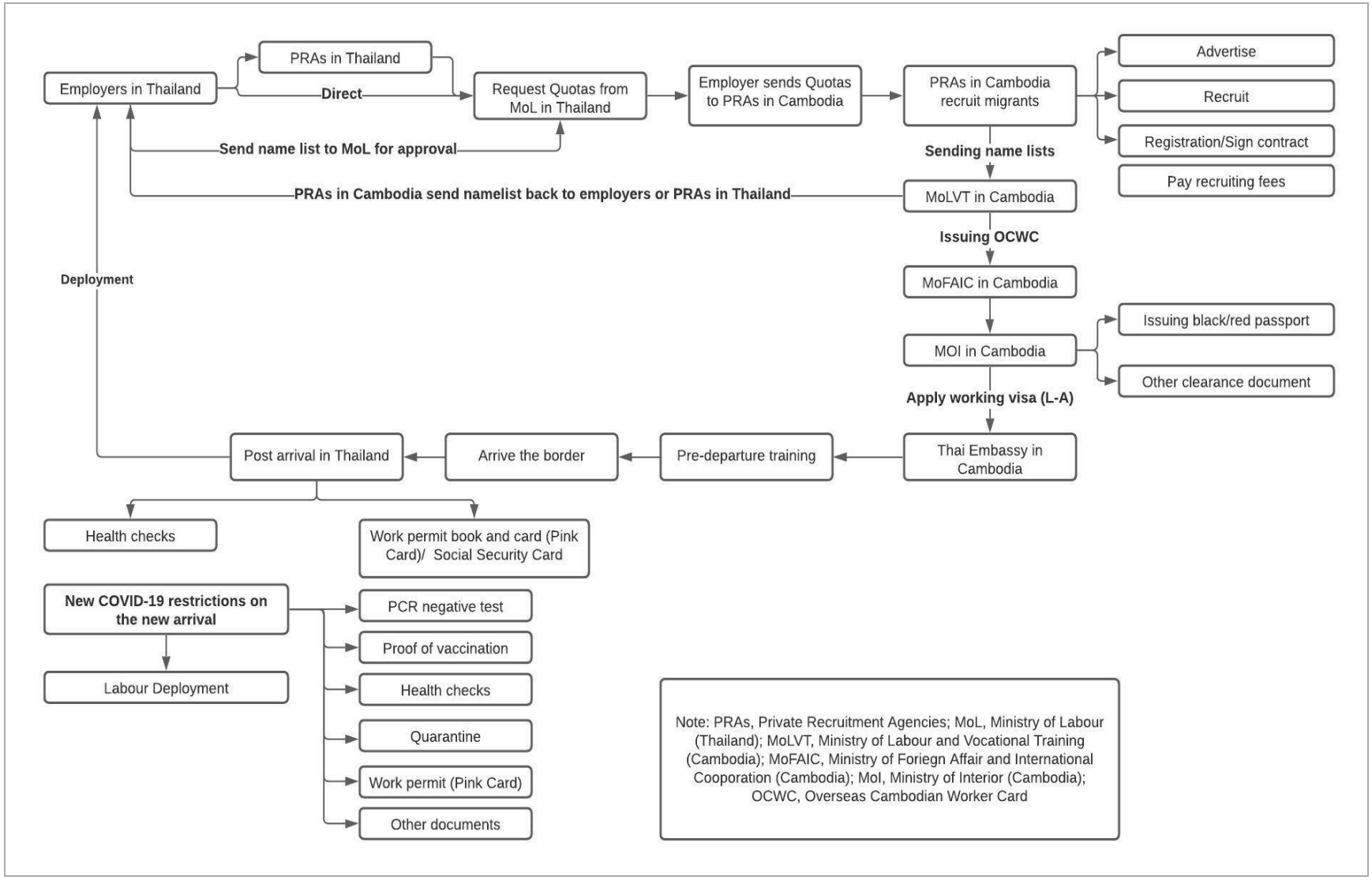
workers are inclined to join the vast community of undocumented migrant workers. This is due to the fact that migrant workers are more likely to receive support from family and friends instead of PRAs or employers (Central 2021). Also, access to informal networks such as friends and relatives tends to be more reliable and faster than PRAs (Bylander 2019). A well-established network does not only allow them to work clandestinely to survive during the pandemic but also enables them to return home if necessary.

5.3.3 Bureaucratic System

Though malpractice in labour recruitment by PRAs may lead to a significant shortfall in labour migration management, the complication of the Cambodian government bureaucratic system is even more important in inducing higher migration costs and undocumented migration (ILO 2020f). The migration system that is built to provide legal emigration status for migrant workers stipulates several challenges regarding efficient labour recruitment and practices.

In the light of the global health crisis, legal emigration documentation is a time-consuming process, generating exorbitant migration costs compared to informal ones. Evidence from the surveys with Cambodian migrant workers in Thailand shows that time to process the document is an important factor (Hing, Lun, and Phann 2011; Chan 2012; Bylander 2019). Those who migrated through formal channels spend between one to three months waiting before deployment (Shown in Figure 5.1), while a typical informal migration arrangement takes less than a week (Chan 2012; ILO 2020f; Bandol 2011; VERITE 2019). As a result, informal migrants have a lower opportunity cost compared to formal migrants. Because the formal migration process is generated laboriously an excessive monetary cost is borne by migrant workers, and it becomes one of the primary incentives for undocumented Cambodian labour migration to Thailand (Harkins, Lindgren, and Suravoranon 2017; ILO 2020f).

Figure 5.1 *Formal Labour Recruitment Process through PRAs as of January 2022*



Source: Chan (2012), VERITE (2019);IOM (2021); Bandol (2011), Author's fieldwork and elaboration

5.3.4 Costs of Migration

The unduly high worker-paid migration cost also leads to migrant saving depletion, reduced consumption, and remittances which is one of the most important external sources of income for the left-behind household (IOM 2019). According to the reported costs issued by the Cambodian government, documents required to process legal migration could vary between USD 169 to USD 304 (See ILO (2020f)). However, the average costs of formal migration found in a recent survey show that Cambodian migrant workers paid USD 548 while migrating through informal channels could cost about USD 123 (Harkins, Lindgren, and Suravoranon 2017). Similarly, Oum, Hassan, and Holmes (2021) surveyed 422 Cambodian households focusing on migration channels and costs of migration show that worker paid migration costs for formal channel varies between USD 247 to USD 458, equivalent to an average of 2.65 months of household consumption expenditure, while costs of irregular migration vary between USD 176 and USD 231. Therefore, the difference between government-reported fees and worker-paid migration derived from the survey suggests that PRAs could have generated profits between USD 100 to USD 200 per migrant worker (Refer to Table 2.1 in Chapter 2).

Recruitment service fees, passport, visa, medical examination, work permit fees in Thailand, inbound and outbound transportation, food and lodging, are among the primary cost components of regular labour migration through PRAs (ILO 2020f). The effort to reduce the high costs of migration is merely paper-based and less effective. Migration costs for workers are largely driven by recruitment fees ranging from $59 to $100 for regular migration, while informal migration remains relatively inexpensive, costing between $33 and $136 for workers. Passport fees range from USD 100 to USD 250 for the red passport, despite the fact that the authority issued a USD 4 passport for migrant workers in 2014 (Bylander 2015; MMN 2014). Only MoU migrant workers

are eligible for the black passport, which costs around USD 67, and the entire process can take from one to three months. The high cost of migration has been a prominent issue in labour mobility, reducing the potential return of migration.

5.3.5 Debt and Migration

The linkage between debt and migration is one of the growing research areas in contemporary migration studies stemming from the significant credit expansion and growth of labour mobility in developing countries (Rahman 2015; IOM 2019; Bylander and Hamilton 2015). There are at least two forms of debt-related migration in the Cambodia-Thailand labour migration corridor. First, as migration often requires capital to finance the high upfront costs, regardless of migrating channels,[5] households may choose to borrow directly from institutions such as MFIs, or informal moneylenders to finance migration (ILO 2020f; IOM 2019). This type of borrowing to finance migration commonly incurs high interest which is approximately 35 percent annual interest with collateral requirement (Bylander 2019). Therefore, this frequently leads in collateral damage, including selling land and property if service debts cannot be repaid (Bateman 2017; LICAHDO 2019). Another form of debt-related migration is wage deduction, as loan repayment may take the form of wage deduction, in which a proportion of the migrant's income is used to partially repay debt, hence lowering remittances sent home. Migrant workers are also more likely to lose bargaining power with their employers. Migrants who position themselves with such debts are often exposed to forced labour, exploitation, human trafficking, and, importantly, increased illegal migration (ILO 2020f; IOM 2019).

