Doctoral Dissertation

Integrating Monetary and Non-monetary
Remittances for Entrepreneurship
Development in the Philippines

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Doctoral Program in Economics

Graduate School of Economics

Ritsumeikan University

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Declaration

I declare that the contents of this dissertation are my original work and have not been submitted for the award of a doctoral degree at another university. Furthermore, I confirm that all necessary materials consulted during the writing of this dissertation have been appropriately cited. In cases where co-authors have contributed to any article whose contents were used herein, I obtained permission from the co-authors. Any remaining errors are my sole responsibility.

Acknowledgment

As this journey reaches its culmination, I am reminded that no great endeavor is undertaken alone. My heart brims with gratitude for those who have walked with me along this path.

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To the readers of this work, I extend my gratitude. It is my hope that this dissertation not only adds to the academic discourse but also inspires and provokes thought in ways both profound and subtle.

To God Almighty, I owe everything to You. Without You, I am nothing.

-Mishael ♡

Abstract

Since the first formal conceptualizations of models of remittance behavior in the 1980s, empirical studies have been abundant in various settings that have tried to model and test the underlying motives. The main problem is that most studies have only provided a narrow, monetary-centric view of migrant behavior, focusing solely on the amount of money sent. Ignoring the non-monetary aspect of remittances may lead to misleading migration and remittance policies, as they fail to account for the full extent of migrants' contributions to their home countries. Non-monetary remittances encompass tangible goods, such as used cars, agricultural machinery, and computers, and intangible goods, including skills, expertise, and technical knowledge.

Hence, this study addresses this gap by presenting the first comprehensive attempt to model remittances used for entrepreneurship development, considering both monetary and non-monetary forms. It develops a theoretical model centered on a utility maximization framework that considers monetary and non-monetary remittances as capital inflows for recipient households. The utility functions for the migrant and the recipient household are constructed to capture the well-being derived from consumption over two periods, emphasizing the interdependent utility gains between the migrant and the recipient household. The theoretical implications of the model demonstrate the importance of diversifying the remittance portfolio and strategically combining monetary and non-monetary forms to optimize entrepreneurial outcomes. This novel perspective on the role of non-monetary remittances offers valuable insights for researchers and scholars aiming to empirically examine the comprehensive impact of remittances on entrepreneurship development.

Accordingly, to empirically test the predictions outlined in the theoretical model, the study provides a two-pronged approach: first, it delves into understanding the factors influencing the migrant's remittance behavior; second, it examines the impact of these factors, with a particular interest in the joint effects of monetary and non-monetary remittances on the likelihood of entrepreneurship.

Using micro-level primary data collected from Filipino migrants in Japan, the study demonstrates that the decision to remit is strongly affected by the migrant's socioeconomic characteristics, with the self-interest motive as a ubiquitous underlying element supporting the assumption of the theoretical model. Furthermore, the study

highlights a higher prevalence of non-monetary remittance practice among women than men, suggesting that non-monetary remittances serve as an alternative avenue for Filipino women in Japan to fulfill familial obligations back home despite economic disparities within their Japanese households. Additionally, the findings reveal that the home country's residence location matters for the remittance form, with rural and distant regions preferring monetary remittances.

Furthermore, the study underscores the transformative potential of non-monetary remittances, particularly in facilitating entrepreneurship where financial barriers might otherwise impede the initiation of economic activities. While monetary transfers are susceptible to being easily depleted and consumed by recipient households, tangible assets such as physical capital goods and intangible forms of support carry inherent and sustained value. The findings emphasize the transformative potential of remittances, not merely as transient financial injections but as enduring contributors to entrepreneurship development. In effect, the analysis reveals that financial backing from monetary remittances, when complemented by non-monetary support, reinforces households to meet immediate needs and provides opportunities to invest in business initiatives.

Thus, by addressing the current gap in the literature, this study provides valuable insights to significantly augment the current remittance literature and make novel contributions to the remittances and entrepreneurship development nexus. It provides theoretical and empirical perspectives on integrating monetary and non-monetary remittances to foster entrepreneurship. Focusing on the Filipino diaspora in Japan, it highlights the potential of non-monetary remittances, such as technological equipment, to spur entrepreneurship. Furthermore, the study forwards a crucial policy alternative that aims to encourage the diversification of remittance channels, explicitly emphasizing the potential of non-monetary remittances in the form of physical capital goods and other tangible assets valuable for productive economic activities back to the home country.

Chapter 1: Introduction

1.1 Background of the Study

Economic development under the globalization paradigm has been accompanied by the unrestricted movement of production resources. The movement of people across borders presents a complex landscape, and remittances provide the most tangible and crucial link between migration and economic development. Migrants often seek better employment opportunities and higher wages in destination countries, increasing remittance flows back to their home countries to reduce poverty and improve their household's economic well-being. Remittances transferred to families in home countries directly become part of household income spent on purchasing food, housing, and health care for the family, education for children, and business investments (Ratha, 2003). Thus, beyond the direct impact of remittances on alleviating poverty, when they are directed toward supporting small businesses, education, or health, they can enhance physical and human capital levels – factors that contribute to long-run growth (Ahmed et al., 2021).

Recent data reveal that remittance flows to developing countries have grown significantly in the past decade. The World Bank estimates that remittances increased from $454 billion in 2015 to $699 billion in 2023 for low-and middle-income countries (LMIC). Furthermore, remittances to East Asia and the Pacific witnessed a 3% upswing, reaching $133 billion. Excluding China, the region experienced a more substantial increase of approximately 7%, reaching $83 billion in 2023[1]. This growth can be attributed to the consistent rise in remittance flows to the Philippines, where migrants are dispersed across a diversified array of host destinations worldwide.[2] The magnitude of these global transfers inevitably raises questions about their impact on sustainable development within receiving households, communities, and countries (Olivié & Santillán O'Shea, 2022).

The growing importance of these income transfers has produced numerous studies exploring possible motivations to remit (Collier et al., 2017). While several theoretical

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[1] The World Bank (2023). https://www.worldbank.org/en/news/press-release/2023/12/18/remittance-flows-grow-2023-slower-pace-migration-development-brief

[2] Refer to Figure A1.1 of the Appendix.

frameworks have emerged over the years, the debate regarding the motivations behind remittance behavior remains ongoing. The present discussion on the motivations to remit began with the seminal study by Lucas and Stark (1985), which stemmed from the general theory of the new economics of labor migration (NELM). The theoretical literature on remittances acknowledges that the appropriate foundation for remittances is centered on the family as the basic unit of analysis (Becker, 1974). The migrant's altruistic motive, considered the primary motivation for remittance behavior, is his genuine care for the recipient's household. Osili (2007) notes that much of the early work on migrants' remittances suggests that transfers are sent primarily to help meet the consumption needs of the origin household or to provide economic support during periods of income shocks.

However, Lucas and Stark (1985) challenge the prevailing notion that altruistic motivations solely drive remittance behavior and highlight the significant role of self-interest. That is, migrants are motivated to send remittances for personal gain, which may manifest in various forms, such as aspirations for inheritance, acquisition of physical assets, and the prospect of return migration. Similarly, Rapoport and Docquier (2006) present a comprehensive discussion of different theoretical models that explain the diverse motivations behind remittances.[3] They argue that migrants possess a combination of motives, resulting in heterogeneity in their reasons for sending money back to their home countries. This argument implies that multiple motivations for remitting may coexist even within the same individual.

Notwithstanding the several benefits of remittances and migration, a significant strand of literature has also highlighted the negative aspects. A potentially negative impact involves the notion that remittances induce dependency, decreased engagement in economic activities, and conspicuous expenditure among recipient households (Amuedo-Dorantes, 2014; Arguelles, 2015). In the Philippines, the extreme dependence of households on remittances has long been recognized as a problem rather than a solution to excessive migration. In fact, the government has yet to identify and implement policies to create jobs and opportunities in the country and make migration a matter of preference or choice (Basa et al., 2012). As households become increasingly reliant on the

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[3] Refer to Rapoport and Docquier (2006) for a comprehensive review of theoretical literature on the motivations behind migrants' remittances.

predictable inflow of cash remittances, the impending return of the migrant raises critical questions about the sustainability of their economic well-being.

Accordingly, policymakers have long struggled to design a clear policy strategy to optimize the impacts of remittances and migration. To address the problem of extreme dependency and excessive migration in many developing countries, much of the literature has delved into exploring the prospects of fostering entrepreneurship among migrant households. From the migrant's perspective, investing in a business or any productive activity while living in the host country is often linked to their intention to return home (Lucas & Stark, 1985). That is, the possibility of returning is considered by the migrant, where the decision to return depends on accumulating sufficient capital and or knowledge in the host country. The possibility of return enables the migrant to decide to engage in economic activities that would generate and ensure a stable, positive source of income at home.

The literature on remittances and entrepreneurship development has grown significantly over the past few decades, with scholars from various disciplines examining its economic, social, and political implications. Although much of the literature indicates that the relationship between entrepreneurship and remittances remains complex, this nexus has received increasing attention to help reduce poverty and improve the general welfare of recipient households (Vacaflores, 2018; Alhassan, 2022; Mondal & Khanam, 2018). Ample empirical evidence supports the case that remittances can be utilized as a source of capital and provide a financial cushion that enables recipients to pursue entrepreneurial activities (Kakhkharov, 2019; Vaaler, 2013; Rivera & Reyes, 2011; Woodruff & Zenteno, 2001). Rivera and Reyes (2011) argue that remittances have the potential to expand a household's financial resources and provide them opportunities to engage in options other than consumption. However, there is an escalating concern that despite remittances supporting economies, they have not resulted in sustained and long-term development (Reyes et al., 2013) and are considered a disincentive to entrepreneurship, which may cause a moral hazard effect on labor supply (Arguelles, 2015; Zheng & Musteen, 2018; Amuedo-Dorantes & Pozo, 2006; Alhassan et al., 2022).

While these studies have provided valuable insights into the monetary aspects of remittances and their potential to increase the likelihood of self-employment, more

frequently than not, the migrant's aspiration to invest remains unrealized due to the conventional method of monetary remittances, which tends to be restrictive. These monetary inflows are directed mainly toward immediate consumption demands rather than being channeled into productive uses (Tullao & Rivera, 2014; Tabuga, 2007; Brinkerhoff, 2016). Thus, the impact of remittances to spur development through entrepreneurship has yet to be translated to more sustainable livelihoods and enterprises, especially in rural areas (Reyes et al., 2013).

Arguably, while international migration has been changing in various ways over the last decades, theoretical and empirical literature has not paid much attention to the rapidly emerging trends of utilizing remittances in the form of technology-embedded capital goods for entrepreneurship development. Hence, this study addresses this gap by presenting the first comprehensive attempt to model remittances used for entrepreneurship development, considering both monetary and non-monetary forms. Non-monetary remittances encompass physical capital goods such as used cars, agricultural machinery, computers, and intangible goods, including skills, expertise, and technical knowledge (Maphosa, 2007; Coffie, 2022; Apatinga et al., 2021). They are characterized by their intangible and tangible nature, serving as vital resources that support the well-being and development of recipients in ways that transcend financial assistance alone. By incorporating these elements, the study aims to provide a more holistic understanding of the mechanisms through which remittances contribute to entrepreneurship development.

Thus, the underlying research question is whether integrating monetary and non-monetary remittances translates to more sustainable enterprises in developing countries. To understand this novel perspective comprehensively, the study introduces a theoretical model where migrants are posited to transfer monetary and non-monetary remittances as capital inflows for recipient households, primarily motivated by return migration. The model provides testable predictions to analyze the migrant's remittance and investment behaviors, focusing on micro-level primary data from the Filipino migrants in Japan. The empirical results derived from the study offer substantial support for the theoretical model.

1.2 Justification for the Study

There is limited literature on the contribution of non-monetary remittances to economic development that focuses mainly on improving household welfare, which is considered necessary to policies that facilitate the flow of these goods to recipient countries (Apatinga et al., 2022); notably, literature on the economic welfare of non-monetary remittances that provides theoretical and empirical implications in the context of developing countries. These countries are characterized by pervasive capital market imperfections, capital goods shortages, and an urgent need to utilize remittances to generate alternative sources of income, such as entrepreneurship. In response, this study offers an alternative perspective: migrants can redirect their remittances through technology-embedded physical capital goods and skills to foster entrepreneurship. This non-monetary approach presents a transformative opportunity, allowing migrants to establish sustainable income streams, thereby mitigating the potential economic disruptions associated with the cessation of regular cash remittances upon the migrant's return.

Arguably, there has been a rapidly emerging trend of using remittances in the form of technology-embedded capital goods, skills, and knowledge for entrepreneurship development (Kojima & Sakata, 2021). This emerging trend has the potential to support economic growth in the home country through the development of micro-small and medium enterprises (MSMEs), which are the backbone of most developing countries. Incorporating non-monetary forms of remittances can help MSMEs become more innovative and productive and create jobs in the local economy. Ignoring non-monetary remittances to support entrepreneurship may lead to misleading migration and remittance policies, for instance, in justifying too much of a focus on attracting cash flows rather than easing tariffs or customs restrictions on capital goods or encouraging migrant skills.

While expanding the term 'remittances' in a broader sense to encompass not only monetary transfers but also non-monetary forms, the present study aims to provide a more nuanced understanding of the impact of remittances on entrepreneurship development. It does so by constructing a theoretical model with testable predictions in which monetary and non-monetary remittances are used as capital inflows for recipient households. The key aspect of this model delves into the migrant's remittance behavior and investment

decision, which are purportedly affected by the form of remittances, underpinning the assumption that non-monetary forms of remittances have significant effects on entrepreneurship development. That is, the remittance behavior and investment decisions of migrants are jointly analyzed based on the self-interest motive introduced by Lucas and Stark (1985). By developing this theoretical model and testing the predictions empirically, the study aims to contribute to a better understanding of the role of non-monetary remittances in entrepreneurship development and highlight the importance of considering both monetary and non-monetary forms of remittances in policy decisions.

1.3 Objectives and Purpose of the Study

This study seeks to significantly contribute to the existing remittance literature by thoroughly examining the comprehensive impact of monetary and non-monetary remittances on entrepreneurship development within the Filipino diaspora in Japan. The study is specifically designed to address three distinct and focused objectives:

1. To develop a theoretical model centered on a utility maximization framework that considers remittances, both monetary and non-monetary, as capital inflows for recipient households;
2. To examine the differential factors influencing migrants' monetary and non-monetary remittance behaviors; and
3. To investigate the joint effects of monetary and non-monetary forms of remittances on entrepreneurship development.

1.4 Organization of Chapters

This research is structured into multiple chapters to address the objectives comprehensively. Chapter 2 conducts a thorough literature review, synthesizing existing research on the relationship between remittances and entrepreneurship development to identify prevalent research gaps. Chapter 3 introduces and discusses the theoretical model, laying the groundwork for the subsequent empirical analysis. Chapter 4 outlines the methodology, providing contextual information crucial to the empirical foundations of our analysis.

Chapters 5 and 6 present the empirical results, aligning with the theoretical predictions of the model. Chapter 5 specifically addresses the second objective. Chapter 6 delves into and discusses the empirical evidence highlighting the potential impact of integrating monetary and non-monetary remittances in fostering entrepreneurship development. Lastly, Chapter 7 encapsulates the concluding remarks, including the identified limitations of the study and offering directions for future research areas.

1.5 Summary of Findings and Contributions of the Study

Based on the foregoing and contributing to the limitations of previous research by considering non-monetary forms of remittance, the theoretical findings in Chapter 3 underscore the importance of diversification in a migrant's remittance portfolio, advocating for an optimal balance between cash and non-cash remittances to maximize their impact on entrepreneurial activities. Second, the theoretical model also highlights the indispensable role of a baseline level of monetary support for initiating entrepreneurial endeavors, as monetary remittances inject the necessary capital.

Additionally, the model emphasizes the potential of non-monetary remittances to mitigate perceived risks associated with entrepreneurship, empowering migrants to invest with greater confidence. That is, the findings show that non-monetary remittances can obtain a higher return on investment compared to monetary remittances, provided that both the 'Remittance-to-Investment' and 'Risk-Return' conditions are satisfied. These conditions highlight the importance of assessing the risks and potential returns of utilizing monetary and non-monetary remittances as start-up capital to establish or improve business ventures.

To empirically test the model's predictions, the study utilizes micro-level primary data from a survey of the Filipino migrants in Japan conducted from August to October 2023, elucidated in Chapter 4. The questionnaire was designed and pre-tested twice in July 2023. The final questionnaire comprises 39 questions with the following sections: respondent's personal profile, remittance behavior, and business intention and ownership. A total of 323 respondents participated in the survey, with the majority coming from the

Chubu, Kanto, and Kansai regions, home to most Filipinos in Japan, according to Japan's Ministry of Justice (2021)[4].

While the remittance literature has extensively examined the theoretical and empirical underpinnings of monetary remittances, it has frequently overlooked the non-monetary dimension. Therefore, to establish a comprehensive understanding of the diverse factors shaping remittance behavior and to delve into the distinctions between monetary and non-monetary forms, Chapter 5 establishes an empirical framework to scrutinize these disparities. The empirical findings show significant differences in the factors influencing migrant remittance preferences. Age, marital status, duration of stay, and current occupation emerge as influential determinants affecting monetary remittances, while these same factors exhibit no notable impact on non-monetary remittances. This discrepancy underscores the nature of the determinants guiding these two distinct forms of contributions. Moreover, attaining a university degree is a pivotal discriminator in migrants' remittance behavior. Those with university degrees are notably more inclined to send monetary remittances compared to their counterparts without such qualifications.

Furthermore, the result highlights a pronounced prevalence of non-monetary remittance practices among women compared to men, underscoring non-monetary remittances as a primary avenue for the Filipino women in Japan to fulfill familial obligations back home despite facing economic disparities within their Japanese households. Additionally, the findings elucidate the importance of the location of residence in the home country concerning remittance preferences. Rural and distant regions exhibit a preference for monetary remittances, further emphasizing the influence of geographical factors on remittance behavior. Thus, Chapter 5 presents an in-depth analysis of migrant remittance behavior, highlighting significant disparities influencing monetary and non-monetary forms of contributions. Understanding this aspect provides a more nuanced perspective to substantiate the significance of integrating non-monetary remittances within the current body of literature on migration and remittances.

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[4] Statistics on Foreign Residents (*Formerly Registered Alien Statistics*). Portal Site of Official Statistics of Japan (https://www.e-stat.go.jp/)

Lastly, Chapter 6 aims to address the third objective of the study by presenting empirical evidence that substantiates the theoretical claim regarding the pivotal role played by the combination of monetary and non-monetary remittances in influencing entrepreneurship. The findings provide compelling evidence that non-monetary remittances, encapsulating skills, knowledge, and tangible assets, exert a discernibly favorable impact on the inclination of entrepreneurial engagement within the Filipino migrant community in Japan. Moreover, the findings show that when monetary and non-monetary remittances are combined, they exhibit a synergistic, positive influence on entrepreneurship. This interaction highlights the complementary nature of these two forms of support in bolstering entrepreneurial development. This juxtaposition highlights that non-monetary remittances significantly matter in fostering entrepreneurial activities.

By addressing the current gap in the literature, this study provides valuable insights to significantly augment the current remittance literature and make novel contributions to the remittances and entrepreneurship development nexus. First, the study offers theoretical and empirical perspectives on the potential of integrating monetary and non-monetary remittances to foster entrepreneurship development. Second, by focusing on the Filipino diaspora in Japan, this research has shed light on a unique context, emphasizing the distinctive potential of non-monetary remittances in the form of advanced technological equipment to stimulate entrepreneurship development. Furthermore, the study forwards a crucial policy alternative that aims to encourage the diversification of remittance channels, explicitly emphasizing the potential of non-monetary remittances in the form of physical capital goods. This policy implication necessitates the development of clear customs guidelines and incentives for migrants to send technologically advanced equipment, machinery, and other tangible assets valuable for productive economic activities back to their home country.

Chapter 2: Review of Related Literature

2.1 Introduction

This chapter thoroughly explores the existing literature, including various models of remittance behavior in Section 2.2. These models play a vital role in thoroughly understanding the underlying motivations behind migrant's remittance behavior. Section 2.3 reviews the literature on the determinants of remittances to understand how these factors influence migrants' decision to remit. Lastly, Sections 2.4 and 2.5 delve into the complex relationship between remittances and entrepreneurship, whereas Section 2.5 focuses specifically on non-monetary remittances and their potential impact on migrants' entrepreneurial endeavors. This chapter critically synthesizes and evaluates diverse strands of research, paving the way for the theoretical framework and empirical analysis in the subsequent chapters. By synthesizing existing knowledge and addressing research gaps, the proposed theoretical model and the empirical analysis in the succeeding chapters aim to contribute to the advancement of scholarship in this field and guide future theoretical and empirical investigations.

2.2 Motivations to Remit

Remittance behavior is a complex and multifaceted phenomenon extensively studied from various perspectives. By and large, numerous theoretical approaches have been developed, and the debate regarding the motivations behind remittance behavior remains ongoing. However, the theoretical literature on remittances recognizes that family serves as the fundamental unit of analysis (Becker, 1974). This view has been supported by subsequent studies that suggest that familial altruism is a significant factor in remittance behavior (Chami et al., 2003). The present discussion on the motivations to remit began with the seminal study by Lucas and Stark (1985), which stemmed from the general theory of the new economics of labor migration (NELM). The theoretical framework ranges from pure altruism on the one end and pure self-interest on the other. In between this spectrum, they introduced the concept of tempered altruism, a mutually beneficial contractual agreement between migrant and home. This can be in terms of remittances driven by the migrant's desire to repay the family for the initial costs of

migration or to ensure the family's well-being during a crisis that poses risks to their income.

Stark (1995) provides a theoretical framework that explains the altruistic motive behind remittances where the migrant's utility function includes the well-being of their household. This model is further augmented by Osili (2007), which included migrant savings and the probability of return migration, and Le (2011), which introduced investment in the model. The findings collectively reinforce that altruism remains a prominent factor in explaining the motivations behind remittance flows.

This reality is confirmed in a recent study by Nakamura and Suzuki (2023), which demonstrates that pure altruism plays a crucial role in motivating migrants to remit larger sums of money after receiving cash transfers from their host country during economic shocks such as the COVID-19 pandemic. Their findings highlight the significance of altruistic tendencies among migrants in times of crisis, particularly in facilitating financial support for their families and communities. Similarly, Ecer and Tompkins (2013) argue that individuals who engage in remittances for altruistic purposes tend to remit higher amounts, whereas those motivated by self-interest tend to remit lower amounts.

While familial obligations and responsibilities altruistically drive many migrants to provide financial support, some authors argue that migrants' remittances are motivated by other factors that could offset any weakening of the altruistic motive (Brown, 1998). Several studies have found that self-interest plays a part in the migrant's decision-making framework. Lucas and Stark (1985) outline three explanations underlying this motivation: aspiration to inherit, acquisition of physical assets, and return migration. Hoddinott (1994) finds a positive relationship between a parent's owning land and the amount of remittances sent by the son, which is considered as aspiration to inherit motive. According to Galor and Stark (1990), migrants who intend to return to their home country after a period of time, referred to as temporary migrants, tend to remit more money than permanent migrants. This finding has been confirmed by empirical studies conducted by Amuedo-Dorantes and Pozo (2006), Dustmann and Mestres (2010), and Makina (2013). These studies indicate that the intentions of returning play a significant and positive role in explaining the probability and amount of remittances sent by migrants.

In case of the Filipino migration studies, Sioson (2017) presents empirical evidence on transnational practices among the Filipino residents in Nagoya, Japan, and examines how these practices influence their intention to stay permanently. According to her study, Filipino migrants who send remittances and have savings in the Philippines are more likely to return home. Osili (2007) further argues that an increase in a migrant's expected income in the event of return migration will lead to higher remittance transfers to the origin family. Migrants intending to return home eventually may be motivated by the prospect of leveraging the knowledge, skills, and experiences acquired abroad to initiate entrepreneurial ventures in their home countries (Williams, 2018), which can lead to a higher likelihood of sending larger remittances back home.

Alternatively, the exchange model views remittances as payment for services rendered by the recipient. Based on a more general model by Cox (1987), remittances are modeled as the cost of caring for the migrant's children left behind, maintaining the migrant's properties, or managing the migrant's financial accounts and investments back home. Thus, the model predicts that an increase in the migrant's income increases the migrant's willingness to pay for services rendered by the recipient. Furthermore, Lucas and Stark (1985) find that remittances are repayments of the family's expenditure` on the migrant's education. In Le's (2011) model, the recipient looks after the migrant's investment and receives monetary compensation based on the effort exerted in the business. The model predicts that increasing the transfers for a favorable investment outcome or reducing the transfer for an unfavorable investment outcome will lead to increased effort from the recipient.

Similarly, Mallick (2017) adds to this perspective by suggesting that remittances are influenced by two primary motives: consumption and investment. Higher real interest rates and rates of return on capital in the home country play a significant role in driving greater inflows of remittances, thus supporting the investment motive. Le (2011) acknowledges the dual nature of remittance behavior characterized by altruistic considerations and business-like interactions. The model introduces an investment variable to challenge the conventional notion that remittances are primarily directed toward consumption-related purposes. Results obtained show that remittances increase with the investment outcome surplus, rather than with the migrant's income. By

recognizing the importance of the investment channel, Le (2011) challenges the conventional notion that remittances are primarily directed toward consumption-related purposes. The study highlights the significant role of remittances as a vital source of financing for economic development by incorporating the entrepreneurial motive of migrants in the theoretical model.

Furthermore, Rapoport and Docquier (2005) present a comprehensive discussion of different theoretical models that explain the diverse motivations behind remittances. They argue that migrants possess a combination of motives, resulting in heterogeneity in their reasons for sending money back to their home countries. This implies that even within the same individual, multiple motivations for remitting may coexist. The model predicts that remittances are expected to increase with the migrant's level of education and the geographic distance between the host and home countries.

While these studies have provided insights into migrants' remittance behavior, focusing only on the financial transfers limits our understanding of the migrant's decision-making framework. In the context of this research, remittances take on a broader meaning, encompassing a diverse range of contributions by migrants to their families and communities in their countries of origin, surpassing the confines of mere financial transactions. This expanded understanding of remittances moves beyond a narrow economic interpretation, which involves the transmission of goods, skills, experiences, ideas, technology, and knowledge, fostering an exchange of ideas within diaspora networks and their home countries (Coffie, 2022; Mueller, 2019; Dustmann & Kirkchamp, 2002; Nyberg-Sorensen, 2016). Non-cash transfers, such as goods and materials, are crucial in improving household welfare and living conditions (Apatinga et al., 2022).

2.3 Determinants of Remittances

There are two main approaches to estimating the factors that influence remittances at the microeconomic level. The first method involves conducting household surveys on households that receive remittances (Gubert, 2002) or specific surveys with migrants themselves, either in their home country (Amuedo-Dorantes & Pozo, 2006) or in the destination country (Holst & Schrooten, 2006). In either case, these micro-level surveys are relevant to determine whether respondents send or receive remittances, and to inquire

about amounts for those who do (Carling, 2008). The literature on the determinants of migrant remittances to their home countries aims to examine the link between financial remittances and the factors perceived as conducive to economic and financial development (Elkhider et al., 2008).

In the existing empirical studies, the determinants of migrant remittances can be categorized into two sources: the migrant's characteristics and those of the origin household. The former influences the migrant's capacity to remit and is contingent upon socio-economic characteristics such as, but not limited to, income, employment status, length of stay, education level, age, marital status, and gender. Conversely, household characteristics often encompass household income and resources, household size, and the migrant's role within the household.

McCoy et al. (2007) provide a model with a net income constraint to model the migrant's capacity to remit. In the model, the determinants of remittances are based both on the migrant's motivation and capacity to remit, which is contingent on a positive net income. That is, as long as the subsistence needs and total costs of transferring remittances equal or exceed the migrant's income, the migrant will choose not to remit. This result is similar to Osili (2007), where transfer rises with the migrant's current resources.

Most papers assess the altruistic motive by examining how higher income for households or migrants impacts the likelihood and amount of remittances. Thus, literature on the determinants of remittances predicts a positive relationship between migrant income and remittances and a negative relationship between household income and remittances (Osili, 2007; Collier et al., 2011; Mahuteau et al., 2010). In a similar vein, full-time employment is a positive determinant of remittance behavior (Brown & Poirine, 2005; Collier et al., 2011), which yields a higher amount of remittances (Holst & Schrooten, 2006). Likewise, Osili (2007) argues that skilled migrants send larger transfers to their countries of origin.

Furthermore, educational attainment does not have consistent effects on remittance-sending. For instance, Ilahi and Jafarey (1999) show that remittances increase with the migrant's educational attainment and skill level. In contrast, Collier et al. (2011) argue that the probability of remitting decreases with a migrant's educational attainment. In addition, migrants with higher education levels could be sending remittances to repay the investment their parents have made in their education (Hagen-Zanker & Siegel, 2007).

Similarly, various studies have shown mixed results regarding the relationship between length of stay and remittances. On the one hand, evidence suggests that the amount of time spent in the host country positively impacts the amount of remittances sent (Mahuteau et al., 2010; Collier et al., 2011). As migrants spend more time in the host country, the amount of remittances they send increases as they age (Carling, 2008). However, several studies provide evidence to the contrary, arguing that remittances decline as the duration of stay increases due to greater social distance. This argument is linked with the remittance decay hypothesis, where the more extended period of stay in the host country lowers the incidence of remittance (Carling, 2008; Makina & Masenge, 2015). This may be because, through time, migrants are more likely to be joined by their immediate family members (Meyer, 2020).

Moreover, married migrants who leave their spouses in their home country are expected to be more inclined to send remittances and to send larger amounts of remittances as a result of their altruistic feelings (Hagen-Zanker & Siegel, 2007; Merkle & Zimmerman, 1992). Thus, the migrant's marital status is used as a measure of the migrant's level of connection to the household in the home country (Piracha & Saraogi, 2011), where the absence of immediate family members abroad naturally has a very large effect on discouraging remittances (Kojima, 2003). Interestingly, single women, such as widows and separated or divorced individuals, are more inclined to send larger remittances to the Philippines compared to married women (McDonald & Valenzuela, 2012).

Gender differences in remittance behavior do not always show statistically significant differences (Collier et al., 2011), but when they are, the results vary. Women may remit a substantially larger proportion of their wages than men (Posel, 2001). Abrego (2009) found that in Salvadoran transnational families, migrant women are more consistent senders than men. However, in terms of the amount remitted, men remit higher amounts and are positively correlated with the education level of the Filipino migrants (McDonald & Valenzuela, 2012).

On the impact of the origin household on the migrant's remittance behavior, existing evidence shows that transfers decrease with origin family resources (Osili, 2007; Piracha & Saraogi, 2011). Likewise, the presence of immediate family back home

increases the likelihood of remittances (Stanwix & Connell, 1995). Walker and Brown (1995) find that having a parent or spouse residing in the home country increases the likelihood of remittances. Furthermore, the higher level of education of the household head suggests a higher earning potential in their home country, leading to a reduced likelihood of remittances within the Filipino diaspora (McDonald & Valenzuela, 2012). In the same study, having a larger number of younger children in the family motivates migrants to send higher amounts of remittances.

Thus, the literature on the factors that drive migrant remittances is growing and context-specific. It is evident that the range of findings provide diverse motivations to remit in different countries and at different times. Hence, it is imperative to understand the remittance situation of each country and explore the very specific aspects underlying the motivations to remit different types of migrants.

2.4 Remittances and Entrepreneurship Development

Entrepreneurial activities have long been regarded as key to innovation, economic growth, and improvement of the standard of living. However, a review of the literature suggests that the relationship between remittances and entrepreneurship development remains complex. This relationship can be twofold: On the one hand, remittances can serve as a source of capital and provide a financial cushion that enables recipients to pursue entrepreneurial activities (Kakhkharov 2019; Vaaler 2013; Rivera & Reyes, 2011; Woodruff & Zenteno, 2001); on the other hand, remittances are considered a disincentive to entrepreneurship, which may cause a moral hazard effect on labor supply or may generate dependency behavior at the household level (Arguelles, 2015; Zheng & Musteen, 2018; Amuedo-Dorantes & Pozo, 2006; Alhassan et al., 2022).

Previous studies highlight the perennial struggle faced by entrepreneurs, encompassing challenges such as the lack of start-up capital, restricted access to formal credit facilities, and liquidity constraints (Nwibo and Okori, 2013; Labich and deLlosa, 1994; Cook, 2001; Bitzenis and Ersanja, 2005). The weight of these financial constraints can be monumental, potentially stifling entrepreneurial innovation and thwarting the realization of business potential. The literature on the economic impact of remittances on

entrepreneurship development suggests that remittances can positively affect the growth and development of small businesses in developing countries.

According to several studies, remittances provide a significant source of finance for entrepreneurs, helping them start or expand their businesses and create employment opportunities (Kakhkharov, 2019; Vaaler, 2013). Remittances can also facilitate access to new markets, technologies, and skills through the networks and connections of the diaspora, which can stimulate entrepreneurship and innovation. Kakhkharov (2019) argues that households receiving remittances are more likely to invest in family businesses if they have access to additional income or savings. This finding underscores the significance of addressing financial constraints, particularly for small businesses, which can pose formidable challenges, especially in rural areas.

Furthermore, a migrant's entrepreneurial behavior is shaped by the accumulation of savings as a vital source of capital for business start-ups among returning migrants (Dustmann & Kirchkamp, 2002; Woodruff & Zenteno, 2001). This behavior underscores the financial impact of remittances in fostering entrepreneurship, particularly in urban settings. Access to capital emerges as a critical determinant for entrepreneurship development, with remittances playing a vital role in addressing the financial needs of aspiring entrepreneurs. This reliance on remittances as a funding mechanism persists as long as the household's financial priorities do not require channeling the funds toward health-related expenses or general maintenance costs (Reyes et al., 2013).

However, the impact of remittances on entrepreneurship development is not uniformly positive, as some studies have highlighted potential adverse effects associated with remittance inflows. Remittances induce dependency, decreased engagement in economic activities, and conspicuous expenditure among recipient households (Amuedo-Dorantes, 2014). Arguelles (2015) argues that remittances decrease the propensity for entrepreneurship, whereas households receiving remittances are less inclined to engage in entrepreneurial activities. This finding suggests that the lower propensity for entrepreneurship among households with Overseas Filipino Workers (OFWs) can be attributed to the satisfaction derived from remittance income, which leads to higher household expenditure levels. Consequently, the need or motivation to pursue entrepreneurship diminishes.

Moreover, Zheng and Musteen (2018) highlight that remittances are positively associated with necessity-based entrepreneurial activities, indicating that remittances are a valuable source of funding for individuals who lack employment opportunities but are motivated to start their businesses. On the other hand, the relationship is negative regarding opportunity-based entrepreneurship, suggesting that individuals who view entrepreneurship as one among various employment options are less likely to rely on remittances for business ventures.

Furthermore, household remittance receipts are associated with a lower likelihood of business ownership in the Dominican Republic (Amuedo-Dorantes & Pozo, 2006). This result suggests that remittances in this context are primarily utilized to fulfill the basic consumption needs of the household rather than being channeled into entrepreneurial activities. Similarly, Devkota (2016) finds that out of a sample of 275 return migrants, only a small portion, specifically 4.44% of the total remittances, were allocated for business purposes. Most of the remittances were instead utilized for daily consumption, land-plot purchases, loan repayment, and housing.

While remittances can serve as a potential source of capital for entrepreneurial ventures, their impact is influenced by factors such as the level of financial development and the prevailing economic conditions within a country. Alhassan et al. (2022) suggest that remittances may have either an insignificant or negative effect on formal entrepreneurship in the absence of sufficient financial development. This negative effect implies the existence of a moral hazard, where the receipt of remittances may lead to reduced labor supply and a diminished inclination to engage in productive entrepreneurial activities.

Despite the divergent perspectives on the effects of remittances on entrepreneurship development, most of the existing literature has predominantly focused on monetary remittances, overlooking the significance of non-monetary forms. Literature exploring the potential of non-monetary forms of remittances as income-generating assets for entrepreneurship development remains relatively scarce. Hence, there is a need for further theoretical and empirical research that delves into the realm of non-monetary remittances and their potential impact on entrepreneurship. Such investigations are essential for

establishing institutional policies that facilitate non-monetary remittances' flow and productive utilization, deserving ample attention and consideration.

2.5 Non-monetary Remittances and Entrepreneurship

Beyond currency transfers, non-monetary forms of remittances serve as a testament to the enduring bonds that link transnational families (McCallum, 2022). These are in the form of valuable gifts that cross borders not as banknotes but as material goods, skills, social connections, and emotional support. For instance, during times of commodity shortages, non-cash remittances like food become more prevalent (Tevera & Chikanda, 2009). Also, Abubakar and Folawewo (2019) found that food remittances had a more positive impact on investment activities in rural areas than in urban areas. This is due to the surplus resources available in rural areas that can be used for investment purposes. These non-monetary transfers were predominantly driven by the specific and immediate needs of the recipients.

Similarly, Schmalzbauer (2004) highlights that parents typically migrate to improve their family's economic well-being, that is, to provide economic prosperity and material comfort to their children and extended family members. In McCallum's (2022) study, the Filipino transnational families are examined, highlighting how love and care are shared through material exchanges and economic transactions. The study delves into gift-giving customs and the tradition of sending 'balikbayan boxes', revealing their profound role in establishing and perpetuating familial bonds and a sense of belonging across physical distances.

The tradition of 'balikbayan boxes' started in the 1970s when an influx of Filipino workers came to the United States (Lawless, 2004). In Tagalog, a primary language spoken in the Philippines, the term "balikbayan" translates to "returning to one's homeland." For the countless Filipinos dispersed across the globe, sending a 'balikbayan box' often filled with clothes, food, sweets, and other gifts to their families in the Philippines serves as a means of reconnecting with their roots and homeland, albeit symbolically. In essence, it serves as a tangible manifestation of the link between the foreign land and the place of origin, a means of bestowing and fostering connections through the act of giving and sharing. According to the Door-to-Door Consolidated

Association of the Philippines, at least 400,000 balikbayan boxes are sent every month, with this figure surging significantly during the holiday season (Shyong, 2018). Evidently, this cultural practice of sending material goods represents a longstanding tradition of non-monetary remittances that have often been disregarded in the extensive body of remittance literature.

Beyond physical goods, non-monetary remittances provided by migrants to recipient families can also encompass emotional support. Földes (2020) highlights that while cash remittances aim to ensure the well-being and financial stability of the migrant's parents, non-monetary remittances, such as remittances in kind, hold deeper meaning as expressions of care. Particularly in cases where migrants are separated from their families for extended periods, non-monetary remittances serve as a means of maintaining familial relationships and nurturing emotional connections (Földes, 2020; McCallum, 2022; Meyer, 2020).

Furthermore, a crucial dimension of diaspora remittances lies in transferring skills and knowledge, which is essential in driving developmental initiatives. Several studies recognize migrants as sources of knowledge and skills that could be used for development in countries of origin (Coffie, 2022; Mueller, 2019; Dustmann & Kirkchamp, 2002; Nyberg-Sorensen, 2004). In the study of Coffie (2022), the Ghanaian diaspora, possessing significant expertise in various fields, actively engages in partnerships and networking endeavors to leverage their professional skills to catalyze development projects. This study underscores the vital role of transferring skills and knowledge as a non-monetary form of remittance. It exemplifies how the diaspora's expertise can be harnessed to address pressing development challenges, particularly in the context of skill and knowledge transmission within transnational families.

Moreover, Dustmann and Kirkchamp (2002) present compelling evidence indicating that migrants returning to their home country possess the capacity to bring along valuable skills and financial assets that contribute to economic development in their origin country through their after-return economic activities. The results show that approximately half of the Turkish immigrants who returned to Turkey from Germany ventured into entrepreneurship upon their return.

In a similar vein, diaspora knowledge transfer may take place on a personal, more informal level through social remittances. That is, the exchange of ideas between a migrant and an individual or a group of individuals in the country of origin (Mueller, 2019). Migrants have the potential to stimulate entrepreneurship, drive innovation, and enhance capacity within their home countries, contingent upon their individual contributions. Various modes of migrants returning to their country of origin, whether permanently, temporarily, or through virtual means, can serve as avenues for knowledge transfer, thereby exerting a substantial influence on development initiatives.

Furthermore, Agunias and Newland (2012) provide the case of the Brazilian Support Service for Micro and Small Business, which operates an online training program that equips the Brazilian diaspora in the United States with entrepreneurial and business training. The objective is to enhance their capacity to engage in entrepreneurial activities upon their return to Brazil. This innovative approach recognizes the diaspora not merely as remittance senders but as valuable contributors to the economic development of their home country. In doing so, it not only empowers the diaspora members but also positions them as potential catalysts for economic growth and innovation upon their return.

Likewise, a compelling example from the study of Yeboah et al. (2019) offers valuable insights. One respondent recounted a story where her sister, upon receiving goods sent from abroad, began selling them, eventually leading to the gradual expansion of a business. This anecdote vividly illustrates the potential of sending goods to the home country, where they are utilized as resources for entrepreneurial development. More precisely, receiving non-monetary remittances in the form of physical capital goods represents valuable assets that can be directly marketed in the recipient's home country. This suggests that households receiving such assets can participate in business activities without the need for significant initial capital. Essentially, the introduction of tangible assets, specifically physical capital goods, not only initiates entrepreneurial initiatives but also bypasses the conventional need for the household to make substantial upfront financial investments. This illustration highlights the significant transformative potential of non-monetary remittances, particularly in easing the hurdles to entrepreneurship, where financial constraints might typically hinder the initiation of economic activities.

In addition, recognizing the potential of non-monetary remittances for entrepreneurship development requires a concerted effort from the migrants, policymakers, and institutions. Access to institutional support proves vital for numerous entrepreneurs, facilitating their ability to secure funding, receive training, and establish networks through services offered by central or local governments, NGOs, professional networks, and international organizations (Liswoska & Stabuskawsju, 2014). Policymakers should recognize the transnational resources of migrants and establish conducive conditions that allow them to leverage these resources (Sandoz et al., 2022). Moreover, the requirements and regulations for sending goods across borders often vary from country to country. Developing countries implement various tax incentives to attract both foreign and domestic investments. These incentives primarily aim to boost the profitability of newly established businesses or the expansion of existing ones, aligning with the economic goals of the respective countries. Lent (1967) argues that relief from customs duties on importing equipment and construction materials allows a company to reduce its capital needs and minimize its fixed costs.

However, despite the potential of non-monetary remittances to spur development in origin countries, research in this domain remains limited (Apatinga et al., 2021; Mata-Codesal, 2012). This represents a significant research gap, as the impact of non-monetary remittances, particularly on entrepreneurship development, within migrant-sending nations has not received the comprehensive attention it deserves. The dearth of studies in this domain underscores the need for a deeper investigation into the complex dynamics and potential transformative effects of non-monetary remittances on the development landscape. Previous studies have emphasized that non-financial remittances play a crucial role in socio-economic development, with some suggesting that these contributions may be even more significant than economic ones (Kshetri, 2013).