Recently, Cambodia's microcredit sector has dramatically changed regarding credit market ventures offering greater access to credit and recognized as one of the fastest-growing microcredit sector (Brickell et al. 2020; NBC 2019). Cambodia's microfinance institutions have been propelled

into a situation of profit-oriented institutions combining competitive interest rates, amount of loans, and newly developed financial products, accumulating to a significant growth in borrowers. This sector has rapidly expanded its operations by localizing more than 1,300 credit offices across rural-urban areas in Cambodia, offering microcredits to more than 2 million borrowers in 2019 (CMA 2019).

The growing pattern of problems in household debt is at its peak while COVID-19 hits (Brickell et al. 2020). Current achievements in microcredit development towards liberalisation and deregulation have devolved into generic concerns about excessive lending and borrowing, which could exacerbate adversity among the poor and the poorest households (Bateman 2017; IOM 2019). Borrowers are more prone to experience financial fragilities, such as unsustainable debt, leading to decreased household consumption, more borrowing to pay previous debts, asset sales to pay off debt, and emigration (Bylander and Hamilton 2015; Green 2020). Being criticised for MIFs' profit-oriented behaviour, the United Nation's 2020 report on private debt and human rights emphasizes that Cambodia is on the verge of sinking into a microfinance crisis (UN 2020b). Within 15 years, the amount of outstanding loans among microfinance borrowers increased to USD 7.15 billion. In 2019, the average loan amount per borrower topped the Cambodian GPD per capita for the first time. As of December 2020, ADB (2021b) reveals that Cambodian household debt is equivalent to 29.2% of the total GDP which increased 10% from 2019. Due to high household debt, IOM (2019) study shows that Cambodian households having migrated family members are more likely to have pre-existing debt prior to migration because they depend on remittances to repay the debt.

The epidemic exacerbated migrant workers' debt problems. A year before the COVID-19 outbreak, the World Food Programme (2019) surveyed more than 2,000 Cambodian households and found that about 58 % of migrant households surveyed took loans to finance mobility, while a recent survey among Cambodian migrants working in Thailand show that about 85% of Cambodian migrants borrow money from employers, relatives, and friends, and MFIs (ILO 2020f). As the COVID-19 erupted, it interrupted the inflows of remittances.[6] As Cambodian migrant workers are unable to repay their existing debts, they are more likely to take on new debt, escalating households' indebtedness. As borrowings from formal institutions, such as MFI's, have commonly had a fixed repayment scheme, households are required to service debt on time. Migrants and their households are becoming more vulnerable and rely on borrowing more than ever to respond to the consumption need and pay off previous debt during the absence of remittances.

As of October 2021, about 216,000 Cambodian migrant workers had returned to Cambodia from Thailand. Almost 50% of returning migrants are female (ILO 2021c). A series of rapid assessments show that the majority of returning Cambodian migrants are indebted. A study conducted by the UN (2020a) also reveals that more than 50% of 1,100 returning Cambodian workers are indebted (a median loan amount of USD 1,500 per household), while about one-third of returning migrant households have no income. Their debts are more likely to be incurred before migration than a new debt taken during their stay in Thailand. Also, a recent survey by IOM (2022) reveals that Cambodian migrant workers have taken more debt compared to Burmese and Laotian migrants. The majority of debt comes from borrowing from banks and MFIs, accounting for 30%, friends and neighbours (20%), and informal moneylenders (9.8%). As remittances halt, the debt has intensified the financial pressure on migrant workers and their left-behind households, providing an explicit depiction of debt-related migration.

Without an alternative method to repay the debt as well as the shrinking of local employment, return migrants are more likely to re-emigrate to Thailand despite the border between Cambodian and Thailand remaining close. Although illegal migration has been a pre-existing problem for decades between Cambodia and Thailand, this has escalated into a further challenge in managing labour migration in COVID-19. Migrant workers who face economic hardship are more likely to re-emigrate to Thailand illegally, exposing themselves to a high risk of exploitation, detention, and human trafficking (IOM 2021c).

5.4 The Cambodian Government's Approach to Crisis

Cambodia is not immune to the impact of COVID-19, as the country enters into a state of limbo following a large-scale community outbreak in early 2021. As of December 6, Cambodia has 120,272 confirmed cases of COVID-19 with 2,963 death tolls (WHO 2021). However, Cambodia has been acknowledged as one of the nations in the region having effectively controlled the rapid spread of COVID-19. The policies and strategies responding to COVID-19 have been implemented in a timely manner, focusing on reducing and delaying transmission, minimising serious disease and associated deaths, ensuring ongoing essential services, and minimising the social and economic impact through multi-sectoral collaboration (World Bank 2021b). To achieve these strategic objectives, international border restrictions, domestic traveling, school, entertainment, religious activities, and other events which might escalate the spread of the virus have been banned. Meanwhile, the government has boosted its testing and contact tracing capacity to limit the further spread of the virus. More importantly, the government's vaccination programme has played a major role in Cambodia's socio-economic recovery. As of December 6 2021, the Cambodian government achieved more than 90% of its population vaccinated (WHO 2021). Therefore, most of the restrictions put in place to curb the spread of the virus are currently lifted,

allowing the majority of economic activities to resume. Cambodia's economic growth contracted about 3% in 2020; it is expected to achieve 4% growth in 2021(World Bank 2021b).

Through its fiscal policy, the government has also injected the national budget of USD 2 billion between 2020 and 2021 as a stimulus package to support social protection and other programs to minimize the adverse effect of COVID-19 (World Bank 2021b). That includes USD 60 million directed to virus testing expenditure, USD 760 million in a cash relief transfer program for vulnerable households and a wage subsidy program, and USD 123 million in subsidizing skill training and development among suspended employees affected by COVID-19. Furthermore, other government measures include several tax relief programmes, a business recovery scheme, and packages assisting small and medium-sized enterprises (SMEs), budgeted at approximately USD 900 million for 2020 (IMF 2021). In addition, international development partners such as World Bank, IOM, ILO, EU, ADB, IMF, JICA, and USAID assist the Cambodian government with mitigating programs in health, social, and socio-economic impact of the crisis. Other government's measures related to debt relief include USD 200 million of a credit guarantee fund for SMEs, and a USD 200 million stimulus package for Business Recovery Guarantee Scheme to help SMEs get formal loans for operating capital and investment. Because of this, SMEs will be able to continue operating amid COVID-19 (IMF 2021).

Since April 2020, the Cambodian government has adopted a number of regulations and guidelines to assist migrants in Thailand and returning migrant workers at the borders, providing health checks and quarantine facilities before permitting them to return home and implementing reintegration support. For example, the governments of Cambodia and Thailand reached an agreement to extend employment contracts through MoU for Cambodian migrant workers whose jobs were interrupted by COVID-19 (David 2021). Furthermore, with the support of international

development partners/organisations such as ILO, the IOM, and the UNCT, a total of USD 5 million has been allocated to the COVID-19 socio-economic recovery initiative for returning migrants. This includes assistance with reintegration, mental health care, vocational training and employment opportunities, and livelihood improvement (IOM 2021c, 2021a; ILO 2020b).

Although certain measures to aid migrant workers have been developed in the aftermath of COVID-19, the absence of such regulations prior to the pandemic resulted in a sluggish reaction to the situation. For instance, prior to COVID-19, the Cambodian government lacked a comprehensive policy that included specific steps to assist migrant workers during and after the crisis. Also, even though there are some existing systems to address issues related to the adverse effects of natural disasters and immediate crises, they do not take into account the particular vulnerability of migrant workers. For instance, the National Action Plan for Disaster Risk Reduction (NAPDRR) (2019-2023) was adopted in 2019, yet there is no specific mechanism or contingency plan to assist migrant workers during a disaster. Additionally, Cambodia's climate change strategy plan (2014-2023) was developed without a well-defined framework for assisting and supporting migrant workers, even though climate change and migration are inextricably intertwined. In addition, the National Protection Policy Framework (2016-2025), aimed to design and promote income stability and alleviate its citizens' financial and economic vulnerability, has not mentioned the protection and supports of the return migrant workers. Therefore, government cash relief programmes transferring funds to the poor households have not circulated widely among returning migrant workers affected the COVID-19 (Try 2021). For example, a survey of 1,108 return migrants shows that 30% of returning migrant workers did not receive cash relief transfers as they do not have ID poor cards (UN 2020a). This is a concern since Cambodia's social protection for poor households is administered over three year periods. As a result, migrant

workers who are away from their families for a longer length of time frequently fail to obtain ID Poor cards.