Thus, the expanded understanding of remittances moves beyond a narrow economic interpretation, now encapsulating a more comprehensive spectrum of social, political, technological, technical, and cultural inputs. Kshetri (2013) further argues that migrants who gain advanced levels of skills, competencies, experiences, and abilities related to entrepreneurship in their host countries are more likely to make significant contributions to the advancement of entrepreneurship in their countries of origin. Through these

networks, home countries can benefit from migrants' skills and knowledge transfer by leveraging these intangible remittance transfers.

Given these insights, a paradigm shift is imperative, transcending the myopic focus on the monetary aspect of remittances. To aid in the formulation of the general hypothesis of the study, this research hinges on the proposition that while monetary transfers are susceptible to being easily depleted and consumed, tangible assets and intangible forms of support carry inherent and sustained value. This distinction underscores the transformative potential of remittances, not merely as transient financial injections but as enduring contributors to entrepreneurship development.
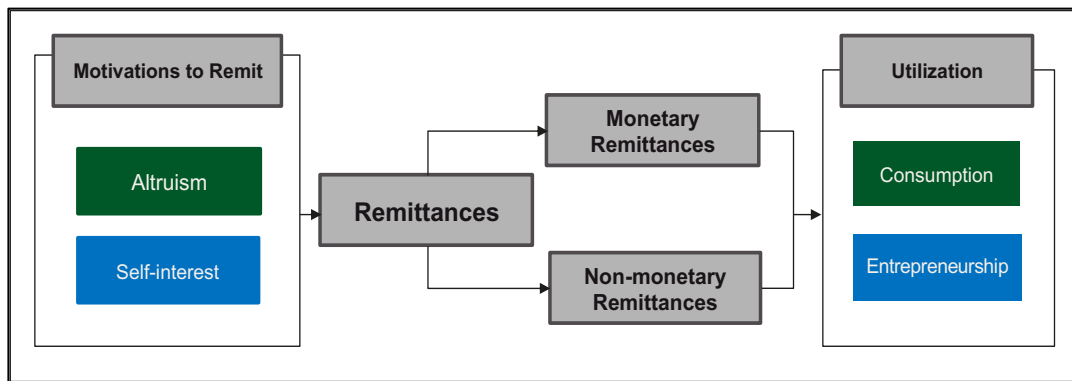
Figure 2.1 Theoretical proposition of the study.
(*Conceptualized by the author*)

Thus, to address the identified existing research gaps, the succeeding chapter presents a novel theoretical framework to model the relationship between monetary and non-monetary remittances and entrepreneurship development, described in Figure 2.1 based on the literature discussed and reviewed in this chapter. The figure illustrates a dual-motivation framework driving migrant behavior, distinguishing between altruistic motives and entrepreneurial aspirations. Altruism, depicted in green, serves as the primary motivation behind sending monetary remittances, with existing studies emphasizing their predominant use for consumption purposes (Tullao & Rivera, 2014; Tabuga, 2007; Brinkerhoff, 2016). In contrast, the blue segment represents self-interest motive, highlighting migrants' motivation for entrepreneurial investments, as supported by prior research linking return intention to remittance and investment behavior

(Kransniqi & Williams, 2019; McCormick & Wahba, 2001; Devkota, 2016). Notably, a research gap emerges as conventional monetary remittances lean toward consumption rather than investment. Therefore, the theoretical proposition posits that integrating non-monetary remittances, which are not captured in conventional studies, holds the potential to foster entrepreneurship development.

Chapter 3: Theoretical Model

3.1 Introduction

This chapter presents a novel theoretical framework that delves into the complexities of migrant behavior regarding remittances and investment decisions. Some of the earliest studies on remittances focus on altruistic motivations that center on the family. This viewpoint acknowledges that mutual care among migrants and non-migrant household members was the primary motivation for remitting. Lucas and Stark (1985) specified an altruistic utility function in which the migrant's utility is affected by the recipient's utility. However, Secondi (1997) finds that the motivation for transfers cannot be solely attributed to altruism. Instead, a complementary self-interest motive, which explains the migrant's objectives beyond altruism, is also present. The family is viewed as a nexus of contracts that enables the members to enter Pareto-improving exchanges involving remittances (Chami et al., 2003). For instance, a migrant worker sends money back home to support his household and because he hopes that they will take care of his assets (e.g., land, house, etc.) at home. These motivations typically indicate temporary migration and suggest that the migrants intend to return, which shows a higher propensity to remit (Collier et al., 2018).

This chapter develops a theoretical model focusing on the migrant's self-interest motive for remitting, which nevertheless still centers on the family[5]. Under this motive, Lucas and Stark (1985) identify three underlying reasons for migrant remittance behavior: the aspiration to inherit, the acquisition of physical assets, and return migration. Of these, return migration is of particular interest in this study, as it is modeled as the migrant's motivation to send remittances for investment purposes to smooth consumption between periods, thereby securing future consumption upon return to the home country.

In the model, the migrant's motivation to send remittances is twofold: to uphold an informal contract of obligations in providing financial support to his household and to smooth consumption upon returning to his home country. A potential source of

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[5] The theoretical model discussed in this chapter is taken from the author's unpublished manuscript (Barrera, et al. 2023).

smoothening consumption upon return is to engage in or expand an existing income-generating enterprise in the home country prior to the end of the migration duration. That is, the migrant desires to identify investment opportunities that would guarantee the same standard of living. As Osili (2007) argues, migrants with higher expected income in the future, in the event of return migration, are expected to send relatively large transfers to smooth consumption across the two periods. In what follows, this paper discusses the theoretical foundations that focus on the remittances and entrepreneurship nexus and considers both monetary and non-monetary forms. This simple model is constructed as a framework allowing future additions or modifications.

To the best of our knowledge, this is the first attempt to model remittances used for entrepreneurship development, which considers non-monetary forms such as physical capital goods (used cars, agricultural machinery, used computers, etc.) and intangible goods (skills, expertise, technical knowledge, etc.) as discussed in Section 3.2. The subsequent sections present the theoretical propositions of the model (Sections 3.3 and 3.4) and the theoretical implications derived from the propositions (Section 3.5).

3.2 Model Specification

The framework employs a two-period model that considers the interconnectedness between the migrant's and the recipient's utility from consumption, thereby emphasizing the altruistic motive underlying remittance behavior. By incorporating the recipient's well-being and consumption preferences, the model captures the intrinsic desire of migrants to support their families and contribute to their welfare through remittances.

Moreover, the theoretical framework extends beyond traditional monetary remittances by introducing the concept of non-monetary support. Recognizing that remittances encompass not only financial transfers but also various forms of assistance, such as knowledge sharing, mentorship, and social capital, the model aims to comprehend the potential impact of non-monetary support on entrepreneurship development. This broader perspective acknowledges the multifaceted nature of remittances and their potential to foster entrepreneurial activities in migrant-sending communities.

Additionally, the framework considers return migration as a key driver of remittance and investment decisions. By assuming that migrants anticipate returning to their home country in the future, the model recognizes the importance of remittances and investment as a means to smooth consumption in the second period. This implies that migrants' decisions are influenced by the desire to secure their and their families' long-term financial well-being, reflecting a forward-looking perspective beyond immediate consumption needs.

By incorporating these elements into the theoretical framework, this chapter aims to provide a more comprehensive understanding of the interplay between remittances, investment decisions, and entrepreneurship development. The model addresses the limitations of previous research by considering non-monetary forms of remittances, highlighting the altruistic motive, and emphasizing the role of return migration in shaping migrant behavior. This holistic approach contributes to a deeper comprehension of the complex dynamics involved in migrant decision-making and their potential implications for entrepreneurship and economic development.

Consider an economy that consists of many identical two-person families, migrant (m) and household (h) that live for two periods. For each family, one person is a migrant (m) and lives in a foreign country F at the beginning of the first period and earns income y_m^F and the second person (h) stays in the home country (O) and is employed in the domestic labor market earning an exogenous income of y_h.

As a theoretical approach, this paper uses the utility maximization model as the general framework for the migrant's remittance and investment behaviors. Utility is denoted by $U_i, i = m, h$ which is assumed to be increasing, concave, and twice differentiable, that is $U'(\cdot) > 0, U''(\cdot) < 0$. Table 3.1 provides a summary of the notations used in the model. Additional variables are introduced gradually.

As a starting point, each agent's utility is assumed to be affected by the felicity derived from his consumption from each period and is expressed as a sum of the two periods with $\beta^i, i = m, h$ ($0 < \beta < 1$) denoting the discount rate for second-period consumption. Here, it is assumed that the migrant's utility also depends on the recipient's

utility (U_h) which explains the familial relationship between the two agents and the altruistic behavior of the migrant towards the recipient. That is,

$$U_m = U(C_m^1) + \beta^m U(C_m^2) + U_h \qquad (3.1)$$
$$U_h = U(C_h^1) + \beta^h U(C_h^2) \qquad (3.2)$$

Building on the assumptions established above and contributing to the theoretical literature on remittances, the model presented in this study defines remittances used for investment (I) that considers both monetary and non-monetary forms. In addition, this model assumes that the migrant makes an investment only in the first period, and the return on investment is accrued in the second period.

Table 3.1 Summary of notations used in the mathematical model.

Variables	Description
m	migrant
h	household
O	origin country / home country
F	foreign country / host country
C_i^j	consumption of i at period j where $i = m, h$ and $j = 1, 2$
y_m^F	income of migrant in the foreign country
y_m^O	income of migrant in the home country
y_h^j	income of household in home country at period j where $j = 1, 2$
R	remittances of migrant to household
R_M	monetary form of remittances
$\tilde{R}_M$	monetary form of remittances used for consumption
R_M^I	monetary form of remittances used for investment
R_N	non-monetary form of remittances
I	total investment of migrant in the home country
$\bar{I}$	net profit from investment

Throughout the study, the migrant is expected to send remittances, R, in monetary (R_M) and non-monetary R_N forms such that,

$$R = R_M + R_N \qquad (3.3)$$

where,

$$R_M = (1-\alpha)R \qquad\qquad (3.4)$$
$$R_N = \alpha R \qquad\qquad (3.5)$$

and $\alpha \in (0,1)$ which is the weight that represents the share of the non-monetary form of remittances to the total remittances sent by the migrant. The model assumes that the transaction cost involved in remittance transfers is zero.

The parameter $\mu \in (0,1)$ is introduced in the model to represent the proportion of monetary remittances earmarked for investment purposes. In other words, the assumption is that although monetary remittances' primary aim is to meet household consumption needs, a certain portion of these funds is set aside as initial capital to start or improve entrepreneurial ventures.

Mathematically, this is represented as

$$R = R_M + R_N$$
$$= [(1-\mu)R_M + \mu R_M] + R_N \qquad\qquad (3.6)$$

Rearranging the terms, we have

$$R = [(1-\mu)R_M] + [\mu R_M + R_N] \qquad\qquad (3.7)$$
$$= [R_M - R_M^I] + [R_M^I + R_N]$$

The resulting portion of monetary remittances allocated for investment is denoted as R_M^I which is equal to μR_M. Equation (3.7) is composed of two parts: the notation $[R_M - R_M^I]$ represents the portion of monetary remittances that is consumed by the household, denoted as $\tilde{R}_M$; and the second term, $[R_M^I + R_N]$, is the investment portion of remittances denoted as I.

Simplifying the above equations, remittances (R) is rewritten as

$$R = \tilde{R}_M + I \tag{3.8}$$

Furthermore, the model assumes that the investment yields a net profit, defined as the 'bottom line' after operating expenses and all other charges, including depreciation, interest, and taxes, have been deducted from total revenue. In the equation, net profit is denoted as $\bar{I}$, which only accrues in the migrant's consumption function in the second period. Mathematically, it is given by,

$$\bar{I} = (\theta_1 - 1)I = \theta I \tag{3.9}$$
$$= \theta(\mu R_M + R_N)$$

where $\theta_1 > 1$ denotes a positive return on investment (ROI).

In the first period, m chooses individual consumption C_m^1 and the optimal amount of remittance (R) to h in the home country. Hence, at minimum, subsistence level consumption plus remittances must be covered by the migrant's income $(y_m^F \geq R + C_m^1)$. Furthermore, with the assumption of return migration in the second period, the migrant's consumption becomes contingent on his expected income in the home country (y_m^O) and the income derived from his investment $(\bar{I})$. Following these assumptions, the migrant's first and second-period consumption functions are given by,

$$C_m^1 = y_m^F - R = y_m^F - \tilde{R}_M - I \tag{3.10}$$
$$C_m^2 = y_m^O + \bar{I} = y_m^O + \theta I = y_m^O + \theta(\mu R_M + R_N) \tag{3.11}$$

On the other hand, the recipient household also derives utility from consumption for the first and second periods, which are given by the following equations,

$$C_h^1 = y_h^1 + \tilde{R}_M = y_h^1 + (1 - \mu)R_M \tag{3.12}$$
$$C_h^2 = y_h^2 \tag{3.13}$$

that is, y_h^1 is the household's income before receipt of any remittance, and $\widetilde{R_M}$ as a fixed monetary transfer for household consumption. In the second period, the recipient only consumes his domestic income (y_h^2) as the migrant is assumed to have returned to the home country. In both periods, h lives in the home country only.

Following the assumptions above, the migrant's problem can be written as follows:

$$max \{U(C_m^1) \ + \ \beta^m U(C_m^2) + \ U(C_h^1) + \beta^h U(C_h^2)\} \qquad (3.14)$$

Substituting each consumption expression, we have the migrant's utility function,

$$U_m = \left[U\left(y_m^F - \left(\tilde{R}_M + I \right) \right) + \beta^m U\left(y_m^O + \overline{I} \right) \right] + \left[U\left(y_h^1 + \tilde{R}_M \right) + \beta^h U\left(y_h^2 \right) \right] \quad (3.15)$$

Equation (3.15) yields four testable predictions that concern migrants' remittance behavior and investment decisions. First, monetary and non-monetary remittances increase with the migrant's income but decrease with the recipient's income. With return migration, the migrant sends relatively larger transfers with a lower expected income upon return. Second, the level of investment by the migrant rises as their income in the foreign country increases but falls as their expected income upon returning to the home country increases. Third, if the expected returns from future investments are positive, migrants will likely increase their investment in their home country. This is based on the substitution effect, which involves balancing current and future consumption when the expected return on investment outweighs the anticipated loss in utility resulting from an increase in investment level. Lastly, the migrant's willingness to utilize non-monetary forms of remittances as capital in starting or improving a business venture increases if the marginal return on investment is higher than the marginal returns derived from monetary forms of investment alone, based on his risk perception.

3.3 A Model of Migrants' Remittances and Investment Behavior

First, the migrant's remittance behavior is examined. Rewriting Equation (3.15) in terms of R and taking the first order condition gives,

$$U_m = [U(y_m^F - R) + \beta^m U(y_m^O + \sigma\theta R)] + [U(y_h^1) + (1-\sigma)R + \beta^h U(y_h^2)] \quad (3.16)$$

$$\frac{\partial U_m}{\partial R} = -U'(C_m^1) + \beta^m \sigma\theta U'(C_m^2) + (1-\sigma)U'(C_h^1) = 0 \qquad (3.17)$$

where $\sigma = \alpha + \mu - \alpha\mu$, which leads to $\frac{\partial\sigma}{\partial\alpha} = 1 - \mu$, and $\frac{\partial\sigma}{\partial\mu} = 1 - \alpha$. This expression is composed of three parts: $-U'(C_m^1)$, the decrease in the migrant's utility of consumption because of the remittances; $\beta^m \sigma\theta U'(C_m^2)$, the migrant's discounted marginal utility of consumption in period two upon returning to the home country; and $(1-\sigma)U'(C_h^1)$, the direct effect of the household's utility on the migrant's utility, which is positive. This equation provides the optimal remittance (R^*) which states that, at the margin, a decrease in the migrant's utility of consumption in period one by transferring remittances must be offset by the increase in his discounted marginal utility of consumption from the expected returns of his investment in the second period and the increase in the household's utility from the migrant's transfer.

Equation (3.17) leads to the following propositions:

Proposition 3.1. (i) $\frac{\partial R^*}{\partial y_m^F} > 0,$ **(ii)** $\frac{\partial R^*}{\partial y_h^1} < 0,$ **(iii)** $\frac{\partial R^*}{\partial y_m^O} < 0$

Proof. See Appendix A3.1.

Results **(i)** and **(ii)** indicate that remittances increase with the migrant's income but decrease with the recipient's income in the first period. This implies that as long as the migrant earns income in the foreign country, he will continue sending transfers to the recipient household. These results are consistent with previous literature (Lucas & Stark, 1985; Rapoport & Docquier, 2005; Osili, 2007; Mccoy et al., 2007). However, the migrant's reaction to changes in the recipient's income demonstrates that the migrant views remittances as a non-market substitute for wages, which intends to protect the recipient from adverse income fluctuations in the home country (Chami et al., 2003). This implies that migrants view their remittances as a means of safeguarding their household

against adverse income shocks, such as job loss or unexpected expenses, rather than solely as a source of support for their family's consumption needs.

Furthermore, result **(iii)** suggests that as the migrant expects lower income in the second period upon returning to his home country, he is expected to send relatively larger transfers. Intuitively, a lower expected income (y_m^O) increases the migrant's need to accumulate income toward second-period consumption. In particular, remittances can act as a consumption-smoothing mechanism in the presence of income uncertainty. For instance, Yang (2008) found that remittances enable households in the Philippines to manage income volatility better and mitigate the adverse effects of income shocks.

In reality, these results are consistent with the view that migrants perceive their current employment abroad as a temporary opportunity to earn a higher income in their attempt to smooth intertemporal consumption. In some cases, migrants may have limited employment opportunities in their home country and are aware that their income prospects are lower than what they can earn while working abroad. In such situations, sending remittances while working abroad may be viewed as a way to achieve financial stability even after they return to their home country, and their income prospects may be lower.

Next is the solution for investment (I^*). Equation (3.15) is rewritten in terms of I and solved for the first-order condition as follows:

$$U_m = \left[U\left(y_m^F - \tilde{R}_M - I\right) + \beta^m U(y_m^O + \theta I)\right] + \left[U(y_h^1 + \tilde{R}_M + \beta^h U(y_h^2)\right] \quad (3.18)$$

$$\frac{\partial U_m}{\partial I} = -U'(C_m^1) + \beta^m \theta U'(C_m^2) = 0 \quad (3.19)$$

From the first-order condition above, at the margin, a decrease in the migrant's utility in the first period resulting from sending remittances must be offset by an increase in the expected discounted marginal utility in the second period from the return on his investment.

In what follows, Equation (3.19) yields some insights:

Proposition 3.2. (i) $\frac{\partial I^*}{\partial y_m^F} > 0$, (ii) $\frac{\partial I^*}{\partial y_m^O} < 0$, (iii) $\frac{\partial I^*}{\partial \theta} > 0$ if $-\frac{U''(c_m^2)}{U'(c_m^2)} I > \frac{1}{\theta}$

Proof. See Appendix A3.2.

That is, the migrant's investment level increases with his income in the foreign country **(i)** and decreases with his expected income in the home country upon return **(ii),** which implies that investment is considered as the cost of current consumption in anticipation of returns for his future consumption in the second period.

When individuals desire to smooth consumption between the present and the future, they are more likely to invest their earnings in their home country while working abroad. This behavior can be attributed to the desire to maintain a consistent level of consumption in the future, as investments can provide a steady stream of income even after the migrant returns to their home country, and their income prospects may be lower.

Furthermore, result **(iii)** provides a relevant implication to predict the migrant's investment behavior. That is, as the expected gain in future investment is positive, the migrant will increase his investment back home if and only if the condition,

$$-\frac{U''(c_m^2)}{U'(c_m^2)} I > \frac{1}{\theta} \qquad\qquad (3.20: \textbf{RRC})$$

holds, which is defined as the Risk-Return Condition (RRC) in this study. Note that the expression $-\frac{U''(c_m^2)}{U'(c_m^2)} I$ is described as the 'risk-averse capital' which is the maximum amount of money that the migrant is not willing to risk losing where any potential losses beyond that amount would be considered unacceptable or too risky. On the other hand, $\frac{1}{\theta}$ is the reciprocal of return on investment which is also defined as the payback period or the length of time it takes for an investment to generate enough cash flow to recoup its initial cost. This metric is a simple measure of risk, showing how quickly money can be returned from an investment.

The RRC highlights the idea that there is a trade-off between risk and return in investments and the unequal distribution of risk and return among different forms of investments. Migrants expect compensation for taking on greater risk with higher returns and are willing to accept lower returns for less risky investments. However, due to individual differences in risk aversion, individuals may have different thresholds for the amount of risk they are willing to take on for a given level of return. This condition is consistent with the Modern Portfolio Theory (MPT) by Markowitz (1952), which is a mathematical approach to creating a portfolio of assets that seeks to maximize the expected return for a given level of risk. In this case, migrants must consider their risk perception with the potential return or profitability of starting a business, as measured by its payback period.

From the migrant's perspective, starting a new business back home can involve a significant amount of risk, including financial risk, time commitment, exchange rate risk, and the uncertainty of the market. When migrants expect lower returns on their investments, they become more risk-averse and cautious about investing their money. This is because they are concerned about losing their hard-earned money and its potential negative impact on their financial situation. When migrants are risk-averse, they tend to prioritize investments with lower risk, shorter payback periods, and more predictable returns, even if the returns are relatively modest. This tendency towards risk aversion may be more pronounced among migrants already facing uncertainties about their employment, legal status, and social support networks (Collier et al., 2018; Amuedo-Dorantes & Pozo, 2006). As a result, they may prioritize lower-risk investments with more predictable returns rather than riskier ventures that may offer higher potential returns but also carry greater risks of loss. Thus, when considering investment and consumption decisions, migrants can make informed decisions that balance the potential risks and returns of different investment opportunities and ensure that they can maintain a stable level of consumption over time.

Furthermore, in terms of the migrant's investment behavior regarding monetary and non-monetary forms of remittances, the following first-order conditions are derived,

$$\frac{\partial U_m}{\partial R_N} = -U'(C_m^1) + \beta^m \theta U'(C_m^2) = 0 \tag{3.21}$$

$$\frac{\partial U_m}{\partial R_M^I} = \beta^m \theta U'(C_m^2) - U'(C_h^1) = 0 \tag{3.22}$$

These results lead to the following propositions:

Proposition 3.3. If RRC holds, then **(i)** $\frac{\partial R_N^*}{\partial \theta} > 0$,   **(ii)** $\frac{\partial R_M^{I\,*}}{\partial \theta} > 0$

Proof. See Appendix A3.3.

Results **(i)** and **(ii)** suggest that remittances, in both monetary and non-monetary forms, increase with higher expected returns on investment. This result follows previous literature (Le, 2011), where the amount transferred increases with investment profit. Starting a business can involve high risk, as entrepreneurs may face several challenges and uncertainties in this type of venture.

For example, exchange rate risk is one of the most significant risks faced by using monetary remittances. Exchange rate risk is the loss risk arising from fluctuations in the exchange rate between the sending and receiving countries. If the currency of the receiving country depreciates against the currency of the sending country, the value of the remittance decreases, reducing the amount of capital available for investment. For instance, Solomon (2009) argues that migrants will not invest in their home country if there is exchange rate volatility. This situation can make it difficult for entrepreneurs to start or sustain their businesses, as they require a stable source of capital to meet their financial needs.

As for non-monetary forms of remittances, the specific kind of capital goods (i.e., automobiles, equipment, clothing, etc.) and the investment opportunity are essential considerations in making investment decisions and evaluating potential risks and returns. The investment may involve costs or risks that are difficult to assess, such as the quality or reliability of the goods or the stability of the local market.

Another risk is the potential logistical challenges in transporting and using physical capital goods. Entrepreneurs may face challenges in storing, transporting, and maintaining capital goods, which may incur additional costs. Also, there may be legal and regulatory barriers to importing or using certain types of capital goods, which could limit the scope of the business.

Though starting a business using non-monetary remittances can involve high risk, it can also offer unique opportunities for entrepreneurs willing to navigate these challenges and find creative solutions to build a successful venture. Therefore, the migrant's decision to send and utilize non-monetary remittances in a particular business opportunity will depend on their assessment of the risks and potential returns, as well as their personal preferences and circumstances.

Thus, though entrepreneurial activities are inherently risky and can be influenced by a range of factors, including market conditions, regulatory environments, and the availability of capital, the existence of businesses in the home country can signal to migrant workers that there are good investment opportunities available. This may serve as a motivation for the migrant to remit more (Amuedo-Dorantes & Pozo, 2006).

3.4 Model Extension to Non-Monetary Remittances

Despite the importance of remittances as a source of income for many households in developing countries, much of the literature suggests that remittances are often used for consumption purposes only, such as buying food and clothing or paying for education and healthcare expenses (Amuedo-Dorantes & Pozo, 2006; Devkota, 2016; Tabuga, 2007; Tullao & Rivera, 2014). However, recent studies reveal the economic potential of remittances invested in the home country in the form of land, financial assets, and microenterprises (Osili, 2007; Woodruff & Zenteno, 2001; Le, 2011). Meanwhile, Osili (2007) finds theoretical and empirical evidence that there is a positive relationship between remittances sent to finance investments in the country of origin and the resources of households in the same country.

While these studies promote the productive use of remittances to generate their maximum economic potential, there is still a need to establish the impact of non-monetary

remittances, both theoretical and empirical, as a form of investment in the migrant's home country. To our knowledge, no previous theoretical study has delved into the relationship between non-monetary remittances and entrepreneurship. Thus, the results obtained in this study can potentially change existing patterns of the remittance and entrepreneurship nexus that focus solely on monetary remittances.

Based on the model, this section asserts two important arguments on the economic implications of non-monetary remittances to entrepreneurship development: that the inclusion of non-monetary remittances as a form of investment can augment and amplify the effects of monetary remittances, resulting in higher returns on investment and that by understanding this, migrants can make informed investment decisions that will maximize returns while limiting risks. With the inclusion of non-monetary remittances into the framework, this theory offers a more comprehensive understanding of the potential impact of remittances on entrepreneurship development.

Theorem 1. Let $R = R_M + R_N = \tilde{R}_M + R_M^I + R_N$ then,

$$\frac{\partial \theta^*}{\partial R_N} > \frac{\partial \theta^*}{\partial R_M^I}, \text{ iff } \frac{\mu}{\mu+1} > \alpha \text{ and } -\frac{U''(c_m^2)}{U'(c_m^2)} I > \frac{1}{\theta} \qquad (3.23)$$

Proof. See Appendix A3.4.

The results indicate that the marginal return on investment (MROI) for non-monetary remittances is greater than that for monetary remittances under the condition that satisfies both the Risk-Return and the Remittance-to-Investment conditions. These conditions imply the importance of assessing risks and potential returns for entrepreneurship development using monetary and non-monetary remittances. By understanding these conditions, migrants can make informed decisions about the level of risk they are willing to take to maximize the returns on their investment choices.

A novel contribution of this paper is the Remittance-to-Investment Condition (RIC), which sheds light on the economic implications of utilizing remittances for productive purposes, highlighting the potential of non-monetary remittances in promoting

entrepreneurship development. This condition states that the share of non-monetary remittances (α) should be less than the ratio of monetary remittances allocated for investment as a share of the total investment $\left(\frac{\mu}{\mu+1}\right)$ which is denoted as the monetary share (MS) ratio in this paper. The MS ratio can provide a baseline for migrant workers to make informed decisions on the optimal allocation of their remittances between monetary and non-monetary forms of investment based on their assessment of risks and potential returns. The ratio serves as a valuable tool in guiding migrant workers to allocate their resources to maximize the expected returns on their investments. In particular, the ratio allows migrant workers to determine the appropriate balance between monetary investments, which entail the direct transfer of funds, and non-monetary investments, such as physical capital goods, skills, and knowledge.

For example, suppose a migrant worker invests 50% of their monetary remittances to start a business. In that case, they must allocate only a proportionate amount of their non-monetary remittances to maximize expected returns. In this case, the migrant would be expected to allocate less than 33% of their total remittances to non-monetary forms of investment to ensure that the investment generates the best possible outcome. Thus, the MS ratio serves as a starting point or baseline for migrants to use when making investment decisions and determining how to diversify their investment between monetary and non-monetary remittances.

This theorem leads us to derive the maximum share of non-monetary remittances that the migrant should consider obtaining a higher return on investment than monetary remittances. That is,

Corollary 1.1. If $\frac{\partial \theta^*}{\partial R_N} > \frac{\partial \theta^*}{\partial R_M^I}$ or $\frac{\mu}{\mu+1} > \alpha$ holds, then $\frac{1}{2} > \alpha$ and $\mu > \alpha$

Based on the foregoing theorem, the results provide a relevant implication for the migrant's remittance portfolio. That is, if the MROI of non-monetary remittances is greater than the MROI for monetary remittances, the share of non-monetary remittances, denoted by α, is less than half of the total remittances sent by the migrant. This result leads to an interesting implication that explains the relative 'scarcity' of non-monetary remittances used for investment purposes. The scarcity of capital goods sent by migrants

and their direct involvement in managing the business through knowledge transfer can potentially create investment opportunities in the receiving country, leading to higher marginal returns on investment. When goods sent by migrants are scarce in the receiving country, they can become valuable resources that can be used to start or expand a business or to invest in other income-generating activities.

Likewise, suppose a migrant worker sends specialized equipment or materials that are difficult to obtain locally. In that case, the recipient may be able to use these resources to start a new business or expand an existing one. The limited availability of these resources may create a higher demand for them, leading to a higher price for the goods produced or services provided. This can result in a higher return on investment for the recipient, as they can charge a premium for their products or services due to the scarcity of the goods sent by the migrant worker.

Hence, the findings show that non-monetary remittances have the potential to obtain a higher return on investment compared to monetary remittances, provided that both the 'Remittance-to-Investment' and 'Risk-Return' conditions are satisfied. These conditions highlight the importance of assessing the risks and potential returns of utilizing monetary and non-monetary remittances as start-up capital to establish or improve business ventures. The findings may potentially change existing patterns of the remittance and entrepreneurship nexus that focus solely on monetary remittances. It implies that although a certain level of monetary support is necessary to establish a foundation for entrepreneurship, non-monetary forms of remittances can support the probability of starting an enterprise. The study highlights that diversifying their remittance portfolio is a key component in promoting entrepreneurship, and migrants could achieve the best results by choosing an optimal combination of monetary and non-monetary remittances based on their assessment of risks and potential returns. This approach is essential because entrepreneurship often involves significant risk-taking, and non-monetary remittances, such as information, knowledge, and networks, can mitigate some of the risks associated with entrepreneurship.

3.5 Theoretical Implications and Further Discussions

This chapter presents the theoretical foundation of this study to understand the remittances and entrepreneurship development nexus, highlighting the assumption that non-monetary forms of remittances, such as technology-embedded capital goods, technical skills, and knowledge, foster entrepreneurship among remittance-receiving families.

Encouraging entrepreneurship through non-monetary remittances, such as physical capital goods, and sharing knowledge, skills, and expertise can help households use their remittances more productively and generate new sources of income. Since migrants transfer advanced technologies that require a certain level of expertise and specialized knowledge to operate effectively, the migrant must transfer skills in utilizing the machinery or equipment to enable the recipient household to efficiently start or improve a business, increase productivity, and generate higher income. Without the migrant's knowledge transfer, the advanced technologies may remain underutilized, and the household may be unable to maximize their potential benefits. Therefore, when migrants transfer physical capital goods and share their skills with recipient households, they are not only providing a resource but also facilitating a learning-by-doing process that can lead to more productive use of resources and improved economic outcomes.

This can create more economic opportunities and reduce the need for households to migrate in search of better opportunities. Moreover, entrepreneurship can help build the skills and capacities of local communities and promote a culture of innovation and creativity, which can have long-term benefits for economic development and social welfare.

However, it is important to note that sending only non-monetary remittances for starting a business may not be practical and feasible. Migrants may face problems such as identifying and sending the most appropriate physical capital goods for their family members' business needs. Different businesses require different equipment, tools, machinery, and technical know-how, which may not be appropriate and useful for the intended purpose. Additionally, physical capital goods may also require maintenance, repair, or replacement, which can be costly and challenging for households to manage on their own.

Thus, the findings highlight the importance of a balanced approach to promoting entrepreneurship development, where monetary and non-monetary remittances are considered. This means that the trade-off between monetary and non-monetary remittances affecting the migrant's investment decision is shown as the optimal combination of μ and α to obtain the maximum return on investment. This result implies that a certain level of monetary support is necessary to establish a foundation for entrepreneurship and that non-monetary support can enhance and amplify the impact of monetary support.

That is, migrants must balance the money they send back to their home country with other non-monetary remittances they provide to their families based on their risk perception to achieve the greatest impact on entrepreneurship and investment in their home country. By finding the optimal combination of these two types of remittances, migrants can make investment decisions resulting in the greatest return. If migrants view investing in a business as a risky undertaking, they may be less willing to allocate a significant portion of their remittances to engage in any entrepreneurial activity. However, if they can supplement their monetary remittances with non-monetary forms, they may be more willing to take risks in their investment decisions since they have additional resources to mitigate potential losses.

Therefore, the model has shown that a key component in promoting entrepreneurship among households is the diversification of the migrant's remittance portfolio, where the migrant could achieve the best results by choosing an optimal combination of both monetary and non-monetary remittances. The finding that migrants must balance the amount of money they send back home with other non-monetary forms of remittances suggests that the decision to invest is not solely based on monetary considerations. This highlights the importance of non-monetary forms of support, such as physical capital goods and technical skills and expertise, which can be critical in promoting entrepreneurship and other forms of investment in the home country.

Chapter 4: Data and Methodology

4.1 Introduction

This chapter provides essential contextual information and outlines the data sources and methodologies used in this study, divided into six sections. Section 4.2 provides a brief background of the Filipino migrants in Japan. Understanding this context is crucial to appreciate the broader socio-economic landscape within which this research is situated. Moreover, Section 4.3 delves into the data collection method, encompassing the development of the survey questionnaire and the implementation of survey operations. Subsequently, Section 4.4 presents the summary statistics derived from the survey data, establishing crucial foundations for understanding the empirical frameworks elucidated in Sections 4.5 and 4.6.

The chapter aims to create a comprehensive questionnaire to capture the remittance and investment behaviors of Filipino migrants in Japan. Thus, a two-pronged approach is adopted for this. Firstly, in-depth conversations and discussions with key informants who have valuable insights into the Filipino migrant community in Japan are deemed relevant. These discussions give a deep understanding of the target respondents, delving into their personal stories, motivations for migrating to Japan, and future aspirations. Secondly, an extensive review of existing literature on the Filipino migrant experience is imperative to understand the broader contexts shaping their decisions and behaviors. One key insight from this approach is the importance of examining the motivations behind their migration to Japan and their aspirations for the future. Understanding why they chose to move to Japan and what they hoped to achieve is deemed crucial for contextualizing their decision-making behavior, especially concerning remittance preferences. The insights from these conversations and the literature review serve as the foundation for constructing a questionnaire tailored to probe the depths of the migrants' remittance and investment behaviors.

4.2 Background: The Filipino Migrants in Japan

The Philippines occupies a prominent position among remittance-receiving and labor-exporting countries. According to the Philippine Statistics Authority (PSA), the

total number of deployed Overseas Filipino Workers (OFWs), land- and sea-based, in 2022 was 1.96 million. This large number of Filipinos abroad has positioned the country as one of the world's largest recipients of remittances. In the same year, the remittances sent by OFWs to their home country amounted to $3.5 billion, whereas almost $1.8 billion were sent from Asian countries.[6] This significant amount of money contributed almost 10% of the Philippines' gross domestic product (GDP). Thus, the role of OFWs in sustaining the Philippines' economy is critical and cannot be overstated. These individuals are hailed as modern-day heroes by the government as they contribute significantly to improving the standard of living for many Filipinos.

Filipino migration started as a stopgap measure during the Marcos administration's labor export policy in the 1970s (Sioson, 2017; Villa, 2015). During the same period, Japan opened many jobs to foreign workers in the construction, manufacturing, and entertainment sectors (Sioson, 2017). In the 1980s, migration flows became increasingly feminized as there was a significant influx of Filipino women migrating to Japan employed in the entertainment industry (Balgoa, 2017). From the 1970s to the 1990s, Filipino entertainers were one of Japan's largest groups of Filipino workers (Anderson, 1999). However, this phenomenon created a negative connotation for Filipinos living in Japan. Filipina entertainers in Japan, often labeled as '*Japayuki*[7],' have been subjected to mistreatment not only from the Japanese community but also from fellow Filipinos in Japan and the Philippines due to the nature of their jobs, which is often seen as 'immoral' (Almonte, 2001). In 2005, the United States (US) State Department released a report that identified Japan as a Tier 2 trafficking destination, resulting in limitations on the issuance of Overseas Performing Artists (OPA) visas, which caused a significant decline in the number of Filipino women who were able to enter Japan as entertainers (Ong & Lopez, 2022).

From a little over twelve thousand registered Filipinos in Japan in 1985 (Takahata, 2015), the Filipino population in 2021 stood at 277,341 (see Table 4.1), with 195,409 (70%) females and 81,932 males. Of the overall population, the majority are permanent

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[6] The amount indicated is equivalent to 197 million pesos as reported by the Philippine Statistics Authority (PSA) and converted based on January 15, 2023, exchange rate at P1 = $0.18. Refer to https://psa.gov.ph/statistics/survey/labor-and-employment/survey-overseas-filipinos.

[7] The term "*Japayuki*" originated from "*Japa-*" (Japan) and "*-yuki*" (to go) and entered the Filipino vocabulary with a negative and derogatory connotation referring to individuals who are working as prostitutes.

and long-term migrant women who have married Japanese men (see Figure 4.1), which is even more strongly skewed for those beyond the age of 40 (see Figure 4.2). Through successful integration and assimilation, Filipino migrants in Japan are now aging; the majority are in the age bracket of 30-50, and many of them arrived in the late 1990s to early 2000s (Ong & Lopez, 2022). Furthermore, Filipino migrants are dispersed in both urban and rural parts of the country, where most live in the Kanto region (43%), Chubu region (30%), and Kansai region (10%) (see Figure 4.3)[8].

Table 4.1 Age and gender distribution of Filipino migrants in Japan.

Age	Both Sexes	Male	Female
0 to 10	18,134	9,139	8,995
11 to 20	18,412	9,141	9,271
21 to 30	53,040	25,184	27,856
31 to 40	64,803	23,545	41,258
41 to 50	62,110	8,153	53,957
51 to 60	51,174	4,942	46,232
61 to 70	8,907	1,631	7,276
71 and above	761	197	564
Total	**277,341**	**81,932**	**195,409**

Source: Ministry of Justice, Immigration Services Agency, 2021 (Portal Site of Official Statistics of Japan, compiled by the author).
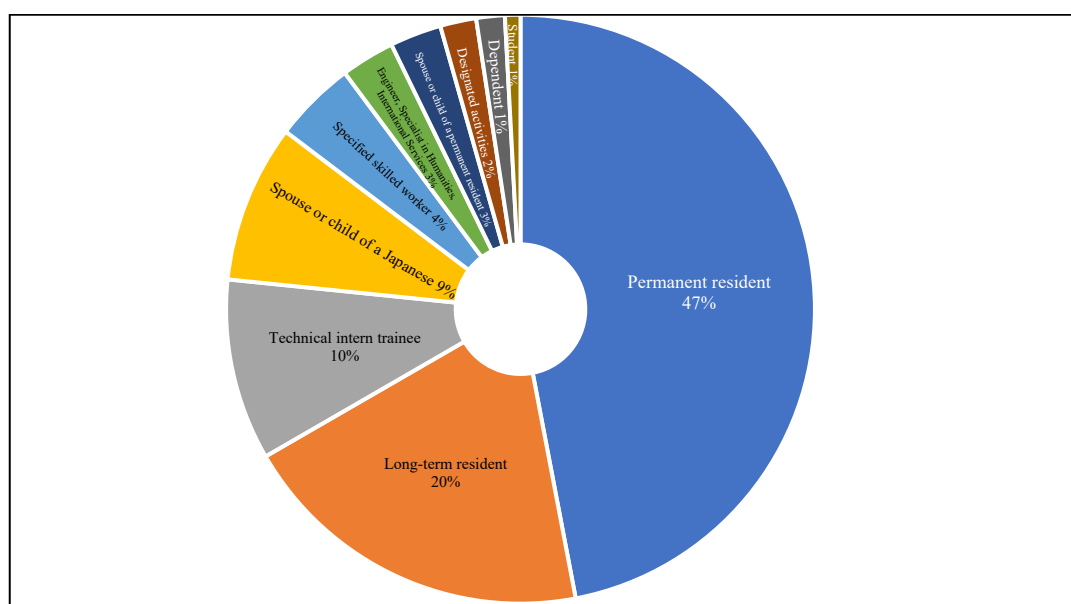
Figure 4.1 Status of residence of Filipino migrants in Japan.
Source: Ministry of Justice, Immigration Services Agency, end of December 2022 (e-Stat.co.jp, compiled by author)[9].

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[8] *Statistics on Foreign Residents (Formerly Registered Alien Statistics) / Statistics on Foreign Residents*). Portal Site of Official Statistics of Japan. 15 July 2022.