5.4.1 Policy Responses for Labour Recruitment Practices

During the pandemic, PRAs have played an important intermediate role in labour migration management. Protecting migrant workers requires PRAs that are capable of functioning efficiently and decisively when a crisis occurs. Although there is a pre-COVID-19 labour recruitment standard on "General Principles and Operational Guidelines for Fair Recruitment and Definition of Recruitment Fees and Related Costs (GPOG)" and the Code of Conduct for Standard Recruitment Practice, these standard versions stated in the guidelines are limited to the current state of labour migration in a time of pandemic (ILO 2019, 2020a). Therefore, IOM and UNDP recently convened a national consultation on promoting fair recruitment practices in the Cambodia-Thailand labour migration corridor, with participation from the Cambodian government, private sector, civil society organisations, and workers' organisations, to identify national labour legislation and international labour standards (ILO 2021b). This initiative not only provides a regulatory solution to labour practices during the pandemic, but it also guarantees that PRAs follow fair and ethical recruitment norms, including the reduction of migration costs. More importantly, it supports PRAs which have been financially impacted by travel restrictions and the declined in labour demands from employers. Moreover, to assist PRAs' works, the governments of Cambodia and Thailand agreed to extend the employment contracts of Cambodian migrant workers via MoU to safeguard migrant workers and prevent mass migration between the two nations during the pandemic (David 2021).

As of November 14 2021, the Cambodian and Thai governments, through the Centre for COVID-19 Situation Administration (CCSA), offered to return Cambodian migrant workers to Thailand via the MoU, in order to address Thailand's labour shortage despite borders remain closed; but subject to a number of compliances (ILO 2021b). However, the circumstances imply a number of difficulties for employers, recruiters, and migrant workers, including proof of a negative COVID-19 test result, vaccination documentation, quarantine requirements, and other health costs. Although this agreement reveals positive outcomes, the requirements within such a return scheme are more likely to increase migration costs. This poses further challenges, making it unclear as to who is responsible for covering these costs. The time-consuming document process may also become another impediment to legal emigration.

5.4.2 Policy Responses on Debt Relief

As previously stated, COVID-19 erupted at a time of strong household private debt (Brickell et al. 2020). The interaction between excessive debt-related migration and the global public health catastrophe produced by COVID-19 is a severe hindrance to the livelihood of Cambodian migrant workers and their families left behind. With the arrival of COVID-19, no particular debt relief measures or policy solutions were or are currently in place to address debt-related migration challenges. The government's policies and frameworks to reduce debt-stress are only aimed at the general population rather than migrant workers or migrant families in specific. For example, the National Bank of Cambodia issued a circular on loan restructure during COVID-19 on March 27, 2020, with the objectives of maintaining economic stability, continuing to support economic activity, and relieving the burden on borrowers experiencing hurdles making repayments due to a drop in their primary income (NBC 2020). To comply with this loan restructuring policy, financial institutions should first identify borrowers who are most likely to run into financial distress before

providing them with loan restructuring mechanisms. Such loan restructuring methods require borrowers to pay back their interest and/or principal more than a period of time longer than 90 days, with the anticipation that they could do so only during the interim period (NBC 2020). By April 2021, there were 421,935 bank and MFI loan accounts with a total value of $4.9 billion, according to the Cambodian credit bureau's data. MFIs' borrowers account for 34% of total restructuring loans, while commercial banks account for 76% of borrower accounts (Amarthalingam 2021). However, this regulation has been criticised as inadequate since borrowers must continue to pay interest or principal rather than having their debts entirely frozen or suspended. Therefore, the longer debtors continue to pay interest, the more profitable banks and MFIs become. In addition, NBC does not provide a clear guideline in loan restructuring mechanisms for banks and MFIs, as they have commonly reviewed and set up their own responses to COVID-19-affected borrowers (Res 2021).

5.5 Policy Recommendations

The COVID-19 effect has made a long-standing structural problem in the labour movement of people throughout the world more obvious. Pre-existing labour mobility issues have worsened and had a more negative impact on the economy than during the last economic crisis. In common with other countries, Cambodia is not immune to the crisis. The epidemic has had a dramatic impact on Cambodian migrants and their families, particularly migrant workers who moved through the Cambodia-Thailand migration corridor. The pandemic has also begun to add layers of complexities to existing challenges, intensifying the vulnerabilities faced by Cambodian migrant workers.

In this study, we argue that COVID-19's impact on labour migration management has been exacerbated by pre-existing labour policy issues, particularly private recruiting practices and debt-related migration. First, private recruitment agencies (PRAs) are often motivated by lucrative

motives, which leads to unethical behaviours such as fraud, labour malpractice, poor and insufficient pre-departure training, inadequate PRAs' monitoring and communication systems with migrants in the host country, and exorbitant migration costs. Second, the growing pattern of debt-induced and debt-financed migration has reached its peak during the COVID-19 outbreak. In terms of debt-induced migration, disrupted remittance inflows result in migrants' and households' financial instability. Consequently, migrant households may experience collateral damage, such as the sale of land and property in order to service debt. This would also increase debt levels and the cycle of debt. Migrants and their families tend to take out additional loans in order to pay off those they already have, resulting in over-indebtedness. Debt-financed immigration, on the other hand, is often the result of excessive migration costs. Prospective migrant workers experiencing delays or cancellations in their deployment due to travel restrictions and other health-related measures encounter more difficulties as they used credit to fund their migration. Consequently, when migrant workers are in a financially distressed position, they are often exposed to force labour, exploitation, human trafficking, and, importantly, increased undocumented migration. Because of these issues, COVID-19's impact becomes much more severe.

Furthermore, the Cambodian national labour migration policy contains loopholes and gaps that allow for labour recruitment fraud. This is due to a lack of enforcing regulation and encountered actions, which has resulted in weak responses to this improper recruitment behaviour. Furthermore, a lack of coordination between PRAs and the Cambodian government via the embassy in Thailand, prevents the implementation of COVID-19 protective measures for Cambodian migrant workers. Another factor that has exacerbated the vulnerabilities of Cambodian migrant workers is that Cambodian national policies have not been able to respond to any unforeseen crisis and do not take into account migrant workers' particular vulnerability. The

National Action Plan for Disaster Risk Reduction (NAPDRR) (2019-2023), for example, was adopted in 2019, but there is no specific mechanism or contingency plan in place to assist migrant workers in the event of a disaster. Cambodia's Climate Change Strategy Plan (2014-2023) was formulated but did not consider the linkages between climate change and migration; therefore, the policy does not have a well-defined framework for assisting and supporting migrant workers. Furthermore, the National Protection Policy Framework (2016-2025) which aimed to design and promote income stability as well as alleviate its citizens' financial and economic vulnerability, did not mention the protection and support of return migrant workers.

5.5.1 Policy Priorities and Recommendations

To effectively alleviate the current crisis and prepare for future labour migration that will protect migrant workers, recruiting agencies, governments, civil society organisations, and other relevant stakeholders should consider the following policy recommendations:

5.5.1.1 Labour Migration Recruitment

Based on the above issues we have discussed, PRAs must first ensure fair and ethical recruiting practices throughout the crisis by adhering to the ILO's General Principles and Operational Guidelines for Fair Recruitment and the Definition of Recruitment Fees and Related Costs (GPOG). PRAs must commit to eliminating fraud and unethical employment practices. Respect for human rights and support for migrant workers should be recognised as corporate values of PRAs' business operations. Second, because pre-departure training is critical to migrant workers' rights, PRAs must follow the ILO and MoLVT standard guidelines. PRAs should ensure that migrant workers fully understand and are aware of their rights during their work in the host country and information about working conditions. Sufficient training would not only equip them to curb

the current precarious situation, but also prepare them for other unanticipated catastrophes. Third, PRAs should strengthen communication between migrant workers and employers during the deployment. Given current technological developments, PRAs should establish an online platform to provide regular updates to their recruit migrant workers in the host country about new circulations, regulations, laws, and relevant measures that may affect migrant workers. This mechanism would also need migrants to file their complaints directly to PRAs about any abusive acts, violations, exploitation, or contract issues during the crisis. Fourth, PRAs should prevent migrant workers who used their recruiting services turn into undocumented immigrants after the contract ends. To do so requires PRAs to facilitate visa extensions and work or residence permit renewals that can help migrant workers access important services. PRAs should also arrange migrants' repatriation. In such case, it is also important that PRAs should also assist migrants in retrieving necessary backlogs such as unclaimed wages, compensation, and other documents migrant workers are entitled to. Fifth, PRAs should plan and implement internal response mechanisms and management structures capable of generating resilience in the wake of unanticipated or sudden shocks. The development of this responsive mechanism should include measures to protect both deployed migrant workers and prospective migrants. Finally, it is crucial that PRAs assist migrant workers with all COVID-19 required traveling documentation, including health checks and other health-related measures required by the host country.