[9] *Notes:* "Technical Intern Trainee" indicates six different types of Technical Intern Trainee visa combined into one group. "Specified Skilled Worker" indicates Specified Skilled Worker 1 visa (there are yet no Filipinos with Specified Skilled Worker 2 visa). "Engineer, Humanities" indicates Engineer, Specialist in Humanities, International Services visa.
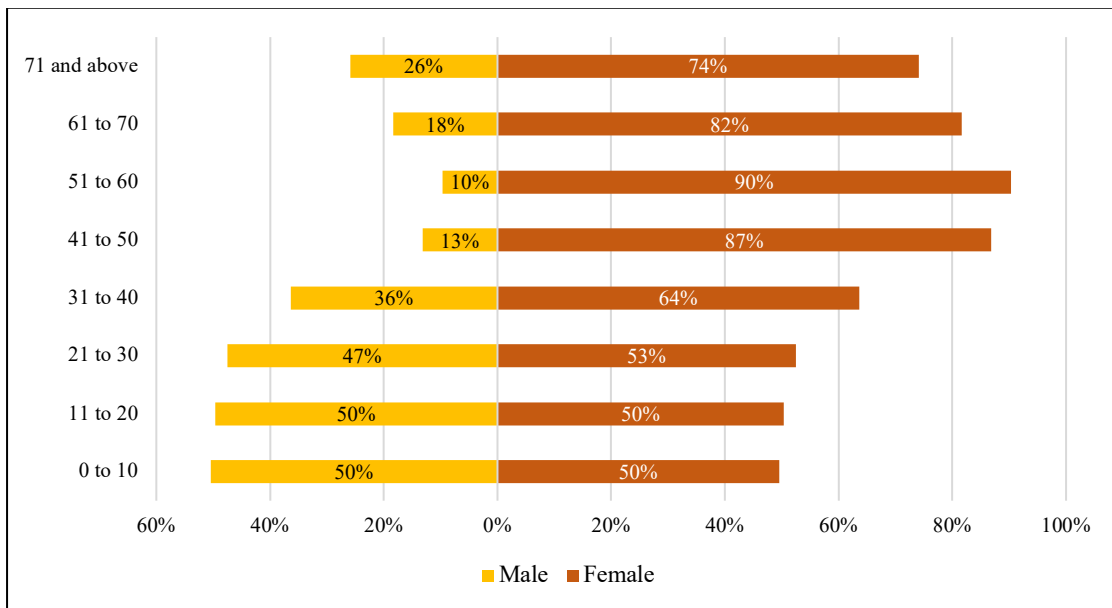
Figure 4.2 Gender ratio by age of Filipino migrants in Japan.
Source: Ministry of Justice, Immigration Services Agency, 2021 (Portal Site of Official Statistics of Japan, compiled by the author).
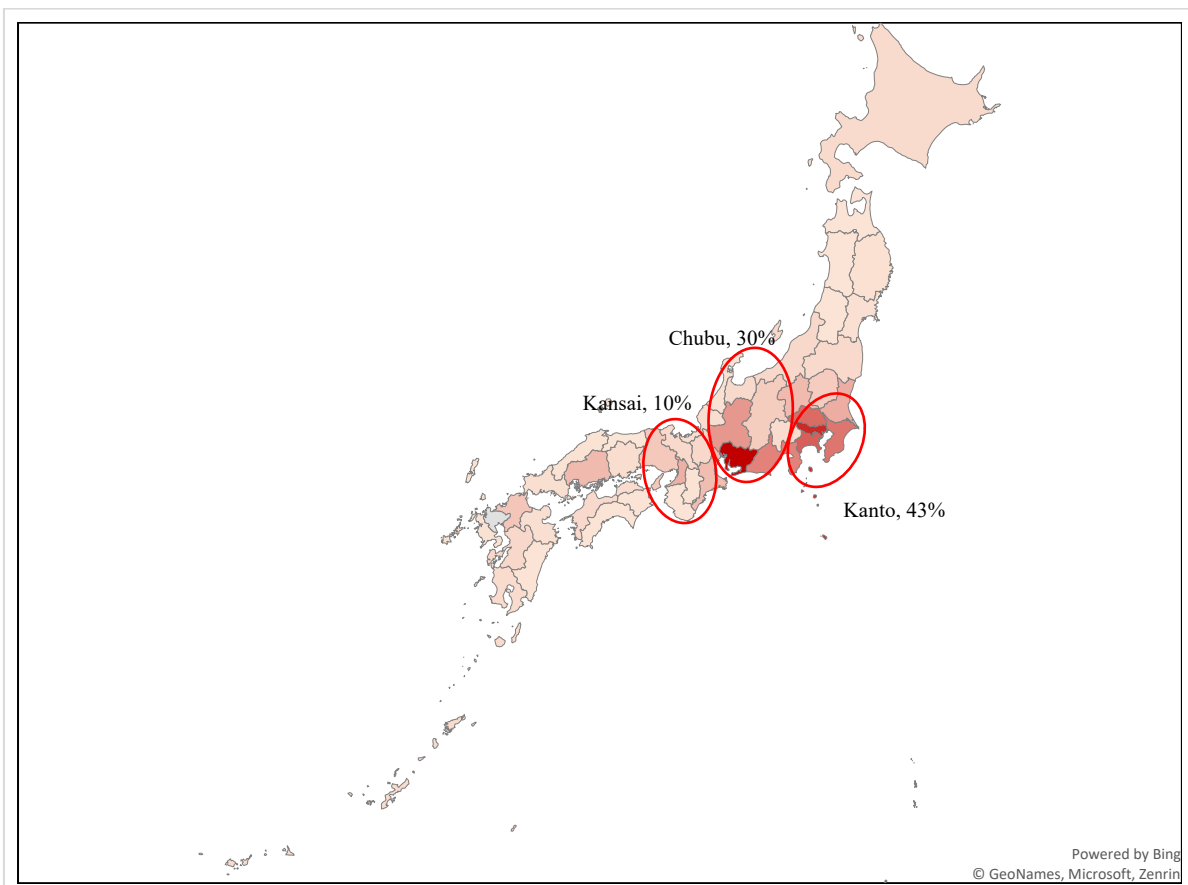
Figure 4.3. Prefectural distribution of Filipino migrants in Japan.
Source: Ministry of Justice, Immigration Services Agency, 2021 (e-Stat.co.jp, compiled by the author).

Despite its traditional restrictive immigration policies, Japan has seen a steady influx of Filipinos settling in the country in various industries, where most are in the manufacturing sector (36%) and service industry (21%) (see Figure 4.4)[10]. This trend can be attributed to the Technical Intern Training Program (TITP), launched by Japan in the 1990s. The TITP is a temporary migrant work program designed to transfer vocational skills and knowledge gained from Japanese companies to young workers from developing countries (JITCO, 2010).
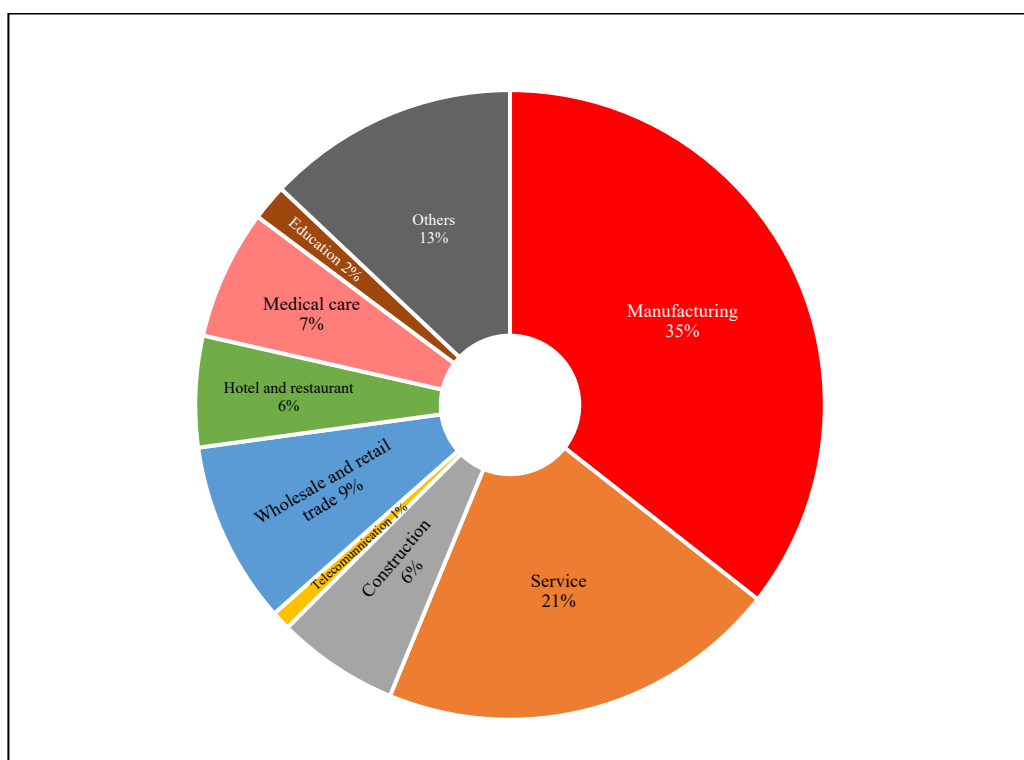
Figure 4.4. Major occupations of Filipino migrants in Japan.
Source: Ministry of Health, Labor, and Welfare of Japan, 2020, compiled by the author.

As of 2020, the total number of trainees reached 402,356, making them the second-largest group of migrant workers in Japan, according to the Ministry of Health, Labor, and Welfare of Japan (MLHW, 2021). Of these, 8.6% are from the Philippines. Under the TITP, interested applicants are trained in their home country, where there exist opportunities for housekeepers, caregivers, construction workers, and farmers. The

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[10] *Number of Foreign Workers by Nationality and Status of Residence* (PDF). Ministry of Health, Labor and Welfare, 2021.

program has been successful in attracting a significant number of young Filipinos who are eager to learn new skills and gain work experience in Japan. Initially, the maximum length of training (non-renewable) was set at one year. This was extended to three years in 1997 and five years in 2017, according to Japan's Ministry of Justice (MOJ). However, the program has also faced criticism from various quarters, including scholars and journalists. One issue is the perceived exploitation of trainees as a source of cheap labor. Training is defined as a non-employment activity, and trainees do not receive wages but instead receive training allowances, which are often meager (Bhattacharjee, 2014). Despite these criticisms, the TITP remains a viable option for young Filipinos seeking opportunities to work and study in Japan. The program has enabled many to gain valuable experience and skills, which they can take back to their home country or use as a stepping stone to build a career in Japan.

Furthermore, as Japan faces a significant challenge due to the rapidly aging population, leading to an increasing demand for elderly care services, the Japanese government has launched an initiative to invite certified care workers from countries that have signed the Economic Partnership Agreement (EPA) to work in Japan. The program provides an opportunity for foreign care workers (FCWs) to gain practical skills and knowledge to support the elderly care industry in Japan (Nakamura & Suzuki, 2023). The Philippine government signed an EPA with Japan in 2008, and in April 2009, it became one of the first countries to participate in the program. Since then, the program has deployed 3,378 Filipino nurses and certified care workers to Japan (Embassy of Japan in the Philippines, 2022). The program has benefited Filipino workers by allowing them to work in Japan and learn new skills, which they can use to improve their career prospects.

In 2017, the government expanded visa types for FCWs to include a professional visa category called "Nursing Care" (Nakamura & Suzuki, 2023). This new category allows foreign care workers to work in nursing homes, other long-term care facilities, and hospitals. Adding this category under the TITP program has been a significant development for foreign care workers, making it easier for them to work in the industry. Through these initiatives, Japan's TITP program has been a valuable initiative to address the growing demand for elderly care services in the country. The partnership with the

Philippines has been particularly successful, with a significant number of Filipino care workers gaining employment and improving their skills in the Japanese care industry.

Accordingly, the increasing migration of Filipinos to Japan for educational and employment opportunities reflects a diversification of professions, including roles as English instructors, engineers, business consultants, and positions requiring high skill levels. This trend highlights a broader spectrum of expertise within the Filipino diaspora in Japan, contributing to the multicultural landscape and addressing specific skill demands in the host country. These diverse life trajectories underscore the multifaceted nature of the Filipino migrant experience in Japan, revealing dynamic ways in which they navigate challenges, adapt to new environments, and seek opportunities for financial support and personal fulfillment. These narratives, rich with individual experiences, offer valuable insights into the lives of the Filipino migrants in Japan, forming a critical part of the broader context and understanding of this research.

Thus, the choice of the Filipino diaspora as the focal point is significant due to their unique experiences in the context of transnational practices. Moreover, the migration corridor between the Philippines and Japan is distinctive due to their close geographical proximity, facilitating not only the movement of people but also the exchange of goods, knowledge, and skills. Additionally, the dearth and relative recency of studies on the Filipino migrant's non-monetary forms of remittances and entrepreneurial activities is a testament to how little attention is paid to this subject. While the tradition of sending 'balikbayan' boxes laden with clothes, food, and gifts has been explored in destinations like Canada and the United States (Patzer, 2018; Alburo, 2005; Mata-Codesal, 2012), the unique experience of the Filipino migrants in Japan in terms of these non-monetary remittances deserves its particular attention. Lastly, the context of Japan serving as a source of technologically advanced equipment like agricultural machinery, used computers, cars, and appliances relative to the migrants' home country offers a distinctive perspective on the potential of these physical goods to serve as capital, thereby stimulating entrepreneurship development.

4.3 Data Collection

4.3.1 Survey Questionnaire Development

A survey questionnaire is formulated (see Appendix A4), designed initially as a paper questionnaire but subsequently adapted into an electronic format using the Qualtrics platform. This electronic approach streamlined the survey process, enabling more efficient data encoding and faster data transmission than traditional paper questionnaires. Respondents have the convenience of using electronic devices, such as mobile phones or tablets, to participate in the survey. They can be interviewed directly with the electronic questionnaire or provided with a link or QR code to complete the survey at their convenience, enhancing accessibility and expediting data collection.

The survey, composed of 39 questions, is divided into three sections: Personal Information of the Respondent, Remittance Behavior, and Business Ownership. The first part of the survey instrument aims to understand participants' demographic information comprehensively. This section collects essential details about their lives before and during their time in Japan, exploring their prior occupations, professional backgrounds, the duration of their stay in Japan, their present occupation, the type of visa they hold, and their intentions regarding the future.

The following section of the questionnaire explores migrant's remittance behavior, examining both monetary and non-monetary forms. This section includes questions about the amount and frequency of remittances, the motivations behind these transfers, the mode of transfer, and the intended purposes of remittances. It also explores non-monetary remittances, focusing on the types of goods sent, the mode of sending, and the purpose of these goods.

The final part of the survey focuses on the migrants' business activities in the Philippines. It explores various dimensions of entrepreneurial activity, including the specific type of businesses, the sources of initial capital, the extent of their participation in business decision-making, and the applicability of skills acquired in Japan to their entrepreneurial activities. The survey asks respondents without current businesses about their intentions regarding potential future entrepreneurial endeavors and the perceived

obstacles and challenges that might impede them from making business investments in the Philippines. This approach provides an in-depth understanding of the relationship between migration, remittances, and entrepreneurship in the lives of Filipino migrants in Japan.

The initial questionnaire consists of approximately 72 questions. To enhance its effectiveness, pre-test rounds are conducted as part of the questionnaire development process. These pre-tests reveal that certain questions are not aligned with the specific research goals and do not yield valuable insights. Consequently, revisions are initiated to streamline the questionnaire, ensuring each question serves a clear and meaningful purpose. Additionally, conditional "yes or no" questions lead to varying completion times, ranging from 5 to 14 minutes, depending on individual experiences and circumstances.

The first draft of the paper questionnaire is administered to a group of 10 respondents during a church service in Otsu City. This initial step aims to gather feedback, assess the questionnaire's length, and consider the need for questionnaire streamlining to improve usability. Additionally, two versions of the questionnaire are prepared, one in English and the other in Tagalog, to accommodate respondents' language preferences. Interestingly, most respondents express a preference for the English version.

The second round of pre-testing transitioned to an online questionnaire format, which is well-received by respondents for its convenience. However, a noteworthy comment during this phase indicates that some respondents are cautious about clicking the survey link due to potential security concerns. To address this, a concise link description is ensured to enhance respondents' confidence in accessing the questionnaire. Another significant comment received during the pre-testing phase pertains to revising the consent form. Respondents emphasize the importance of the consent form explicitly outlining the survey's objectives, potential risks associated with participation, and any incentives offered.

Considering these valuable comments and suggestions, the polished questionnaire is subsequently made available to respondents through the Qualtrics platform[11], starting

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[11] Can be accessed at: bit.ly/remit-survey.

in August 2023. These iterative refinements are instrumental in ensuring the questionnaire's clarity, user-friendliness, and effectiveness for data collection in this research study.

4.3.2 Implementation of Survey Operations

The survey spanned two months, commencing in August and concluding in September 2023. Throughout this period, rigorous data management procedures are diligently implemented to ensure the integrity and reliability of the collected responses. Daily data checks are performed as a critical step to verify the consistency and accuracy of the provided information. This process enables the prompt identification and rectification of discrepancies in the responses.

Given the absence of a comprehensive list of the Filipino migrants in Japan, the research employs non-probability sampling techniques, specifically convenience and snowball sampling, to identify and recruit participants. The initial step in the sampling strategy involves distributing the survey link to individuals attending church services within the Filipino community. These respondents completed the survey immediately after the church service, chosen for its accessibility and convenience in a familiar, communal setting. Subsequently, the social networks of initial respondents are leveraged by requesting them to share the survey link with their colleagues and other Filipino acquaintances residing in Japan. This snowball sampling technique expanded the survey's reach, ensuring diversity in the sample.

To further enhance the sample's representativeness, the survey link is posted in various Filipino Facebook groups and online communities engaging in online buying and selling activities, visa consultations, and discussions related to the Filipino diaspora experience in Japan. These online platforms serve as hubs for potential respondents, enabling access to a broader segment of the Filipino migrant population. Geolocation data from the Qualtrics platform is employed to validate respondents' location and confirm their residency in Japan, providing an additional layer of data quality assurance. Using these sampling techniques and validation measures, the aim is to assemble a diverse and representative sample of the Filipino migrants in Japan. This facilitated the acquisition of

valuable insights into their remittance and investment behaviors within the context of the research study.

The subsequent phase encompasses comprehensive data cleaning and processing, executed with meticulous attention to detail. This stage seeks to refine the dataset by addressing outliers, missing values, and inconsistencies. It thoroughly scrutinizes and validates each data point, ultimately enhancing data quality. The data cleaning and processing phase officially concludes by the end of October 2023, signifying the dataset's readiness for in-depth analysis. To enable the analysis, the collected data is extracted from the Qualtrics platform, where the survey was administered. Subsequently, the extracted dataset is transformed into a Stata file format to ensure compatibility with the selected statistical analysis tools.

4.4 Data and Sample Description

This study employs micro-level primary data collected from the Filipino migrants residing in Japan. A total of 323 respondents participated in the survey, and their regional distribution is shown in Table 4.2. Although the study initially began with a snowball sampling method, the distribution of respondents indicates that it closely resembles random sampling, with most participants hailing from the Chubu, Kanto, and Kansai regions.

The subsequent subsections provide a condensed overview of summary statistics from the survey data. This information is crucial for understanding the broader socio-economic context in which this research is situated.

Table 4.2. Regional distribution of Filipino migrants in Japan vis-à-vis survey respondents.

Region	Population*	%	Sample	%
Hokkaido	2,496	0.8%	4	1.24%
Tohoku	8,195	2.7%	6	1.86%
Kanto	126,807	42.5%	86	26.63%
Chubu	90,823	30.5%	116	35.91%
Kansai	31,139	10.4%	81	25.08%
Chugoku	13,859	4.6%	13	4.02%
Shikoku	6,596	2.2%	3	0.93%
Kyushu and Okinawa	18,304	6.1%	14	4.33%
TOTAL	**298,219**	**100%**	**323**	**100%**

Source: Ministry of Justice, Immigration Services Agency, 2021 (e-Stat.co.jp, compiled by the author).

4.4.1 Monetary Remittances

In examining the monetary remittance behavior of the migrants, Table 4.3 reveals a predominant pattern: a majority (71.83%) of respondents send remittances every month. This regularity in remittance activity is primarily driven by their desire to provide essential support and fulfill their financial obligations to their families residing in their home country.

Table 4.3. Migrant respondents' monetary remittance behavior.

Variable	n	%
Monetary remittance transfer		
Yes	232	71.83
No	91	28.17
Reasons for sending remittances*		
To benefit/help family and friends	192	63.58
For a sense of duty/ fulfill obligation	61	20.20
To invest in a business	28	9.27
For my retirement/ resettlement in the country	21	6.95
Recipient*		
Spouse	22	6.83
Son/Daughter	16	4.97
Father/Mother	121	37.58
Brother/Sister	89	27.64
Relatives	43	13.35
Non-relatives	19	5.90
Others, please specify (own account)	12	3.73
Mode of transfer*		
Hand carried by a relative or other individual	4	1.24
Through bank account	45	13.93
Through money transfer operator	124	38.39
Digital banking	58	17.96
Others, please specify	1	0.31
Frequency		
Monthly (at least once a month)	173	81.73
2 – 3 times a year	15	4.64
4 – 6 times a year	21	6.5
Once a year	1	0.31
Only on special occasions or emergencies	22	6.19
Household use of remittances*		
Consumption	149	29.04
Education	62	12.09
Rent/household utilities	78	15.20
Agricultural purposes	14	2.73
Start a business	11	2.14
Purchase of physical assets	31	6.04
Pay off debts	28	5.46
Health	47	9.16
Savings	43	8.38
Emergencies	36	7.02
Others, please specify	14	2.73

*Multiple responses
Source: Author's calculation based on field survey data (2023).

Regarding the preferred methods of sending remittances, it is evident that most respondents (38.38%) favor utilizing money transfer operators like Western Union, Moneygram, and similar services. On the other hand, digital banking platforms or applications (17.96%) find limited usage among this demographic.

Furthermore, the recipients of these remittances are predominantly immediate family members, such as parents (37.58%) and siblings (27.64%). These findings underscore the strong familial ties and the responsibility these migrants hold towards their closest kin. Regarding the allocation of the remittances, they predominantly serve essential purposes. The funds are primarily directed towards meeting daily consumption needs (29.04%), contributing to expenses such as rent and other household utilities (15.20%), and ensuring access to education for family members (12.09%). This pattern underscores the migrants' commitment to improving their families' well-being and quality of life back home, extending beyond mere financial support.

4.4.2 Non-Monetary Remittances

Regarding non-monetary remittances, Table 4.4 demonstrates that a significant portion of respondents engage in sending various consumption goods, including items such as food, medicine, and clothing (56.71%), along with electronic gadgets such as mobile phones, tablets, and laptops (27.81%). However, the data suggests that some respondents have attempted to send bulk items, such as vehicles and agricultural machinery. This trend presents a clear distinction between the types of non-monetary remittances provided, with a strong focus on goods that cater to immediate consumption and technological needs, while larger assets like vehicles and agricultural machinery are less commonly shared.

Moreover, data shows that the primary motivation behind sending these goods is consumption (86%), emphasizing the inclination to provide necessities and items that contribute to the well-being and comfort of their families back home. Notably, the preferred mode of sending these non-monetary remittances is through 'balikbayan boxes' (59.65%), reflecting the cultural significance of this traditional practice within the migrant community.