The government of Cambodia should also take key comprehensive labour migration and management reforms into consideration. First, it is critical in improving the efficiency and effectiveness of the bureaucratic system to minimize the cost and time required to document the process. This can be achieved by developing an E-platform or online programme lessons learned from other countries, such as the Republic of Korea and Saudi Arabia, which have successfully

deployed online labour migration management. Second, the Cambodian government, particularly the MoLVT, should redesign and reinforce the execution of Prakas Nos. 46 and 251 regarding punishing PRAs for deceit and fraud, which is consistent with the labour recruitment ethic Code of Conduct. To counter PRA malpractice, incentive schemes such as subsidies and tax cuts can also be utilized, offered to PRAs who follow the guidelines and safeguard migrant workers. Additionally, the MoLVT, relevant ministries, and CSOs should collaboratively administer rigorous labour inspections that regularly monitor and evaluate the performance of PRAs. Third, during COVID-19, MoLVT should work with the MoH to guarantee that all migrant workers are fully vaccinated prior to their departure. This ensures not only a smooth migration deployment required by the government of Thailand but also protects migrant workers from COVID-19 infection. Fourth, the Cambodian government should continue to engage with the Thai government to strengthen the execution of the MoU, searching for options to support migrant workers regardless of their immigration status. On the one hand, it is critical to integrate migrant workers in current COVID-19 social protection programmes, ensuring equal access to basic needs such as accommodation, health care, information, and other support. On the other hand, both governments should strengthen the laws against human trafficking and should not tolerate any unlawful recruitments which do not align with immigration law and MoU between Cambodia and Thailand. Fifth, the Cambodian government should explicitly explore migrant vulnerability in prior strategies and policy frameworks such as the (NAPDRR) (2019-2023), Climate Change Strategy Plan (2014-2023), and national protection policy framework (2016-2025). Finally, in order to prepare, and minimize future migration-related crises, both the government and PRAs should consider building and strengthening big data management portals as such data is currently lacking.

The implementation of a big data portal enables policymakers and relevant stakeholders to make evidence-based decisions and respond to crises in a more prompt and efficient manner.

5.5.1.2 Costs Related Migration

Even before COVID-19, the cost of migration was a concern, contributing to unauthorised labour movements and negative effects on migrant workers (ILO 2020f; Bylander 2019). A number of policy recommendations have been made to reduce the exorbitant and needless recruitment fees paid by migrant employees. First, adoption of ILO Convention No. 181 and GPOG at the PRA level should be strongly pushed as part of fair and ethical recruiting practices. Although worker-paid migration cannot currently be eliminated, PRAs should not overcharge migrating workers, especially during a crisis. To eliminate the asymmetry of information, PRAs should explicitly disclose migration expenses in order to ensure transparent labour recruitment methods and avoid overcharging prices. Second, migrant workers should not be charged any additional expenses for health-related measures such as health checks, PCR tests, quarantines, and other official documentation. Because of travel limitations and other COVID-19-related measures, PRAs should reimburse all recruitment-related expenditures and fees paid by migrant workers who are stranded in their sending countries or unable to deploy in their host countries. Furthermore, in the current restrictive circumstances, migrant workers who are unable to work and need to return home should not be held liable for any costs associated with repatriation, such as transportation, health-related costs, and quarantine. Finally, more research is needed to explore and establish the viability and mode of implementing a zero migration cost in the Cambodia-Thailand corridor in order to manage the crisis and assure migrant protection in future migration-related crises.

5.5.1.3 Debt Related Migration

COVID-19 has exacerbated debt-related migration from Cambodia to Thailand. Among the debt-related migration policy recommendations, the government should develop the COVID-19 debt relief programme. Such a programme should specifically target migrant workers who, regardless of legal status, struggle to pay debts due to the pandemic, focusing on all possible relief mechanisms and measures, such as loan suspension, loan restructuring, and loan default. Thus, this programme would help migrant workers reduce their debt burden. For example, if the debt is owed to PRAs or other informal moneylenders, the government and relevant authorities should issue a statement or policy prohibiting any form of interest repayment. However, debt owed to financial institutions such as banks, microfinances, and other formal lending institutions must be put on hold or restructured upon request by migrant workers or their families. There should be clear communication between indebted migrants and lenders. This could ensure migrant workers are able to return home while also ensuring their survival during the crisis. The Cambodian authorities should also assist debt-stressed migrant workers by providing cash assistance prior to deployment and/or repatriation. In addition, temporary housing, food provision, and employment assistance should be maintained with the help of relevant stakeholders such as international development partners, CSOs, and PRAs.

Second, given the relative importance of remittances in terms of reducing debt-stress and debt-related migration, the governments of Cambodia and Thailand must guarantee a continuous flow of remittances even in the event of a global pandemic. It is also essential to keep remittance costs low, as the Cambodia-Thailand corridor has comparatively high transfer costs compared to other migration corridors. To do so, remittances can be reduced by developing online money transfer or e-payment applications, comparable to the recent development of the money transfer application

called "Bakong," used to transfer money from Malaysia to Cambodia. This application would enable Cambodian migrant workers in Thailand to send and receive money directly through formal services that are more secure and transparent than informal or unbanked money transfers. On the other hand, Cambodian authorities and relevant stakeholders should consider an option that requires migrant workers to open a bank account before migration. Lessons learned from Bangladesh reveal that having a bank account not only enables relevant authorities to keep track of migrant records and receive an up-to-date database essential for monitoring labour migration, but it also reduces the cost of sending remittances home. Furthermore, migrant-owned bank accounts can alleviate financial and debt difficulties associated with migration and boost formal remittance payments. As a result, MoLVT, NBC, and PRAs should consider requiring Cambodian migrant workers, who migrate through PRAs, to open a new bank account prior to departure.

Finally, because debt-stressed migrants frequently lack financial education, the Cambodian government, particularly MoLVT and the National Bank of Cambodia, should review the labour policy migration (2019-2025) and the National Financial Inclusion Strategies (2019-2025), developing precise strategic action plans and frameworks to explicitly enhance migrants' financial literacy to align with current and evolving circumstances. Basic financial training could also be incorporated into pre-departure training programmes, including a wide range of topics linked to a foundation of financial literacy and the understanding of how to manage their finances efficiently, including the use and access to financial services. The National Bank of Cambodia would collaborate with Thailand's central bank, prospective Thai financial institutions, and other regulated money transfer operators (MTOs) such as Western Union, Money Gram, or IME to establish remitting channel providing competitive transfer rates.

Because the current situation is rapidly evolving as a result of the spread of the virus's new variant, the roles of international development partners, CSOs, grassroots communities, and other players in labour migration management is critical. These stakeholders should continue to support the implementation of government policies and help migrant workers' well-being, including health, basic rights, and social protection. The government should also extend these organisations more freedom and improve the cooperative environment in order to build a solid and inclusive social protection system for migrant workers.

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Notes

1. The words "undocumented/documented, irregular/regular, illegal/legal" will be used interchangeably in this study.

2. Approximately 720,000 Cambodian undocumented migrant workers obtained Nationality Verification (NV) from the Thailand authority.

3. MoU between Cambodia and the Republic of Korea (2006); Malaysia (2015); Japan (2017, 2019); Singapore (2012, 2016); Hong Kong (2017); Saudi Arabia (2016); Qatar (2011); Kuwait (2009); Philippines (2016); Vietnam (2017); Laos (2019); Timor (2016); Bangladesh (2017) (MoLVT, 2020).

4. Cambodian government also signed and ratified international conventions (No. 97, 143, 181, 188, 189) and is a signatory to UN conventions including the CEDAW in 1979; the UN-CPRMWMF in 1990 and ASEAN declarations such as DPPRMW in 2007, ASEAN declaration on SSP in 2013, and ASEAN consensus on PPEMW in 2017.

5. See ILO (2018); Harkin et al., (2017); Martin (2017); Anich et al., (2014) and Bylander (2019) document evidence of debt financing migration among migrant worker nationality in Malaysia, Thailand, and the Gulf countries.

6. In 2020, about USD 1.2 billion of officially recorded international remittances had been sent by Cambodian migrant workers which 78 percent came from Thailand (NBC, 2020; MoLVT, 2020). According the NNC (2021), remittance inflows into Cambodia declined from 1.5 billion to 1.2 billion in 2021

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CHAPTER 6
CONCLUSION

This chapter provides concluding remarks and discusses policy implications, limitations and avenues for future research related to Cambodian labour migration. The chapter also emphasises policy recommendations that aim to address the challenges of reducing migration costs, microcredit and the impact of remittances. Furthermore, given the detrimental effect on human mobility of the global COVID-19 pandemic, this chapter also puts forward policy suggestions to encourage dialogue and debate about policy among relevant stakeholders and provides policy options for building a resilient and responsive migration infrastructure to minimise the detrimental consequences of COVID-19 and future related crises.

6.1 Main Findings and Policy Implications

This thesis examines the Cambodian labour migration process in the Cambodia–Thailand migration corridor. It commences with an examination of the monetary costs of migration and evaluates the effect of worker-paid migration costs on the choice of migration channel. This is followed by a study that examines the economics of migration, focusing on the relationship between microcredit and migration, and the relationship between household debt and remittances. The thesis's last core paper explores labour recruitment methods and debt-induced migration during the COVID-19 period. The thesis also examines policy conversations and possible responses to future related crises.

First, due to the lack of data concerning actual and direct migration costs, theoretical and empirical models of international migration have been constrained by the use of proxy variables to estimate migration costs. As a result, the global effort to reduce migration costs has followed a difficult

path, providing inadequate resources for improving the livelihoods of migrants and for maximising the gains of migration. This study examines the impact of the direct monetary costs of migration on the decision to migrate and enhances our understanding of the components of worker-paid migration costs. The finding suggests that excessively high costs associated with formal migration contribute to an increased likelihood of migrating through irregular channels. It shows that as the cost of adopting a formal migration channel increases by the cost of one month's average household consumption, the likelihood of choosing an informal migration route increases by 15.8 percentage points. This finding is supported by the evidence that making the decision to migrate through formal channels is deterred by the high costs of migration. The study also confirms the hypothesis, based on the number of Cambodians deported, that enforcing stricter immigration policies in the country of destination reduces illegal immigration by 20.9 percentage points. The length of time migrants spend at their final destination is linked to irregular migration decisions, implying a correlation of 2.96 percentage points. Finally, Cambodian migrants are encouraged to migrate through official channels by a 0.9 percent increase in wages.

With regard to the policy implications in the first paper, both the Cambodian and Thai governments can benefit from the above-mentioned insightful findings. Asserting stronger control over private recruiting agencies may be an ideal alternative to ensure that they adhere to standard labour migration guidelines and an ethical code of conduct. This approach may also yield benefits for migration by removing bureaucratic complications, strengthening regulations, reducing asymmetric fees and minimising fees paid by migrant workers. This paper can serve as a starting point for policymakers to thoroughly investigate the costs of direct migration. Importantly, it provides a baseline result that can provide an answer to the question whether employers should bear the cost of employee migration.

Secondly, despite a large body of research on the connection between microcredit and migration, previous studies have yielded ambiguous results. They have also failed to distinguish between formal and informal credit and their respective effects on household migration decisions. In addition, the structural differences between formal and informal borrowers on the one hand and non-borrowers on the other may have a significant influence on migration decisions. Accordingly, a survey of 422 Cambodian households was used to look into the relationship between the country's formal and informal microcredit markets and migration decisions. This study uses an endogenous switching probit model to examine the influence of formal and informal credit on labour migration decisions. Instrumental variables are used to mitigate endogeneity issues caused by self-selection and omitted variable bias in order to conduct research on the credit-migration nexus.

Households with prior experience of taking out loans before migration are more likely to have family members who migrate. Households that have access to formal credit are 5.6 percentage points more likely to send a family member abroad, while households that have access to informal credit are 3.2 percentage points more likely to send a family member abroad than non-borrowed households. This finding suggests that, contrary to the conventional migration theory, formal credit is not a substitute for migration. In our findings, migration networks continue to play an important role in facilitating access to informal borrowing and migration for families.

In light of the positive correlation between credit availability and migration, it is imperative that policies governing credit availability and labour mobility infrastructure be reviewed because microcredit has evolved from functioning as a poverty alleviation tool to become a commercial tool, and policymakers should take this into account. In addition, financial institutions should re-examine their financial products in order to encourage households to invest in productive projects.

Third, although a large literature explores and evaluates the effect of remittances on the development nexus in recipient countries, little is known about how remittances affect household debt. In particular, household indebtedness in developing countries is a major issue that requires proper understanding and that should be addressed, since it is likely to influence household economic decisions and potentially lead to financial fragility. Therefore, an examination and evaluation of the way remittances affect household debt and debt performance is vital. Two important questions are asked in this paper. First, we examine and measure remittances sent to Cambodian household recipients and ask what the motivating factors are. Second, what impact do remittances have on the level and performance of household debt? To answer these questions, we use the two-step Heckman selection model and two-stage least-squares regression. Then, in order to determine the effect of remittances on household debt performance and indebtedness, the Tobit model is used after instrumentation.

The findings from this paper suggest that the altruistic aspiration to alleviate the plight of low-income families in developing countries drives remittance flows. Notably, labour migration from Cambodia is frequently temporary and circular. The evidence suggests that a migrant's long-term absence from family may decrease the value of remittances over time. After instrumenting, our finding also shows that remittances have a positive, statistically significant impact on household debt performance. According to the results, a 10% increase in remittance inflow to the recipient household can improve debt performance by 1%. To put it another way, for every 10% increase in remittance inflows, the household debt burden is reduced by 1.7%.

Our findings suggest policy implications and we believe there is room for further investigation. Family welfare is enhanced and indebtedness less severe when remittances are received as an external source outside the family. Remittances sent to households left behind at home are not

always large enough to reduce transaction fees. Therefore, maximizing the amount of remittances households received can considerably enhance household welfare and contribute to indebtedness reductions. From these findings, policymakers, financial institutions, and money transfer service providers in both sending and receiving countries should support a reduction in remittance transfer fees. Accordingly, policymakers should prioritise efforts to increase the number of migrants and households left behind who can use formal and digital services to send and receive money remittances.

The implementation of a number of policy recommendations to curb unnecessarily high recruitment fees incurred by migrant workers is important. First, at the private recruiting agency level, the adoption of ILO Convention No. 181 and General Principle and Operational Guidelines for Fair Recruitment and Definition of Recruitment Fees and Related Costs should be extensively encouraged as guides to fair, ethical recruitment practices. It is important to insist that although worker-paid migration costs cannot currently be reduced to zero, private recruitment agencies should not overcharge migrant workers, especially during the current pandemic crisis. To reduce asymmetric information, private recruiting agencies should explicitly disclose migration costs in order to ensure transparent labour recruitment practices and avoid overcharging for costs.

Also, migrant workers should not be charged additional fees for supplementary health-related measures, such as health checks, polymerase chain reaction (PCR) tests, quarantine, and any official documents. Also, due to travel restrictions and other related measures to contain COVID-19, private recruiting agencies should reimburse all recruitment-related costs and fees paid by migrant workers who cannot leave the sending country and are unable to be deployed to the host country. In addition, where such restrictions are imposed, migrant workers who are unable to work and must return home should not be responsible for any expenditures associated with repatriation,

including transportation, health related costs and quarantine. Finally, in order to manage the crisis as well as possible to ensure migrant protection in future emigration-related crises, more research is necessary to explore and establish the viability and modality of applying zero migration costs in the Cambodia–Thailand migration corridor.

6.2 Further Research

In the investigation carried out in this thesis, note should be taken of several limitations that were not fully addressed in the core research papers and that therefore require further investigation. Future research is important to provide further data for policymakers to design optimal evidence-based policies that can enhance labour migration management and maximise returns on migration.