Table 4.4. Migrant respondents' non-monetary remittance behavior.

Variable	n	%
Sending non-monetary goods*		
Food/ Medicine/ Clothing/ Shoes/ Toys	169	56.71
Mobile phone/ Tablet/ Laptop/ Computer/ Accessories	83	27.85
Jewelry	27	9.06
Television/ other electronics/ appliances	12	4.03
Vehicle	4	1.34
Agricultural machineries	2	0.67
Automobile parts	1	0.34
Mode of sending*		
Hand carried by a relative or other individual	45	26.32
Through courier services (FedEx, DHL, UPS, etc.)	11	6.43
Through Japan Post (International Parcel Delivery)	11	6.43
'Balikbayan Box'	102	59.65
Others, please specify	2	1.17
Reasons for sending goods*		
For household consumption/use	172	86.00
To be used as capital to start/improve a business	10	5.00
Donation to community/ Gift	18	9.00

*Multiple responses
Source: Author's calculation based on field survey data (2023).

4.4.3 Entrepreneurial Activity

Table 4.5 shows that while only a small portion of the respondents (35.91%) currently operate businesses back in their home country, a noteworthy revelation from the survey indicates that the majority (50.24%) of those without businesses expressed their keen intent to establish one upon their return. It is evident that a strong entrepreneurial spirit thrives among these individuals, even in the face of geographical separation. Regarding the specific types of businesses, many are involved in retail trade (49.14%), commonly recognized as small store operations within the Philippines. These findings shed light on the prevalence of micro-enterprises and their integral role in the local economic landscape.

Furthermore, it is notable that most of these business owners initially used their personal or household savings (54.88%) as the primary source of capital for their entrepreneurial ventures. This highlights the significant role of personal financial resources in facilitating the initiation of businesses within this demographic. Regarding the extent of their involvement in their businesses, half of the respondents (47.41%) actively provide advice and share their expertise in business operations. However, only a few perceive their skills as directly instrumental in their business's success, suggesting

potential opportunities to further integrate their acquired skills and knowledge into their entrepreneurial endeavors.

Table 4.5. Entrepreneurial activity of migrant respondents.

Variable	n	%
Business ownership		
Yes	116	35.91
No	207	64.09
Intention to start a business		
Yes	104	50.24
No	26	12.56
Maybe/ Not yet decided	77	37.20
Type of entrepreneurial activity		
Wholesale and retail trade (store operation)	57	49.14
Crop farming and gardening	19	16.38
Other entrepreneurial activities not elsewhere classified	17	14.66
Transportation services (jeepney/tricycle operation)	6	5.17
Manufacturing	5	4.31
Construction/ Real Estate/ Apartment Rental	5	4.31
Recreational and personal services	3	2.59
Livestock and poultry raising	2	1.72
Repair of motor vehicles and motorcycle	2	1.72
Sources of initial capital		
Personal or household savings	90	54.88
Remittances	30	18.29
Borrowing	13	7.93
Loan from bank	14	8.54
Loan from MFOs	7	4.27
Grant	2	1.22
Others, please specify	8	4.88
Migrant's involvement in decision-making		
Yes	55	47.41
No	61	52.59
Migrant's transfer of skills and knowledge		
Extremely helpful	16	13.79
Very helpful	21	18.10
Somewhat helpful	32	27.59
Slightly helpful	13	11.21
Not at all helpful	34	29.31
Factors that hinder business investment		
I am too far away to manage the investments well	201	25.97
I don't have enough information about investment opportunities	166	21.45
High risk of possible losses/business failure	142	18.35
I can't find reliable investment partners	140	18.09
Limited investment opportunities with good financial returns that match my preferences	125	16.15

*Multiple responses
Source: Author's calculation based on field survey data (2023).

Lastly, when considering the obstacles that hinder their investment activities in the Philippines, a common sentiment among migrant respondents is the challenge of managing their businesses effectively from a distance (25.87%). Additionally, a lack of trustworthy partners to oversee their businesses in their absence poses a notable concern (21.45%). These challenges underscore the need for robust systems and reliable networks to support and facilitate the remote management of businesses for these migrant entrepreneurs.

4.4.5 Remittance Behavior vis-à-vis Remittance Type

For a more intuitive understanding of the data, preliminary results of analyses by major indicators are presented in Figures 4.5 to 4.10. The proportion of remittances is computed based on the number of respondents who remit monetary (MR) and non-monetary remittances (NMR) divided by the total number of respondents falling into a category. For example, the percentage of "female remitters" of monetary remittances is based on the total number of females, which is 202. Thus, 146 out of 202 females, or 72% of all females, send monetary remittances.
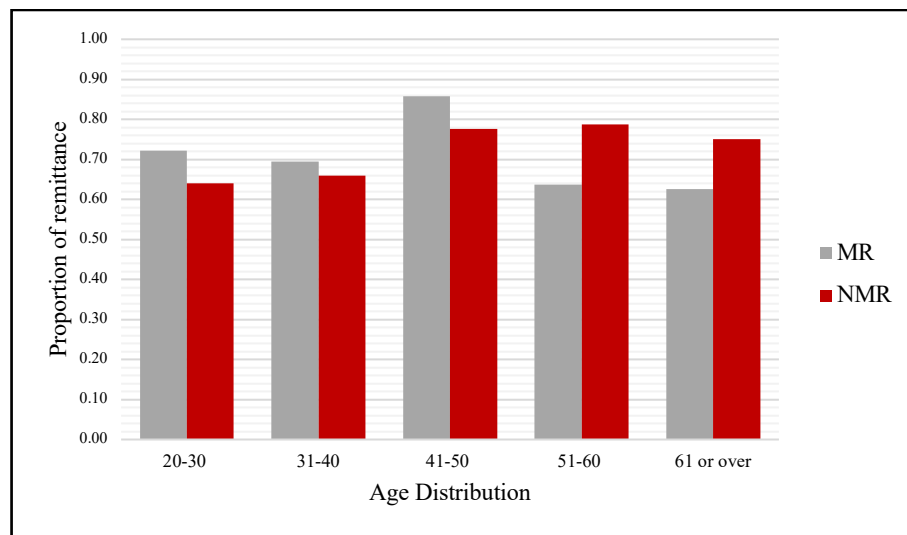
Figure 4.5. Remittance preference by age.
Source: Author's calculation based on field survey data (2023).

Figure 4.5 shows that the proportion of respondents under 50 prefer to send cash remittances. However, as they age, the preference for non-monetary remittances becomes apparent. In terms of sex, there is a gender disparity in the preference for monetary versus

non-monetary forms. Specifically, Figure 4.6 shows that a higher percentage of female remitters prefer non-monetary remittances such as goods. In contrast, males prefer monetary transfers as they may prioritize financial support for their families back home.
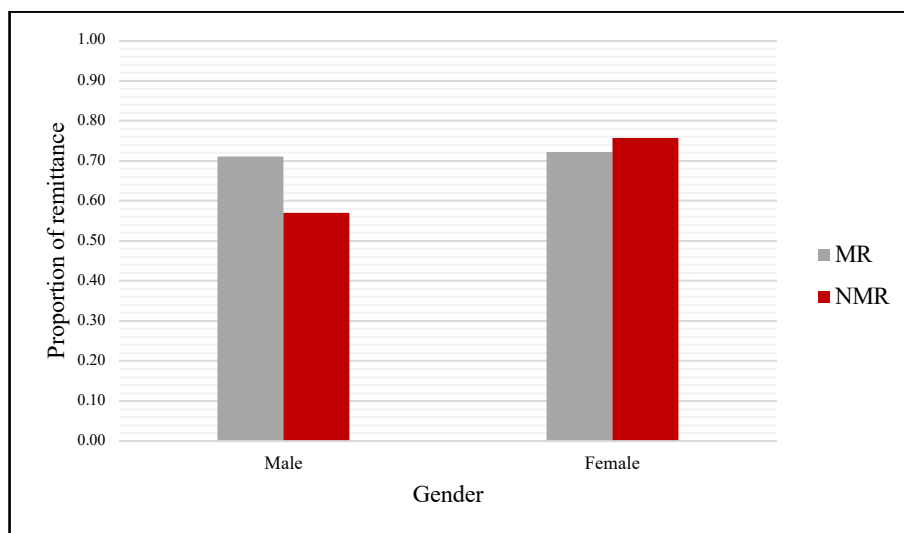
Figure 4.6. Remittance preference by gender.
Source: Author's calculation based on field survey data (2023).

Furthermore, migrants who have return intentions have a higher preference for non-monetary remittances (see Figure 4.7).
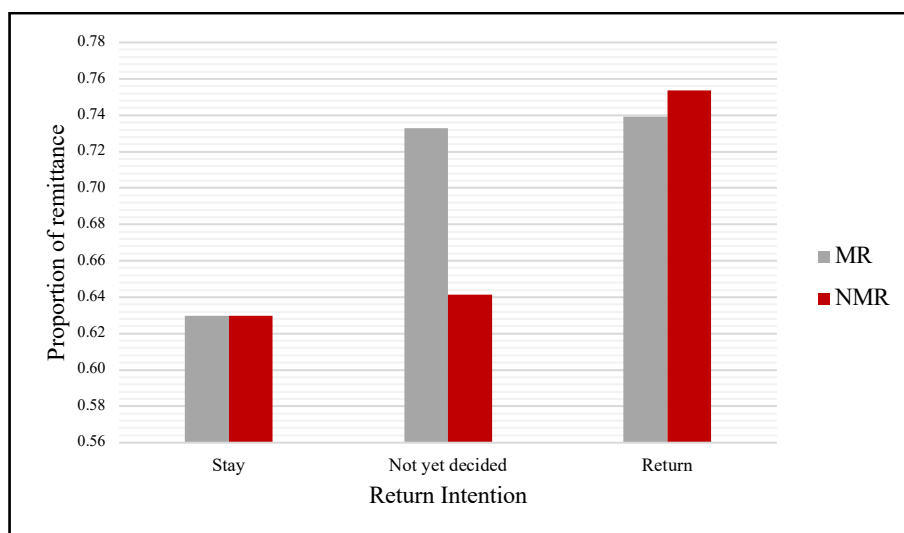
Figure 4.7. Remittance preference by return intention.
Source: Author's calculation based on field survey data (2023).

Interestingly, the area of residence in the Philippines shows a distinct pattern regarding the form of remittances transferred, as shown in Figure 4.8. For instance, migrants residing in Luzon, the economic and political center of the country and where Manila is located, tend to send more non-monetary remittances compared to those whose families live in the Visayas and Mindanao islands. This preliminary finding suggests that migrants' preference is influenced by their proximity to the center of economic activities.
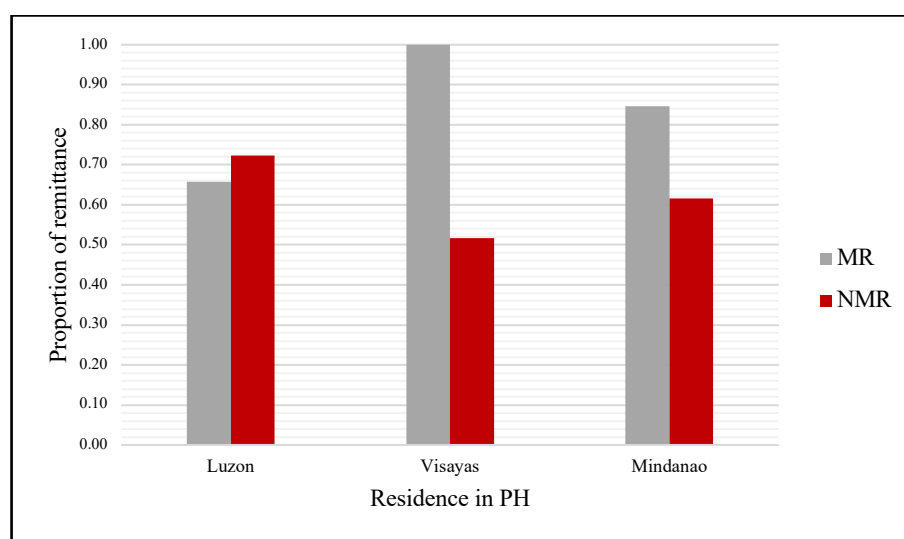
Figure 4.8. Remittance preference by location of residence in the Philippines.
Source: Author's calculation based on field survey data (2023).

In Figure 4.9, the proportion of remittances by monthly income shows an interesting trend. The analysis indicates that at lower income levels, migrants prefer sending cash remittances to their families back home. However, as their income increases, there is a higher probability of sending non-monetary remittances, such as goods and services, that can meet the specific needs of their loved ones. This suggests that higher income levels propel migrants to diversify their remittances into different forms, which can offer more value and utility to their families.
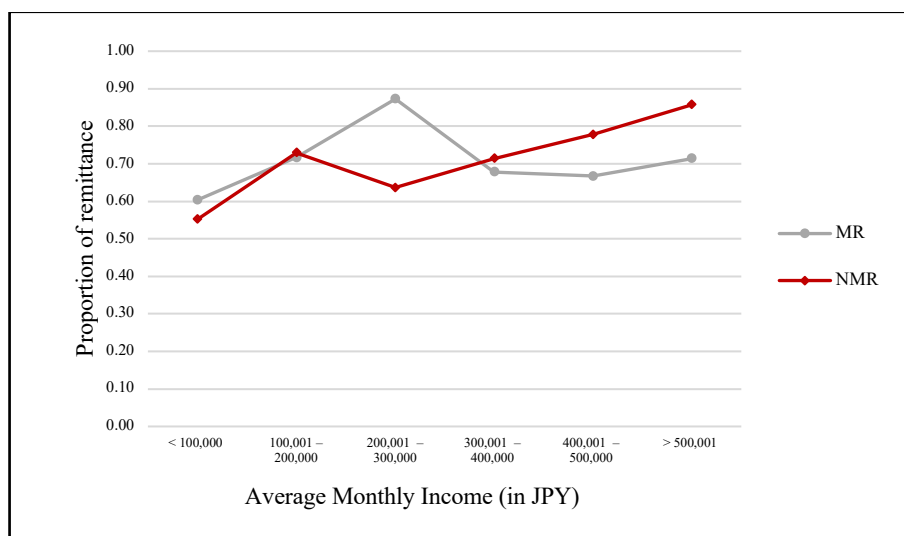
Figure 4.9. Remittance preference by average monthly income.
Source: Author's calculation based on field survey data (2023).
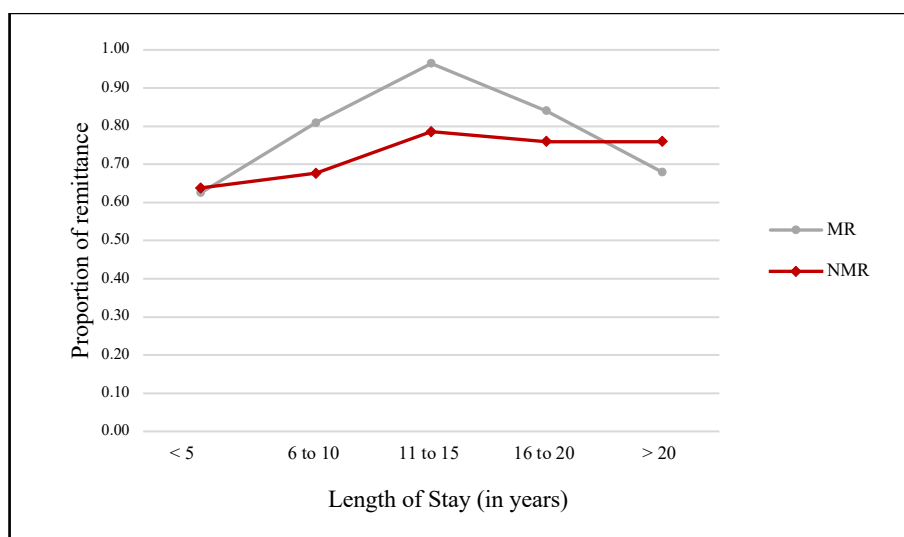
Figure 4.10. Remittance preference by length of stay.
Source: Author's calculation based on field survey data (2023).

Regarding migration duration, the proportion of remittance shows an upward pattern from 0 to 15 years for both forms of remittance (see Figure 4.10). Beyond this, the likelihood of cash remittances starts to decline, while the share of non-monetary remittances remains relatively stable. Interestingly, migrants who have stayed more than two decades exhibit a greater inclination to send non-monetary remittances.

4.5 Determinants of Remittance Behavior

This section presents the empirical framework to explore the factors affecting remittance behavior, encompassing monetary and non-monetary forms, addressing the second objective of the study. To look into the migrant's monetary remittance behavior, the questionnaire employed in the study asks the respondents to indicate how much they have sent in total over the past 12 months. Responses are coded as 'No remittance' (1), 'Less than 200,000 JPY' (2), and 'More than 200,001 JPY' (3). Non-monetary remittances, on the other hand, refer to either the goods sent by the migrant or their sharing of knowledge and information in terms of the household decision-making coded as 'Yes' (1) and 'No' (0).

Furthermore, explanatory variables are retrieved based on previous literature divided into two broad categories: the migrant's capacity to remit and motivation to remit. First, two categorical variables that describe the migrant's capacity to remit are considered: his average monthly income and present occupation. In this case, positive net income and labor force participation increase the probability of remitting (McCoy et al., 2007; Collier et al., 2011). Second, motivation to remit is measured whether the migrant intends to return to the country of origin, which, if significant and positive, would indicate that those planning to return one day remit more than those who do not. In addition, migrant characteristics such as age, marital status, education, sex, residence in the Philippines (PH), and duration of stay are included as explanatory variables. A basic description of the variables of the data set is presented in Table 4.6.

The survey data shows that a significant majority comprises middle-aged females who are married and have completed tertiary education. Moreover, a substantial portion of the participants falls under the category of skilled labor, primarily employed in manufacturing companies, with a monthly income ranging from 100,001 to 200,000 JPY. Moreover, although the questionnaire solicited respondents' residential addresses in the Philippines, these locations were categorized based on the country's three main islands: Luzon, Visayas, and Mindanao. The data indicates a predominant concentration of respondents residing in Luzon, home to the capital city of Manila.

Table 4.6. Descriptive statistics.

Variables	Description	Mean	Std. dev.	Min	Max
Dependent Variables					
Non-monetary remittances	= 1 if the migrant sends goods and shares knowledge and skills to household; = 0 otherwise	0.66	0.48	0	1
Monetary remittances	= 1 if the migrant does not send monetary remittances; = 2 if migrant sends less than 200,000JPY; = 3 if migrant sends more than 200,001JPY	1.88	0.67	1	3
Migrant Characteristics					
Age	= 1 if 20-30 years old; = 2 if 31-40 years old; = 3 if 41-50 years old; = 4 if 51-60 years old; = 5 if 61 or over	2.16	1.01	1	5
Marital status	= 1 if married; = 0 if otherwise	0.53	0 .50	0	1
Tertiary education	= 1 if completed university education or higher; = 0 if otherwise	0.604	0.490	0	1
Gender	= 1 if female; 0 = otherwise	0.625	0.485	0	1
Residence in the origin*	= 1 if Luzon; = 2 if Visayas; = 3 if Mindanao	1.41	0.752	1	3
Length of stay in Japan	= 1 if less than 10 years; = 2 if between 11-15 years; = 3 if more than 15 years	1.55	0.84	1	3
Capacity to remit					
Average monthly income	= 1 if less than 100,000 JPY; = 2 if 100,001 JPY – 200,000 JPY; = 3 if 200,001 JPY – 300,000 JPY; = 4 if 300,001 JPY – 400,000 JPY; = 5 if 400,001 JPY – 500,000 JPY; = 6 if more than 500,001 JPY	2.42	1.21	1	6
Present occupation	= 1 if unemployed/ dependent/retired/student; = 2 if skilled worker/factory worker; = 3 if services/entertainer; = 4 certified care workers; = 5 self-employed/business; = 6 skilled professional	3.121	1.90	1	6
Motivation to remit					
Intention to return	= 1 if without intention to return; = 2 not yet decided; = 3 with intention to return	2.26	0.73	1	3
	N	323			

*Note: The place of residence is categorized based on the three main islands of the Philippines. Refer to the Philippine map in Appendix A, Figure A1. Luzon is where the capital city of Manila is located.

Regarding remittances, most participants transfer amounts less than 200,000 JPY and actively send non-monetary remittances. Although a significant portion of the respondents express their intention to return to their country of origin, a considerable number remain undecided and uncertain about their future.

4.5.1 Empirical Specification

The empirical strategy to test the probability of remittances involves the estimation of Equations (4.2) and (4.4). In modeling the migrant's monetary remittance behavior, an Ordered Probit (Oprobit) framework is considered, given that the data is coded in intervals, which is quite similar to the study of Collier et al. (2011). An Oprobit model is a statistical method used to determine the relationship between an ordinal dependent variable and a group of independent variables. This model estimates an underlying score, calculated based on a linear function of the independent variables and a series of cut points. The probability of observing a specific outcome i is the chance that the estimated linear function, plus a random error, falls within the cut-point range for the outcome. That is,

$$\Pr(outcome_j = i) = \Pr(\gamma_{i-1} < \beta_1 x_{1j} + \beta_2 x_{2j} + \cdots + \beta_k x_{kj} + u_j \le \gamma_i) \quad (4.1)$$

where u_j is assumed to be normally distributed. In either case, the coefficients of $\beta_1, \beta_2, \ldots, \beta_k$ together with the cut-points $\gamma_1, \gamma_2, \ldots, \gamma_{I-1}$ are estimated where I is the number of possible outcomes, γ_0 is taken as $-\infty$, and γ_I is taken as $+\infty$ (Cameron & Trivedi, 2005).

Thus, in this study, the ordinal dependent variable is the migrant's level of monetary remittances, which takes a value of 1 if no remittances are sent, 2 if the migrant remits less than 200,000 JPY, and 3 if the remittance is more than 200,001 JPY. The estimation equation is expressed as:

$$R_i^M = \beta_0 + \beta_1 X_i + \beta_2 c_i + \beta_3 m_i + \varepsilon_i \quad\quad\quad (4.2)$$

where R_i^M is a categorical random variable representing monetary remittances; X_i is a vector of the migrant's demographic characteristics such as age, sex, marital status, residence in the origin country, duration of stay, and education; c_i reflects the migrant's capacity to remit which includes income and occupation; and m_i reflects the migrant's motivation to remit reflected by the migrant's intention to return home. The dataset shows that the dependent variable falls within a specific range on the real number line. Assuming

standard normal errors, consistent estimates of β through maximum likelihood estimation (MLE) are derived. The interpretation of the regression parameters' signs allows for ascertaining whether the variables are associated with increased or decreased remittances. The estimation results are discussed Chapter 5.

On the other hand, to examine the migrant's propensity to remit non-monetary forms to the home country where the remittance decision is a binary choice, the Probit estimation is utilized. Probit models are used to model binary or dichotomous outcome variables where the inverse standard normal distribution of the probability is modeled as a linear combination of the predictors (Long & Freese, 2014). In the estimation, the Probit of the mean is modeled as a linear combination of the vector of regressors (X) and ε is assumed to be distributed normally with $Var(\varepsilon) = 1$. Thus, the probability of the outcome is the cumulative density function (cdf) of ε evaluated at given values of the independent variables expressed as:

$$Pr(outcome = 1| X) = \Phi(X\beta) \qquad (4.3)$$

where Φ is the normal cdf for the Probit model (Cameron & Trivedi, 2005; Long & Freese, 2014).

In this study, the dependent variable describes the probability of migrant's non-monetary remittance behavior described as follows:

$$R_i^N = \gamma_0 + \gamma_1 X_i + \gamma_2 c_i + \gamma_3 m_i + \varepsilon_i \qquad (4.4)$$

where the dependent variable R_i^N is binary and takes value 1 when the migrant transfers non-monetary remittances and 0 otherwise. However, given these considerations, it is essential to acknowledge a limitation inherent in the study—the challenge of assigning a monetary value to these non-monetary forms of remittances. While the survey effectively captures the binary coding of 'Yes' or 'No' for non-monetary contributions, quantifying these intangible exchanges' economic impact or value remains elusive. Considering this limitation, the study encourages a nuanced interpretation of non-monetary remittances,

emphasizing their qualitative impact on households rather than attempting to quantify their worth in strictly monetary terms. In addition, the independent variables used are similar to those described in Equation (4.2) to provide a comparative analysis in understanding the factors influencing migrant's remittance behavior. Chapter 5 provides an in-depth analysis and discussion of the estimation results.

4.6 Remittances and Entrepreneurship Development

This section discusses the analytical framework to examine the impact of monetary and non-monetary remittances on entrepreneurship development related to the third objective of the research. For this analysis, the survey question regarding the involvement of the migrant's family in any business or self-employment activity in the Philippines serves to distinguish between migrants with and without business activities. The responses are categorized as 'Yes' and 'No,' with corresponding values of 1 and 0. Out of the entire sample of migrants, only 116 individuals (36%) indicate that their families are engaged in businesses in the Philippines.

Furthermore, to look into the migrant's remittance behavior, questions about their monetary and non-monetary remittances are asked. For their monetary remittance, two questions are relevant: 'Have you sent cash remittances in the last 12 months?' where responses are coded as 'Yes' (1) and 'No' (0); and 'Approximately, how much have you sent in total over the past 12 months?' where responses are coded as 'No remittance' (1), 'Less than 200,000 JPY' (2), and 'More than 200,001 JPY' (3). Non-monetary remittances, on the other hand, refer to either the goods sent by the migrant or their sharing of knowledge and information in terms of the household decision-making coded as 'Yes' (1) and 'No' (0).

Tables 4.7 to 4.9 provide a summary of the socioeconomic characteristics and remittance behavior of migrants based on their business ownership. The distributions are disaggregated based on different groups of factors. The percentage is computed based on the number of respondents with and without businesses divided by the total number of respondents (N) falling into a category. For example, the percentage of "non-monetary remittance senders with entrepreneurship" is based on the total number of non-monetary

remittance senders, which is 222. Thus, 104 out of 222 non-monetary remittance senders, or 47%, are engaged in entrepreneurial activities.

Table 4.7 shows that a significantly higher proportion of females are business owners than their male counterparts, with a ratio of 28.9%. Also, among the migrants with dependent visa status, a greater proportion (59%) are involved in a business venture. However, there are no noteworthy differences in terms of business ownership among migrants with different education levels and different age groups.

Table 4.7. Migrants' characteristics vis-à-vis business ownership.

Variables	N	With entrepreneurship (n=116)		Without entrepreneurship (n=207)	
		n	%	n	%
Age					
20-30 years old	86	31	36.05	55	63.95
31-40 years old	147	51	34.69	96	65.31
41-50 years old	49	16	32.65	33	67.35
51-60 years old	33	15	45.45	18	54.55
61 or over	8	3	37.50	5	62.50
Sex					
Male	121	35	28.93	86	71.07
Female	202	81	40.10	121	59.90
Marital status					
Single	130	42	32.31	88	67.69
Married	170	65	38.24	105	61.76
Divorced	15	3	20.00	12	80.00
Widowed	2	1	50.00	1	50.00
Separated	6	5	83.33	1	16.67
Highest educational attainment					
High School Diploma	75	27	36.00	48	64.00
Vocational Education	53	21	39.62	32	60.38
Bachelor's Degree	138	49	35.51	89	64.49
Master's/Doctoral Degree	57	19	33.33	38	66.67
Visa category					
Highly Skilled Professional Visa	13	5	38.46	8	61.54
Working Visa	55	16	29.09	39	70.91
Trainee Visa	59	21	35.59	38	64.41
Student Visa	41	11	26.83	30	73.17
Dependent Visa	17	10	58.82	7	41.18
Permanent Resident	97	37	38.14	60	61.86
Spouse or child of Japanese national *(Naturalized)*	41	16	39.02	25	60.98

Source: Author's calculation based on field survey data (2023).

Furthermore, as shown in Table 4.8, the data suggests that a significant percentage (71%) of individuals earning more than 500,000 JPY are involved in entrepreneurial activities in the Philippines. Those migrants residing in Japan for less than five years represent the largest proportion (47%) of business owners. Similarly, when considering the respondents' current occupation, the majority (63%) of the migrants who own businesses in Japan are also involved in business-related activities in the Philippines.

Table 4.8. Migrants' economic characteristics vis-à-vis business ownership.

Variables	N	With entrepreneurship (n=116)		Without entrepreneurship (n=207)	
		n	%	n	%
Length of stay in Japan					
less than 5 years	152	55	36.18	97	63.82
6 to 10 years	68	22	32.35	46	67.65
11 to 15 years	28	9	32.14	19	67.86
16 to 20 years	25	9	36.00	16	64.00
more than 20 years	50	21	42.00	29	58.00
Average monthly income					
less than 100,000 JPY	58	15	25.86	43	74.14
100,001 JPY – 200,000 JPY	159	60	37.74	99	62.26
200,001 JPY – 300,000 JPY	55	14	25.45	41	74.55
300,001 JPY – 400,000 JPY	28	14	50.00	14	50.00
400,001 JPY – 500,000 JPY	9	3	33.33	6	66.67
more than 500,001 JPY	14	10	71.43	4	28.57
Present occupation					
Unemployed/Dependent/Retired/Student	54	16	29.63	38	70.37
Factory Worker/Technical Intern/Farming	142	44	30.99	98	69.01
Certified Care Worker	14	4	28.57	10	71.43
Service/Entertainment	21	10	47.62	11	52.38
Self-employed/Business	8	5	62.50	3	37.50
Skilled professional	84	37	44.05	47	55.95

Source: Author's calculation based on field survey data (2023).

Lastly, Table 4.9 reveals that entrepreneurship among Filipino remittance senders in Japan is still low. This contrasts with the 2018 Family Income and Expenditure Survey (FIES), which found that the majority (56%) of the remittance-receiving households are engaged in business activities.

Table 4.9. Migrants' remittance behavior vis-à-vis business ownership.

Variables	N	With entrepreneurship (n=116)		Without entrepreneurship (n=207)	
		n	%	n	%
Monetary remittance					
No remittance	94	45	47.87	49	52.13
Less than 200,000 JPY	145	42	28.97	103	71.03
More than 200,001 JPY	84	29	34.52	55	65.48
Non-monetary remittance					
Sends non-monetary remittance	222	104	46.85	118	53.15
Do not send non-monetary remittance	101	12	11.88	89	88.12

Source: Author's calculation based on field survey data (2023).

4.6.1 Empirical Specification

The third objective of the study is to investigate the significance of non-monetary remittances in addition to monetary remittances as a catalyst for entrepreneurship. Many prior studies examining the likelihood of entrepreneurship in migrant households have traditionally employed the Probit model, where an individual's entrepreneurial status is treated as an unknown dependent variable (Devkota, 2016; Amuedo & Pozo, 2006; Kakhkharov, 2018). Since the dependent variable is binary where $entrep^* = 1$ if the migrant is engaged in a business in the home country, and $entrep^* = 0$ if otherwise, the probit model is relevant for the study as it captures the effect of both monetary and non-monetary remittances on the likelihood of entrepreneurship of migrant households.

Thus, the key independent variables of interest are monetary and non-monetary remittances. However, it is essential to acknowledge a limitation inherent in the study—the challenge of assigning an economic value to these non-monetary forms of remittances. While the study effectively captures the binary coding of 'Yes' or 'No' for non-monetary contributions, quantifying these intangible exchanges' economic impact or value remains elusive. Given the limitation, the study suggests that non-monetary remittances should be interpreted in a nuanced manner, highlighting their qualitative impact on households instead of attempting a strict monetary valuation. Accordingly, to test the hypothesis that combining these two forms of remittances significantly influences the likelihood of entrepreneurship, an interaction term that represents the joint effect of these remittances is introduced.

In addition to the remittance variables, various demographic characteristics of the migrant, such as age, average monthly income, marital status, highest educational attainment, and present occupation, have been recognized in prior research (McCormick & Wahba, 2001; Mesnard, 2004; Reyes et al., 2013; McCoy et al., 2007; Osili, 2007; Kakhkharov, 2019) are considered. Additionally, the model incorporates the migrant's intention to return to the Philippines in the future as a control variable, recognizing the challenges often encountered by returning migrants in post-migration activities. This variable captures the migrants' decision-making process regarding the economic endeavors they plan to pursue upon their return. In the theoretical model discussed in the preceding chapter, the assumption of return migration in the second period underscores the migrant's inclination toward entrepreneurship to smoothen consumption between the two periods.

Furthermore, the migrants' perception of the risk of potential business failure or losses in the model is introduced. This variable holds significance in understanding how migrants make decisions in uncertain circumstances, a dimension often overlooked in prior studies. Thus, the study employs these additional variables and applies a Probit model to provide a more comprehensive understanding of the interplay between remittances and entrepreneurship.

Table 4.10 presents the summary statistics of the model. The first column shows the list of dependent and independent variables. Successive columns describe variables, mean, standard deviation, and minimum-maximum value. The survey data shows that a substantial proportion of respondents are married and aged 31 to 40. Moreover, most migrant respondents have attained a bachelor's degree and are presently employed in the manufacturing sector, with monthly earnings of less than 200,000 JPY.

Furthermore, while a significant number of respondents express an intention to return to the Philippines in the future, a segment of individuals remain undecided. Additionally, nearly 44% of the migrant respondents perceive investing in a business as carrying a high risk of potential losses or business failure. This data offers valuable insights into the characteristics and attitudes of the surveyed migrant population, which

can be crucial in understanding the dynamics of their entrepreneurial decision-making process.

Table 4.10. Descriptive statistics.

Variables	Description	Mean	Std. dev.	Min	Max
Dependent Variable					
Entrepreneurship	= 1 if the migrant's household has business in the PH; = 0 if otherwise	0.36	0.48	0	1
Independent Variables					
Non-monetary remittances	= 1 if the migrant sends goods and shares knowledge and skills to household; = 0 otherwise	0.66	0.48	0	1
Monetary remittances	= 1 if the migrant does not send monetary remittances; = 2 if migrant sends less than 200,000JPY; = 3 if migrant sends more than 200,001JPY	1.88	0.67	1	3
Control Variables					
Age	= 1 if 20-30 years old; = 2 if 31-40 years old; = 3 if 41-50 years old; = 4 if 51-60 years old; = 5 if 61 or over	2.16	1.01	1	5
Marital status	= 1 if single; = 2 if married; = 3 if divorced; = 4 if widowed; = 5 if separated	1.71	0.75	1	5
University education	= 1 if completed university education or higher; = 0 if otherwise	0.604	0.490	0	1
Sex	= 1 if female; 0 = otherwise	0.625	0.485	0	1
Average monthly income	= 1 if less than 200,000 JPY; = 2 if 200,001 JPY – 400,000 JPY; = 3 if more than 400,001 JPY	1.40	0.62	1	3
Present occupation	= 1 if unemployed/ dependent/retired/student; = 2 if skilled worker/technical intern; = 3 if services/entertainer; = 4 certified care worker; = 5 self-employed/business; = 6 skilled professional	3.121	1.90	1	6
Intention to return	= 1 if without intention to return; = 2 not yet decided; = 3 with intention to return	2.26	0.73	1	3
Risk perception	= 1 if migrant perceives that business investment in PH entails high risk; = 0 if otherwise	0.44	0.50	0	1
	N	**323**			

Based on the foregoing and addressing the third objective of this research study, entrepreneurship is modeled as a function of monetary and non-monetary remittances, migrant characteristics, return migration, and risk perception as follows:

$$entrep_i^* = \beta_0 + \beta_1 mremit_i + \beta_2 nmremit_i + \beta_3\, mremit_i * nmremit_i + \alpha X_i + \gamma\, return + \sigma\, risk + \varepsilon_i \qquad (4.5)$$

where
$$entrep_i = \begin{cases} 1, & \text{if } entrep_i^* > 0 \\ 0, & \text{otherwise.} \end{cases}$$

$entrep_i^*$ is the latent variable, and $entrep_i$ is the observed variable. X_i is a vector of migrant characteristics that may affect the entrepreneurial decision; $mremit_i$ is the total remittances of the migrant in the last 12 months divided into three categories (1 if no remittance, 2 if less than 200,00 JPY, and 3 if more than 200,001 JPY); $nmremit_i$ is a dummy variable that equals 1 if the migrant sends non-monetary remittances and 0 otherwise; $return$ is a categorical variable that equals 3 if the migrants intend to return in the future, 2 if the migrant is still undecided, and 3 if there is no intention to return; $risk$ is a binary variable, taking the value of 1 if the migrant perceives that investing in a business involves high risk of possible losses and business failure and 0 otherwise; and the coefficient β_3 measures the impact of the combination of both forms of remittances to the likelihood of engaging in entrepreneurship. The estimation results are discussed in Chapter 6.

Chapter 5: Determinants of Migrant's Monetary and Non-Monetary Remittance Behavior

5.1 Introduction

This chapter discusses the empirical findings related to the second objective on the differential factors affecting migrant's remittance behavior, encompassing monetary and non-monetary forms. Sections 5.2 and 5.3 provide a comprehensive discussion of the estimation results to investigate the factors influencing the level of monetary remittances employing an Ordered Probit (Oprobit) estimation model and to examine the likelihood of sending non-monetary remittances, such as goods or skills, utilizing a Probit model. Finally, Section 5.4 highlights the significant factors that differentiate the migrant's monetary and non-monetary remittance behaviors[12].

5.2 On Monetary Remittances

The estimation in this section is based on the empirical model in Equation (4.2) in Chapter 4, as follows:

$$R_i^M = \beta_0 + \beta_1 X_i + \beta_2 c_i + \beta_3 m_i + \varepsilon_i \qquad (4.2)$$

where R_i^M is a continuous non-negative random variable; X_i is a vector of the migrant's demographic characteristics such as age, sex, marital status, residence in the origin country, duration of stay, and education; c_i reflects the migrant's capacity to remit which includes income and occupation; and m_i reflects the migrant's motivation to remit reflected by the migrant's intention to return home. The dataset shows that the dependent variable falls within a specific range on the real number line. It takes a value of 1 if no remittances are sent, 2 if the migrant remits less than 200,000 JPY, and 3 if the remittance is more than 200,001 JPY.

Regression results regarding the probability of cash remittances are presented in Model (1) of Table 2. First, results show that obtaining a college degree significantly influences a migrant's remittance behavior at a 10% level. Migrants who have completed their tertiary education are more likely to have higher incomes and better job

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opportunities in the host country, which enables them to send more remittances to their families or communities in their country of origin (Ilahi & Jafarey, 1999). They have more financial resources and stronger motives to remit, making them ideal candidates for remittance payments. On the contrary, compared to the reference range, the age variable is significantly negative for individuals within the 51-60 age group, a result in contrast with previous studies on remittance behavior (Brzozowski et al., 2017; Dustmann & Mestres, 2010). This finding is reported in Merkle and Zimmerman (1992), where the amount of remittances seems to increase with age, but beyond a certain age, a tendency to decline appears. The result is also attributed to the assumption that personal ties to recipient homes become more distant with age, supporting the remittance decay hypothesis. Furthermore, the results reveal that gender has no impact on the probability of remitting.

Additionally, married migrants are less likely to remit than unmarried ones, which is explained by the likelihood that many Filipino migrants in Japan may have Japanese spouses and already established families. In such cases, married migrants may prioritize fulfilling financial responsibilities within their household, including covering domestic expenses and directly supporting their family's needs, reducing the need for remittances. Thus, they may have less disposable income to send back to their origin country than unmarried migrants with fewer dependents or lower living costs.

Moreover, time spent abroad positively affects the remittance behavior of the Filipino diaspora in Japan. This assertion is consistent with the findings of Mahuteau et al. (2010), who argue that a longer period spent abroad can increase remittance flows. The coefficient of 11-15 years of stay is significant and positive, which suggests that, over time, the fixed costs of settlement decrease, and the accumulated experience and skills acquired by migrants contribute to higher earnings.

Looking at the effect of income and labor force status on the migrant's remittance behavior to ascertain capacity to remit, the finding is in line with existing empirical results where wage earners are more likely to send higher amounts of remittances than those who are not in the labor force, such as students, dependents, and retired (Osili, 2007; Collier et al., 2011; Mahuteau et al., 2010). This is unsurprising, as higher earnings and stable employment are strong determinants of a migrant's remittance behavior (Amuedo-Dorantes & Pozo, 2023; Ratha, 2003).

Table 5.1. Estimation results on the likelihood of sending monetary and non-monetary remittances.

Independent Variables	Likelihood of sending remittances			
	(1) Monetary Remittances		(2) Non-monetary Remittances	
	Coefficient	SE	Coefficient	SE
Migrant characteristics				
Tertiary education (*completed = 1*)	0.198*	0.155	-0.326*	0.188
Age (*reference: 20-30 years old*)				
31-40 years old	-0.108	0. 188	-0.0132	0.205
41-50 years old	0.157	0. 265	0.194	0. 339
51-60 years old	-0.598*	0. 330	0.137	0. 419
61 or over	-0.523	0. 447	-0.00837	0. 592
Gender (*female = 1*)	0.153	0.146	0.532***	0.177
Marital status (*married = 1*)	-0.315*	0. 170	0. 00718	0. 185
Residence in PH (*reference*: *Luzon*)				
Visayas	0.355**	0.172	-0.484*	0.255
Mindanao	0.319*	0.178	-0.0464	0.225
Length of stay (*reference: < 10 years*)				
11-15 years	0.822***	0. 255	0.0696	0. 322
>15 years	0.272	0. 242	-0.0697	0. 343
Capacity to remit				
Average monthly income (*reference: < 100,000JPY*)				
100,001 – 200,000 JPY	0.422**	0. 176	0.534***	0. 206
200,001 – 300,000 JPY	1.112***	0. 262	0.405	0. 282
300,001 – 400,000 JPY	0.866**	0. 344	0. 448	0. 350
400,001 – 500,000 JPY	0.653	0. 470	0. 513	0.554
>500,001 JPY	0.885*	0. 471	0.865*	0.503
Present Occupation (*reference: unemployed/student/retired*)				
Skilled labor/Factory worker	0.652***	0. 219	-0.288	0.243
Services/entertainment	0.768**	0. 351	0. 0191	0.472
Certified Care worker	0.785**	0. 305	0. 323	0.355
Self-employed/own business	0.923*	0. 477	0. 327	0.544
Skilled professional	0.0760	0. 264	-0. 00676	0.291
Motivation to remit				
Return intention (*reference: not yet decided*)				
Yes	0.436***	0. 145	0.402**	0. 182
No	-0. 0375	0. 227	-0.0274	0. 244
/cut1	0.621**	278		
/cut2	2.034***	286		
Constant			-0.0204	0. 315
Wald Chi2	80.17		35.93	
Prob > Chi2	0.0000		0.0419	
Pseudo R2	0.1049		0.0914	
Obs		323		

*** Significant at 1%, ** 5%, and * 10% level.

Lastly, the findings indicate that migrants with an intention to return are more inclined to remit higher levels of monetary remittances, which are significant at a 1% level. This result aligns with the findings of Collier et al. (2011), Pinger (2010), Brzozowski et al. (2017), and Dustmann and Metres (2010), demonstrating that migrants deciding to return exhibit a higher probability of remitting, with increased remittance amounts corresponding to a longer duration spent abroad. This result indicates evidence of self-interest as a significant motivational factor.