To begin with, it is clearly important to reduce worker-paid migration costs substantially and finally eliminate these costs altogether. Therefore, future research should focus on an investigation of feasible mechanisms and approaches for ensuring zero migration costs, as specified in ILO Convention No. 181 and in standard guidelines and recruitment codes of conduct. It is vital to examine the possibility of employers or governments bearing the costs of migration. To accomplish this, on the one hand, it is necessary to collect more relevant, up-to-date migration cost data on a regular basis across migration corridors in order to keep track of evolving costs. These data should be gathered from both private recruiters and migrants, who are preparing to migrate, or have already migrated or returned, regardless of migration channel, and whether they are regular or irregular migrant workers.

On the other hand, additional research into policing and regulating private recruiting agencies should be endorsed, and ideally this research will be qualitative. Thus, in the future, a combination of qualitative and quantitative approaches, referred to as mixed-method research, should be used

to determine the feasibility of migration cost reduction, policy implications and cost measurement, and to evaluate the consequences of migration cost reduction. Finally, more research is needed to explore and verify the viability and mode of implementing zero-migration costs in the Cambodia–Thailand corridor. This should also include a study on the willingness of migrant workers, recruiters, and employers to pay migration costs. Comprehending both the viability of a zero-migration cost approach and the willingness to pay will be important for policy design and to assure the protection of migrant labourers. This approach especially will help policymakers to deal with labour challenges in times of crisis.

Second, from the understanding of cost reduction gained in the first paper, the second core paper was limited to assessing the way financial literacy among migrant households and the use of microcredit affect migration decisions. Gauging the impact of financial literacy and recourse to microcredit on migration decisions is a potential avenue to achieving a better understanding of the migration-development nexus, as well as to eliminate credit-induced, credit-financed migration. Without such information, managing labour mobility and securing a positive return on migration may be challenging.

Moreover, researchers should pay more attention to collecting seasonal and temporary migration data in the future, including in informal sectors, such as informal credit and undocumented labour mobility. Given such data and a sufficient sample size across time periods, we will be able to make a more precise estimation of the credit-migration relationship, since we will be able to control for documented and undocumented migration, and formal and informal credit.

Third, despite the importance of the effect of remittances on household indebtedness and debt performance established in this thesis, our third core paper has only been able to account for quantified household debt in the form of objective reported debt. Because of the limits of

qualitative research, this study is limited to a subjective approach to reported household debt. Therefore, further study on the remittances-debt relationship should include a household survey and interview that asks both objective and subjective debt-related questions. Adopting both an objective and subjective approach to reported household debt will allow researchers to triangulate the same question to obtain a clearer picture of motivation, determine how many migrants are likely to send remittances, and understand how remittances influence debt-related stress.

Our third core paper is also limited by the lack of an understanding of mechanisms that could lead to a household's adoption of technology and acquiring financial literacy in their use of formal financial services for receiving remittances. Therefore, further examination should focus on the linkage between a household's adoption of technology, financial literacy, and remittances. Such a study would provide important evidence for policymakers, enabling an understanding of ways to enhance household/migrant financial literacy and the adoption of digital platforms that can reduce the costs of sending remittances and making informal money transfers. This study can be conducted either prior to or after migration, and at the household or individual migrant level. Moreover, given the current limited amount of data, especially longitudinal household data in a developing country like Cambodia, researchers, academics, think-tanks, and government should encourage and improve multiple periodic data collections at both the individual and household levels.

Finally, with the ongoing global pandemic and the new wave of COVID-19 virus strains, labour migration is subject to extreme challenges. As discussed in the thesis's final key paper, these difficulties stem from a variety of restrictive immigration policies, including travel and border restrictions, COVID-19-related health check measures, and other employment requirements. The difficulties faced by many migrants and the households they leave at home highlight the

importance of conducting empirical studies to determine the impact of COVID-19 on household and migrant welfare, and several other development nexuses.

For example, because of COVID-19 restrictions, worker-paid migration costs are higher than in normal times, compounding and increasing the cost of regular migration, and there is also significant disruption to sending remittances. As a result, on the one hand, migrants' preference for undocumented migration with the assistance of smugglers or informal networks may increase. On the other hand, with the disruption to remittances and the rise of informal transfers, migrants' socioeconomic status and the livelihoods of households in the home country may face a number of economic difficulties with their attendant consequences, requiring proper understanding and rigorous study. Furthermore, researchers and academics working in the field of labour migration studies should concentrate on recently updated data. Analysing current data will be more informative, enabling policymakers to optimise policy design and ensure the effectiveness of policies for mitigating COVID-19's adverse effect on labour migration and future migration-related crises.

6.3 Thesis Appendix

Table A.1. *Terminology*

Term	Description
Migrant worker	A person engaged in remunerated activities in a country where he or she is not a national.
Regular migrant worker	A migrant worker or member of their family authorised to enter, stay, and engage in a remunerated activity in the country of employment pursuant to the law of that country and to international agreements to which that country is a party. The terms "regular," "legal," and "documented" migrant can be used interchangeably.
Irregular migrant worker	A migrant worker who leaves, enters, stays or works in a country, without the necessary authorisation or documents required under the laws of that country. Based on the ILO survey database on the costs of migration (2016, 2018), irregular migrants commonly do not have passports and migration costs would be accounted for by payments to relatives/friends/brokers, internal transport and international transport. The terms "irregular," "illegal," and "undocumented" migrant can be used interchangeably.
Recruitment agency	Any natural or legal person, independent of the public authorities, who provides one or more of the following labour market services: - A service matching offers of employment and applications for it, without the private employment agency becoming a party to the employment relationship [that] may arise therefrom; - Services employing workers with a view to making them available to a third party, who may be a natural or legal person (referred to as a "user enterprise", which assigns their tasks and supervises the execution of these, or; - Other services related to job seeking, determined by the competent authority after consulting the most representative employers' and workers' organisation, such as the provision of information, that do not set out to match specific offers of employment and applications for it.
Informal broker	Any natural or legal person not licensed by the state to provide one or more of the labour market services mentioned in the "recruitment agency" definition above. The term includes both

	individual brokers and social networks that offer services with or without remuneration.
Formal microcredit	The sources of formal microcredit typically come from commercial banks and MFIs which have been registered with the National Bank of Cambodia (NBC).
Informal microcredit	The sources of informal microcredit that comes from financial providers other than formal microcredit institutions, such as moneylenders, traders, landlords, employers, relatives, and friends who can be found in the village or the nearby local market. Such credit is accessible and offers immediate cash, usually with higher interest rates than formal credit.

Source: ILO (2017) and IOM (2017)

Table A.2. *Typology of Cambodian migrants*

Destination	Legality Status		Duration			Recruitment
	Regular	Irregular	Daily	Season	Long term	
Thailand	Yes	Yes	Yes	Yes	Yes	G2A
Malaysia	Yes	Yes	-	-	Yes	G2A
South Korea	Yes	-	-	-	Yes	G2G

Source: Chan (2009), and Hing et al., (2011).

Chan, S. (2009). *Review of labour migration management, policies and legal framework in Cambodia*: ILO Bangkok.

Hing, V., Sry, B., Roth, V., Massimo, C., Pirani, S., & Romanelli, M. (2016). *Migration and remittances: Mapping the sending channel and the managment of remittances in Cambodia*. Retrieved from http://www.gvc-italia.org/images/cke/files/Mapping_Remittance_Use.pdf

Table A.3. *List of Private Recruiting Agency*

No.	Name	Registered at MoLVT			Tasks
		Thailand	Malaysia	Japan	
1	**Anonymous**	**1**	**1**	**1**	**Completed**
2	**Anonymous**	**1**	**1**	**1**	**Completed**
3	**Anonymous**	**1**	**1**	**1**	**Completed**
4	**Anonymous**	**1**	**1**	**1**	**Completed**
5	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
6	**Anonymous**	1	1	1	Sending workers to Japan only but registered for multiple destinations
7	**Anonymous**	**1**	**1**	**1**	**Completed**
8	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
9	**Anonymous**	**1**	**1**	**1**	**Waiting and follow-up**
10	Anonymous	1	1	1	Refuse to participate
11	Anonymous	1	1	1	Refuse to participate
12	Anonymous	1	1	0	Shut down
13	Anonymous	1	1	0	Refuse to participate
14	Anonymous	1	0	1	Sending workers to Japan only but registered for multiple destinations
15	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
16	Anonymous	1	1	1	Refuse to participate
17	Anonymous	1	1	1	Refuse to participate
18	**Anonymous**	**1**	**1**	**1**	**Completed**
19	Anonymous	1	0	1	Sending workers to Japan only but registered for multiple destinations
20	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
21	**Anonymous**	**1**	**1**	**1**	**Completed**
22	**Anonymous**	**1**	**1**	**1**	**Completed**
23	Anonymous	1	1	1	Refuse to participate
24	**Anonymous**	**1**	**1**	**1**	**Completed**
25	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
26	Anonymous	1	0	1	Sending workers to Japan only but registered for multiple destinations
27	Anonymous	1	1	0	No operation
28	Anonymous	1	1	0	No operation
29	Anonymous	1	1	1	No operation
30	Anonymous	1	1	1	Refuse to participate
31	Anonymous	1	1	1	Refuse to participate
32	Anonymous	1	1	1	Shut down
33	Anonymous	1	1	1	Refuse to participate
34	**Anonymous**	**1**	**1**	**1**	**Completed**
35	Anonymous	1	1	1	Refuse to participate
36	Anonymous	1	1	1	Refuse to participate
37	**Anonymous**	**1**	**1**	**1**	**Completed**
38	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
39	Anonymous	1	0	0	Shut down
40	Anonymous	1	1	1	Refuse to participate
41	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations

No.	Name	Registered at MoLVT			Tasks
		Thailand	Malaysia	Japan	
42	**Anonymous**	**1**	**1**	**1**	**Completed**
43	Anonymous	1	1	1	Refuse to participate
44	Anonymous	1	1	1	Refuse to participate
45	**Anonymous**	**1**	**1**	**1**	**Completed**
46	Anonymous	1	1	1	No operation
47	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
48	Anonymous	1	1	1	Refuse to participate
49	Anonymous	1	1	1	No operation
50	Anonymous	1	1	1	No operation
51	Anonymous	1	1	0	Refuse to participate
52	Anonymous	0	1	0	No operation
53	**Anonymous**	**1**	**1**	**0**	**Waiting and follow-up**
54	Anonymous	1	1	0	Refuse to participate
55	Anonymous	1	1	1	No operation
56	Anonymous	1	0	1	Sending workers to Japan only but registered for multiple destinations
57	**Anonymous**	**1**	**1**	**0**	**Completed**
58	**Anonymous**	**1**	**1**	**0**	**Completed**
59	**Anonymous**	**1**	**1**	**0**	**Completed**
60	Anonymous	1	1	1	Refuse to participate
61	Anonymous	1	1	1	Sending workers to Hong Kong only but registered for multiple destinations
62	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
63	Anonymous	1	1	1	Shut down
64	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
65	Anonymous	1	1	1	Refuse to participate
66	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
67	**Anonymous**	**1**	**1**	**1**	**Completed**
68	Anonymous	1	1	0	No activities
69	Anonymous	1	1	0	No activities
70	Anonymous	1	1	0	Sending workers to Japan only but registered for multiple destinations
71	Anonymous	1	1	0	Sending workers to Japan only but registered for multiple destinations
72	Anonymous	1	1	1	Sending workers to Japan only but registered for multiple destinations
73	**Anonymous**	**1**	**0**	**0**	**Waiting and follow-up**
74	**Anonymous**	**1**	**0**	**0**	**Waiting and follow-up**
75	Anonymous	1	0	0	Refuse to participate
76	**Anonymous**	**1**	**0**	**0**	**Waiting and follow-up**
77	Three. TS (Cambodia)	1	1	0	Sending workers to Japan only but registered for multiple destinations

Note: Data collection ended in April 10, 2020.

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Chan Mono Oum
4/47 Cameron Road
Hillcrest
Hamilton

5 August 2019

Dear Mono

Ethical Application WMS 19/53
The Effects of Migration Cost, Microcredit, and Remittances on Cross-Border Migration Decision: Evidence from Cambodian Household Survey

The above research project, as outlined in your submitted application, has been granted Ethics Approval for Research by the Waikato Management School Human Research Ethics Committee.

Please note: should you make changes to the project outlined in the approved ethics application, you may need to reapply for ethics approval.

Best wishes for your research.

Kind regards,

Amanda Sircombe

Amanda Sircombe
WMS Research and Postgraduate Manager

Household questionnaire (English version) can be found at: https://enketo.ona.io/x/XlZQIVnz

Private recruiting agency's Questionnaire:

Recruiting Firm Questionnaire (English Version)

"The Effects of Migration Cost, Microcredit, and Remittances on Crossed-Border Migration Decision: Evidence from Cambodian Household Survey"

Objectives:

Cambodian out-migration has been evolving into a substantial challenge for the Cambodian Government since this phenomenon contemporarily becomes more active and multifaceted. This research thesis aims at exploring the Cambodian labour migration process and contributing factors in migration decisions which policy formulation and implication can be undertaken into account effectively. Examining in the context of South-South migration (SSM), this study will investigate three significant dimensions of Cambodian labour migration:

(1) The relationships between the cost of migration and the migration decision

(2) The effect of microcredit and the migration decision, and

(3) The relationship between remittances and the migrant household's over-indebtedness.

The results from this study will not only contribute to the literature, but also impart a precise methodology and evidence to Cambodian policymakers in order to re-examine labour migration policy and credit regulation, the recruitment cost, and importantly to promote safe migration ensuring the sustainable development of Cambodia.

Survey Instruction Code for Skip patterns:	☐ A: allows multiple answer
☐ -19: Do not know	☐ 1: allows only one possible answer
☐ - 29: Refuse to answer	(There will be no blank space in the questionnaire; codes and notes are required)
☐ -39: Not Applicable	

(Survey Input) Survey Administration:					
Questionnaire Code : ☐☐☐					
1.	Interviewer Name				
2.	Interviewer code				
3.	Name of the Recruiting Firm				
4.	Respondent's Name (*For quality control purposes only*)			☐ -29: Refuse (If respondent refuses to give name)	
5.	Respondent's Phone number (*For quality control purposes only*)			☐ -29: Refuse (If respondent refuses to give the phone number)	
6.	Position				
7.	Gender	☐1= Male; ☐2= Female			
8.	Year of Establishment				
9.	Address	1.	Province (code)		
		2.	District/Khan (code)		
		3.	Commune (code)		
		4.	Village (code)		

Tracking and Controlling Survey			
		Enumerators	Supervisor
		Blue Pen	Red Pen
Enumerators' Name			
Start time Interviewing		☐☐h☐☐	☐☐h☐☐
Finish time Interviewing		☐☐h☐☐	☐☐h☐☐
Date		*Day-month-year*	*Day-month-year*
Signature			
Survey outcome	☐	Fully Completed	
	☐	Partially Completed	Percentage of Valid Completion: ☐☐ %
Reason for Partially Completed:			
(1) Enumerator's Note and Observation:			
(2) Supervisor's note and observation:			
(3) Team leader's note and observation:			

Section 1: Business Profile

Skip Patters apply to all questions

☐ -19: Do not know ☐ - 29: Refuse to answer ☐ -39: Not Applicable

10.	Ownership of Firm	☐ 1=	Cambodian owned	
		☐ 2=	Foreign owned	
		☐ 3=	Cambodian-owned majority and foreign	
		☐ 4=	Foreign owned majority and Cambodia	
		☐ 5=	partly state owned	
		☐ 6=	State owned	
11.	Do you have branches	☐ 1= Yes; ☐ 2= No		
12.	If yes, which city/ province?	Name of province/City:		
13.	In the last 12 months, total permanent employee?	Total:		#Female
14.	In the last 12 months, total part time employee?	Total:		#Female
15.	In the last 12 months, total migrants registered with your Recruiting firm?	Total:		#Female
16.	In the last 12 months, total of success migrant migrate to Selected destination?	Total:		#Female

17.	In the last 12 months, please indicate number of migrant to the destination	☐ A= Thailand	☐ B=Malaysia	☐ 99=other destination
		Total:	Total	Total
		Female:	Female	Female
18.	How long does it take for a training preparation before a potential migrant migration?	Months:		Skip Pattern:
19.	Where do potential migrants originally come from?	1. Destination to Thailand	2. Destination to Malaysia	
		Provincial Code:	Province Code:	
20.	How do you recruit migrant workers?	☐ A= Advertise on TV, ☐ B= Advertise through Radio ☐ C= Advertise on Social Media (Facebook, Line etc) ☐ D= Sub-contractor ☐ E= our outreach staffs at potential migrant's villages/ locations. ☐ F= our return migrant workers we sent oversea G= ☐ our current migrant worker we sent oversea H= ☐ our informal network (informal subcontractor) at the villages ☐ I= our informal network at the districts ☐ 99= other describes:		

Section 2: Recruitment Fee

Instruction: Selected Skip pattern ☐ -39: Not Applicable if any item not applicable.

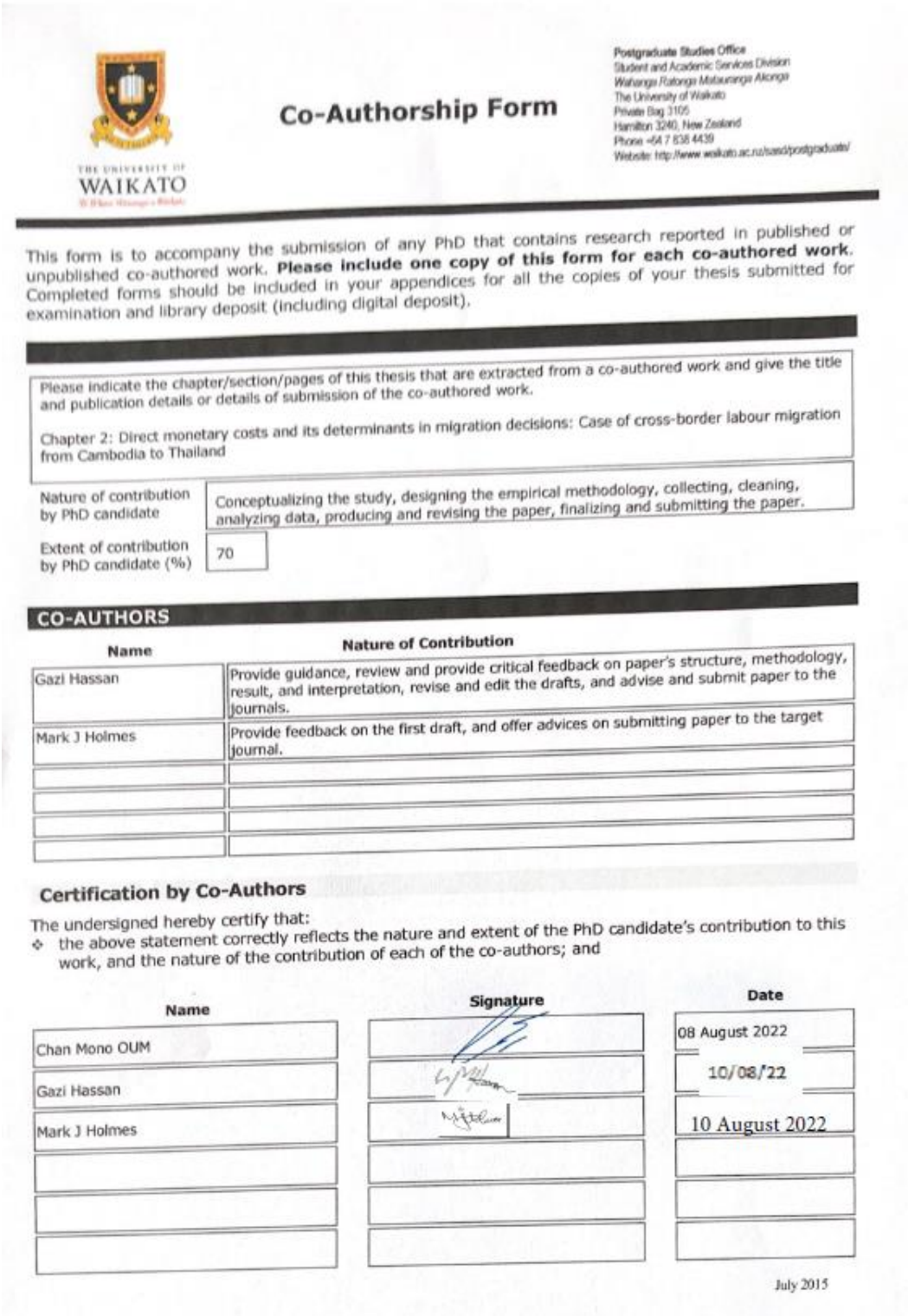
21.	Items (**Value in USD**)	Thailand	Malaysia	Percentage
	1. Total/ Lump Sum of recruitment fee			
	2. Recruitment fee			
	3. Pre-departure training			
	4. Job training			
	5. Language training			
	6. Visa fee			
	7. Passport fee			
	8. Medical test fee			
	9. Insurance			
	10. Police and security clearance			
	11. Contact approval			
	12. Exist approval			

	13. Skills test			
	14. Welfare fund fee			
	15. Local transportation			
	16. International transportation			
	17. Informal Payment			
	18. Cost of living away from home during pre-departure training			
	19. Cost of travelling from home to the training place			
	20. Other payments which not include here			
22.	**What other costs that your firm does not cover for Registered migrants?**	Other type of cost	Value in USD	
		1. 2. 3.	1. 2. 3.	
23.	Does your charged fee vary from one migrant worker to anther?	☐1= Yes; ☐2= No		
24.	**If yes, what are the top three factors?**	☐A= Migrant's level of education ☐B= Destination (location) ☐C= Occupations required skill ☐D= Migrant's health ☐E= Favorable for migrants from poor family ☐99= Other describes:		
25.	How does migrant pay the recruiting fee?	☐1= Pay everything in advance ☐2= Company gives a loan and migrant repay through salary deduction. ☐3= Pay less than 20% of the total fee ☐4= Pay between 21%-40% of the total fee ☐5= Pay between 41% -60% of the total fee ☐6= Pay between 61%- 80% of the total fee ☐7= Pay at least 81% of the total fee ☐99= other describes:		

Section 3: Job Condition at the Destination

26.	Please indicate sectors which migrants were sent to work in the destination countries?	Sectors	Percentage	Skip Pattern
		☐A= Construction		
		☐B= Agriculture		
		☐C=Manufacture		
		☐D= Agri-Industry		
		☐E= Domestic		
		☐F= Services (i.e. Restaurant etc.)		
		☐99=Other:		
27.	Which are the top provinces/cities migrant is sent to?	Thailand	Malaysia	Skip Pattern
		1.	1.	
		2.	2.	
		3.	3.	
28.	What is the average contract duration your recruiting firm offer to the registered migrant?	# Months:	# Months:	

Co-Authorship Form



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Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work. Chapter 2: Direct monetary costs and its determinants in migration decisions: Case of cross-border labour migration from Cambodia to Thailand	
Nature of contribution by PhD candidate	Conceptualizing the study, designing the empirical methodology, collecting, cleaning, analyzing data, producing and revising the paper, finalizing and submitting the paper.
Extent of contribution by PhD candidate (%)	70

CO-AUTHORS

Name	Nature of Contribution
Gazi Hassan	Provide guidance, review and provide critical feedback on paper's structure, methodology, result, and interpretation, revise and edit the drafts, and advise and submit paper to the journals.
Mark J Holmes	Provide feedback on the first draft, and offer advices on submitting paper to the target journal.

Certification by Co-Authors

The undersigned hereby certify that:

- the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and

Name	Signature	Date
Chan Mono OUM		08 August 2022
Gazi Hassan		10/08/'22
Mark J Holmes		10 August 2022

July 2015

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Chapter 3: Impact of microcredit on labour migration decisions: Evidence from a Cambodian household survey

Nature of contribution by PhD candidate	Conceptualizing the study, designing the empirical methodology, collecting, cleaning, analyzing data, producing and revising the paper, finalizing and submitting the paper.
Extent of contribution by PhD candidate (%)	70

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Chapter 4: Do remittances increase household indebtedness? Evidence from a Cambodian household survey

Nature of contribution by PhD candidate	Conceptualizing the study, designing the empirical methodology, collecting, cleaning, analyzing data, producing and revising the paper, finalizing and submitting the paper.
Extent of contribution by PhD candidate (%)	70

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Chapter 5: Rethinking the labour recruitment practices and debt-related migration: Cambodia-Thailand labour migration amidst the global pandemic.

Nature of contribution by PhD candidate	Conceptualizing the study, producing and revising the paper, finalizing and submitting the paper.
Extent of contribution by PhD candidate (%)	70

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