5.3 On the Likelihood of Non-Monetary Remittances

For the migrant's propensity to send non-monetary forms of remittances, the Probit model estimated is described in the functional form:

$$R_i^N = \gamma_0 + \gamma_1 X_i + \gamma_2 c_i + \gamma_3 m_i + \varepsilon_i \qquad (4.4)$$

where the observable variable R_i^N is binary and takes value 1 when the migrant sends non-monetary remittances and 0 otherwise. However, given these considerations, it is essential to acknowledge a limitation inherent in the study—the challenge of assigning a monetary value to these non-monetary forms of remittances.

The same table (Table 5.1) provides the results for the Probit model on the likelihood of remitting non-monetary forms of remittances (See Model 2). Gender is significantly positive at 1%; that is, being a female increases the likelihood of sending non-monetary remittances by 55.7%. This result corroborates with Camposano (2012), who argues that the act of sending goods by the Filipino migrant women in Hong Kong to their families back in the Philippines is a gendered process that reconnects these migrant women back into the emotional economy of the household.

Furthermore, obtaining a college degree significantly and negatively influences the probability of sending non-monetary remittances. The argument might be that better-educated migrants are less likely to be affected by social pressure to remit (Dustmann & Mestres, 2010). Within the context of the Filipino diaspora in Japan, the study reveals a diverse demographic profile. Although most respondents are wage earners with stable income sources, a notable subset comprises students pursuing post-graduate degrees. This segment of the sample, typically in their late 20s or early 30s, faces a distinct financial

scenario. Unlike their employed counterparts, these students are not obligated or pressured to send remittances to their families in the Philippines, as they rely on scholarships and income from part-time jobs.

Looking at the migrant's motivation, the results reveal that migrants who intend to return are more likely to send non-monetary remittances to their families back home at a 5% significance level[13]. These may be in the form of consumption goods, such as clothes, food, sweets, and other gifts; capital goods, such as machinery, equipment, tools, or vehicles; or the transfer of intangible assets, such as skills and knowledge gained from working abroad. While this aspect of remittances has not yet received much attention, it is interesting to note that migrants view this as contributing to the well-being of their families and communities back home. This inclination may stem from their aspiration to prepare for future reintegration, make investments, or contribute positively to their origin country, which is significant evidence of the migrant's self-interest motive. Sending consumption goods might be a means for migrants to express affection, gratitude, or generosity towards their relatives or friends. In the case of the Filipino diaspora, sending 'balikbayan' boxes filled with clothes, food, sweets, and other gifts to their families in the Philippines serves as a means of reconnecting with their roots and homeland, albeit symbolically (McCallum, 2022).

5.4 Is there a significant difference between factors that influence migrant's remittance preferences?

Table 5.2 provides an overview of the different factors influencing migrants' remittance behavior, encompassing both monetary and non-monetary forms. Notably, the migrant's income level emerges as a consistently positive and significant factor for both forms of remittances, aligning with findings from existing literature (Osili, 2007; Collier et al., 2011; Mahuteau et al., 2010; Amuedo-Dorantes & Pozo, 2023). This underscores the essential role of financial capacity in motivating migrants to contribute to their home countries, whether in the form of cash or non-monetary items. Similarly, the impact of return intention on remittance behavior is significant and positive for both monetary and

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[13] These results corroborate with the study of Barrera, Alhassan, and Inaba (2024). See Appendix A5 for additional findings on the influence of return intention on remittance behavior.

non-monetary forms. This suggests that, alongside altruistic motivations, a self-interest motive is prevalent within the migrant cohort, where the intention to return positively correlates with a higher probability of remitting, irrespective of the form chosen. Conversely, age, marital status, length of stay, and present occupation emerge as significant determinants specifically for monetary remittances, showcasing their influence on financial contributions. Interestingly, these factors do not exert a significant influence on non-monetary remittances, indicating a divergence in the determinants for these two forms of contributions.

Table 5.2. Differentials in remittance behavior by major predictor variables.

Variables	Monetary Remittances	Non-Monetary Remittances
Average monthly income	+	+
Return intention	+	+
Age (51-60)	-	ns
Marital status	-	ns
Length of stay	+	ns
Present occupation	+	ns
Gender	ns	+
Tertiary education	+	-
Residence in the Philippines	+	-

Likewise, the findings reveal a pronounced disparity in remittance preferences among migrants based on their educational attainment, particularly those who have completed tertiary education. That is, migrants with tertiary education exhibit a higher likelihood of sending monetary remittances while concurrently demonstrating a diminished probability of sending non-monetary remittances. Migrants holding degrees are often found in more stable and lucrative employment opportunities, contributing to higher income earnings. The preference of these migrants for specific choices or behaviors may be linked to their disposable income, indicating that their financial stability allows them greater flexibility and options in decision-making.

Interestingly, the gender of migrants plays a crucial role in shaping their non-monetary remittance behaviors, while its impact on monetary remittances appears to be not significant. This observation underscores the existence of a gendered dimension within the realm of remittance practices, reflecting a broader societal understanding that the act of sending goods or skills may be perceived as more aligned with femininity (Camposano, 2012). However, when examining the case of Filipino women, or 'Filipinas,'

migrating to Japan, it is essential to contextualize their experiences separately from those in other destinations, such as Hong Kong[14], as discussed in Camposano (2012). While the practice of sending non-monetary remittances may exhibit similarities, the motivations and contextual nuances differ significantly.

First, Filipinas began migrating to Japan in the early 1980s under temporary work visas, primarily as entertainers. Over time, many of these women transitioned into settling in Japan as wives of Japanese men (Ong & Lopez, 2022). Within this context, numerous studies have highlighted a persistent discrepancy: despite obtaining permanent residency status in Japan, Filipinas are often perceived as 'weak' and 'dependent' housewives, still reliant on their husbands' financial support (Almonte, 2001; Suzuki, 2000). Amidst the economic disparities prevalent within Japanese households, including wage discrepancies, limited employment opportunities, or cultural norms that may restrict women's participation in the workforce, many Filipinas find themselves in a position where they have no option but to rely on the financial support provided by their husbands, which may not always suffice to meet their familial obligations, particularly the need to send money back home to support their families in the Philippines (Almonte, 2001; Suzuki, 2000; Ong & Lopez, 2022). Consequently, sending non-monetary remittances emerges as a vital means for these women to support their families back home. This context illuminates how non-monetary remittances serve as an alternative avenue for Filipina migrants in Japan to fulfill familial obligations and retain a sense of agency within familial dynamics. Unlike monetary remittances, which may be constrained by financial limitations or cultural norms, non-monetary contributions allow these women to provide tangible support while navigating the intricacies of their socio-economic status in the host country.

Moreover, it is worth noting that many of these Filipina migrants are now in their 50s, reaching a stage in life where the prospect of returning to their homeland and retiring becomes increasingly viable. Many Filipinas expressed fears or worries about becoming a burden to their Japanese children as they aged (Ong & Lopez, 2022), alongside a prevailing belief in the greater care and support available in their homeland (Almonte, 2001). In this context, sending non-monetary remittances takes on a more profound significance. It serves not only as a means of supporting their natal families in the present

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[14] Migrant domestic workers in Hong Kong makeup 10% of the workforce, and more than half of these workers are Filipino women (Lim & Visaria, 2020).

but also as a strategic investment for their future retirement back home. By sending goods, skills, or other non-monetary forms of support, these migrants are essentially laying the groundwork for their eventual transition back to their home country, ensuring a semblance of financial stability and a support network upon their return. Thus, non-monetary remittances can be viewed as a forward-looking strategy, enabling Filipina migrants to navigate the complexities of migration and retirement planning in a transnational context.

Furthermore, the geographic location of a migrant's residence in the Philippines is a pivotal factor significantly shaping the migrant's remittance preference. Specifically, this influence is positive and significant at 5% and 10% levels for monetary remittances for individuals from more rural and distant regions such as Visayas and Mindanao, indicating an apparent inclination toward sending financial transfers from these areas (see Table 2). In contrast, the influence is negative and significant at a 10% level for non-monetary remittances for migrants whose families are in the Visayas island compared to those in Luzon. This variable unveils a nuanced distinction, proving to be a critical determinant in shaping the nature of remittances, specifically drawing a clear demarcation between monetary and non-monetary behaviors. In essence, the geographic location of a migrant's residence emerges as a decisive factor, dictating whether the remittance takes the form of financial transfers or non-monetary items such as gifts or goods.

First, the preference of migrants residing in Visayas and Mindanao for cash remittances over non-monetary remittances is due to the costs associated with each form of remittance. Digital transactions using e-wallets and bank transfers for cash remittances only cost from 200 JPY to 3,000 JPY[15], regardless of the region in the Philippines. This remittance method is also more convenient and faster as it can be completed online without the need for physical transportation of goods. On the other hand, sending 'balikbayan' boxes as non-monetary remittances can be significantly more expensive. Shipping costs for the boxes can range from 5,000 JPY to 15,000 JPY per box[16], depending on the destination. This cost discrepancy can be a crucial factor in determining migrants' remittance preferences. Also, the shipping process can be long and complicated, with a higher risk of delays, loss, or damage to the goods. Thus, cash remittances are more

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[15] Remittance rates for amounts ranging from 10,000 JPY to 200,000 JPY are available online at www.wise.com/jp/send-money/send-money-to-philippines.

[16] Refer to Appendix Table A5.1 for a sample of shipping fees and delivery times for sending 'balikbayan' boxes to the Philippines.

practical and cost-effective for those residing in areas with high shipping costs. However, for those with lower shipping costs, non-monetary remittances may still be a viable option, especially for those who want to send physical goods to their families back home.

Second, drawing on official data provided by the Philippine Statistics Authority (PSA) in 2023, it becomes apparent that the Visayas and Mindanao islands face the highest incidence of poverty within the Philippines[17]. This reality highlights a critical context for understanding remittance preferences, as these regions are characterized by elevated economic challenges and a pressing need for additional income support. Against this backdrop, migrants' inclination to send cash remittances to households in Visayas and Mindanao aligns with the practical necessity of addressing immediate needs and sustaining daily lives in areas grappling with heightened economic vulnerabilities. The choice to send cash rather than non-monetary forms of support may be influenced by the immediate and tangible impact that financial assistance can have on alleviating the day-to-day challenges faced by families in economically vulnerable regions. Cash remittances provide a flexible and readily usable form of support, allowing families to allocate resources according to their most pressing needs, such as food, education, or healthcare (Tullao & Rivera, 2014; Tabuga, 2007; Brinkerhoff, 2016). This aligns with the fundamental objective of remittances – to enhance the economic well-being of recipient households (Amuedo-Dorantes, 2014). While non-monetary remittances, such as goods or skills, may hold long-term transformative potential, the urgency of addressing immediate needs often takes precedence in regions with high poverty incidence.

Although these outcomes align with expectations, this geographical divergence adds a layer of complexity to our understanding of remittance behaviors, implying that localized economic conditions, logistical considerations, and infrastructural disparities play a pivotal role in shaping the choices made by migrants. This nuanced insight, revealing the differential impact of geographic location on migrant's remittance preference, emphasizes the imperative for tailored region-specific policies and targeted interventions. In essence, region-specific policies are essential for ensuring that the diverse remittance behaviors driven by distinct geographical contexts are acknowledged and strategically leveraged to benefit migrants and their home communities.

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[17] Refer to Appendix Figure A1 for poverty incidence in the Philippines.

Thus, the analysis presented in this chapter serves as a crucial lens through which to comprehend the complexities of migrant remittance behavior and preferences. By systematically examining the various determinants shaping both monetary and non-monetary forms of contributions, this chapter provides a better understanding of the underlying factors driving migrants' contributions to their home countries.

Chapter 6: Remittances and Entrepreneurship Development

6.1 Introduction

This chapter focuses on the independent and combined effects of monetary and non-monetary forms of remittances on entrepreneurship development[18]. As presented in Chapter 4, entrepreneurship is modeled as a function of monetary and non-monetary remittances, migrant's characteristics, return intention, and risk perception as follows:

$$entrep_i^* = \beta_0 + \beta_1 mremit_i + \beta_2 nmremit_i + \beta_3\ mremit_i * nmremit_i + \alpha X_i +$$
$$\gamma\ return + \ \sigma\ risk + \ \varepsilon_i \qquad (4.3)$$

where

$$entrep_i = \begin{cases} 1, & \text{if } entrep_i^* > 0 \\ 0, & \text{otherwise.} \end{cases}$$

$entrep_i^*$ represents the latent variable while $entrep_i$ is the observed variable. X_i is a vector encompassing migrant characteristics that may influence entrepreneurial decisions; $mremit_i$ denotes the total remittances of the migrant in the last 12 months categorized into three levels (no remittance, less than 200,000 JPY, and more than 200,001 JPY); $nmremit_i$ is a binary variable (equals 1 if the migrant sends non-monetary remittances and 0 otherwise); $return$ is a categorical variable (equals 1 if the migrants intend to return in the future, 2 if there is no intention to return, and 3 if the migrant is still undecided); $risk$ is a binary variable, taking the value of 1 if the migrant perceives that investing in a business involves high risk of possible losses and business failure and 0 otherwise; and the coefficient β_3 measures the impact of the combined form of remittances on the likelihood of engaging in entrepreneurship.

6.2 Independent Effects of Monetary and Non-monetary Remittances

Table 6.1 presents the results of migrant workers engaging in entrepreneurial activities, providing the estimated coefficients and robust standard errors. These results

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[18] The results and discussions in this section are taken from the author's published manuscript (Barrera, et al. 2024b).

consider both forms of remittances independently and their relationship to the likelihood of engaging in entrepreneurial activities.

This section introduces five regression models: Model (1) examines the regression of both forms of remittances independently; Model (2) analyzes these variables in conjunction with migrant characteristics; Model (3) explores the regression of both forms of remittances with economic and risk profiles; Model (4) presents the results for the comprehensive model; and Model (5) incorporates the interaction between education and length of stay.

As anticipated, the influence of both remittances on the likelihood of entrepreneurship is significant at 1%, but they operate in opposing directions. Non-monetary remittances appear to exert a positive influence on the likelihood of entrepreneurship from the perspective of the migrant. This result suggests that when migrants send non-monetary remittances, it contributes to their inclination toward entrepreneurial ventures, possibly by providing essential support or resources to their families back home, which, in turn, may stimulate entrepreneurial activities. Thus, this result substantiates the hypothesis, demonstrating that non-monetary remittances exert a notable impact on the probability of fostering entrepreneurial development.

Conversely, for monetary remittances, the influence is inverse. While most empirical studies focus on the remittance-receiving households' negative propensity to engage in entrepreneurial activities (Arguelles, 2015; Amuedo-Dorantes & Pozo, 2006; Tabuga, 2007), the result derived aligns with expectations when viewed from the migrant's perspective. From the migrant's viewpoint, refraining from sending monetary remittances places them in a more favorable financial position. This situation can be advantageous as it enables them to accumulate more savings abroad, which can serve as a readily available source of capital (Dustmann & Kirkchamp, 2002). This financial stability appears to make migrants more predisposed to entrepreneurship, as they have the necessary capital and resources at their disposal to embark on entrepreneurial ventures.

The results on migrant characteristics show that a migrant's age and marital status significantly influence the likelihood of entrepreneurship in all estimations. Migrants in the age bracket of 41-50 years exhibit a lower propensity to participate in entrepreneurial activities compared to the reference group aged 20-30 years old. This group may exhibit greater risk aversion, as they are less inclined to take the financial risks associated with

starting a new business, favoring the stability of their current income. Additionally, individuals within this demographic might have established themselves in stable careers, perceiving their current employment as more secure. Lévesque and Minniti (2006) argue that earnings from employment are expected to rise with growing experience and seniority, diminishing the individual's motivation to dedicate time to initiating a new business. The prospect of entrepreneurship, with its inherent uncertainties and potential financial fluctuations, can be perceived as a risky endeavor that may jeopardize the well-being of the family unit. These factors collectively contribute to their lower participation in entrepreneurial activities.

Furthermore, the data indicates an intriguing trend about the marital status of the migrant population. Specifically, female individuals who are widowed or separated exhibit a notably higher inclination towards engaging in entrepreneurial endeavors compared to those who are currently single. Rathnayake et al. (2021) argue that widowed women not only experience emotional and personal problems but also cause significant social and economic changes in their lives such that they find it difficult to survive. They often have additional financial responsibilities, such as raising children or supporting extended family members. Entrepreneurship can provide them with a means of generating more flexible and adaptable income to their particular circumstances.

Interestingly, migrants' education level has no impact on the probability of starting a business in the context of the study. To overcome this estimated result, a variable that interacts education with the length of time spent in Japan is introduced. The resulting interaction term is statistically significant at the 5% level, indicating that as the length of stay increases, the inclination toward entrepreneurship decreases for individuals with higher levels of education. That is, while better-educated migrants are not inherently less likely to start a business, the probability of engaging in entrepreneurship diminishes with an extended period spent abroad. This result contrasts with previous studies where tertiary education increases the likelihood of entrepreneurship (Devkota, 2016; Jiménez et al., 2015).

Regarding the migrants' economic characteristics, their average monthly income, present occupation, and intention to return home are statistically significant. Income positively impacts the likelihood of engaging in business, as presented in Models (4) and (5). Several studies have shown that higher income levels increase the probability of

entrepreneurial activities (Nandamuri & Gowthami, 2013; Figueiredo & Brochado, 2015). Thus, while the theory of liquidity constraints assumes that one of the significant challenges of entrepreneurs is obtaining finance, migrants are assumed to possess the requisite capital to initiate a business, given their income levels in host countries.

Table 6.1. Independent effects of monetary and non-monetary remittances on entrepreneurship.

| *Independent Variables* | Likelihood of engaging in entrepreneurship | | | | |
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Non-monetary	1.177***	1.224***	1.229***	1.313***	1.321***
	(0.189)	(0.194)	(0.199)	(0.207)	(0.209)
Monetary (*reference: no remittance*)					
less than 200,000JPY	-0.568***	-0.547***	-0.611***	-0.607***	-0.648***
	(0.181)	(0.188)	(0.200)	(0.212)	(0.215)
more than 200,001JPY	-0.569***	-0.542***	-0.742***	-0.759***	-0.769***
	(0.203)	(0.204)	(0.222)	(0.229)	(0.230)
Migrant Characteristics					
Age (*reference: 20-30 years old*)					
31-40 years old		-0.182		-0.257	-0.277
		(0.208)		(0.225)	(0.225)
41-50 years old		-0.506*		-0.640*	-0.645*
		(0.283)		(0.346)	(0.343)
51-60 years old		-0.262		-0.263	-0.259
		(0.318)		(0.423)	(0.434)
61 or over		-0.467		-0.554	-0.496
		(0.474)		(0.568)	(0.587)
Marital status (*reference: single*)					
Married		0.254		0.209	0.217
		(0.191)		(0.214)	(0.215)
Divorced		-0.450		-0.654	-0.736
		(0.395)		(0.469)	(0.480)
Widowed		1.902**		2.232**	2.505***
		(0.949)		(0.883)	(0.793)
Separated		1.283**		1.297**	1.271**
		(0.608)		(0.632)	(0.636)
Tertiary education (*completed = 1*)		-0.0981		-0.230	-0.0540
		(0.157)		(0.213)	(0.244)
Gender (*female = 1*)		0.107		0.184	0.128
		(0.172)		(0.191)	(0.195)
Economic and Risk Profile					
Average monthly income (*reference: < 200,000JPY*)					
200,001 – 400,000 JPY			0.00147	0.113	0.134
			(0.206)	(0.231)	(0.236)
>400,001 JPY			0.410	0.637*	0.765**
			(0.343)	(0.345)	(0.365)
Length of stay (*reference: < 10 years*)					
11-15 years			-0.219	-0.254	0.432
			(0.300)	(0.316)	(0.448)
>15 years			-0.101	-0.114	0.0380
			(0.201)	(0.340)	(0.388)

Table 6.1. (continued).

Independent Variables	Likelihood of engaging in entrepreneurship				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Present Occupation (*reference: unemployed*)					
Skilled labor			0.411	0.410	0.482*
			(0.252)	(0.278)	(0.282)
Services/entertainer			0.180	0.129	0.126
			(0.418)	(0.453)	(0.462)
Care worker			0.891**	1.008**	1.150***
			(0.388)	(0.428)	(0.435)
Self-employed/own business			1.163**	1.063**	1.111**
			(0.490)	(0.487)	(0.489)
Skilled professional			0.567*	0.493	0.536*
			(0.295)	(0.304)	(0.303)
Intention to return (*reference: not yet decided*)					
With intention to return			0.326*	0.450**	0.453**
			(0.176)	(0.199)	(0.197)
No intention to return			0.133	0.261	0.224
			(0.260)	(0.272)	(0.274)
Risk			-0.109	-0.141	-0.119
			(0.158)	(0.169)	(0.172)
Tertiary education*Length of stay (*reference: < 10 years*)					
11-15 years					-1.300**
					(0.618)
more than 15 years					-0.269
					(0.419)
Constant	-0.844***	-0.860***	-1.354***	-1.350***	-1.475***
	(0.191)	(0.264)	(0.309)	(0.400)	(0.410)
Wald Chi2	45.90	60.17	61.79	82.29	87.16
Prob. > Chi2	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.1259	0.1533	0.1647	0.2009	0.2114
Obs			**323**		

*** Significant at 1%, ** 5%, and * 10% level.

Similarly, care workers, business owners, and highly skilled professionals among the Filipino migrant community in Japan are more inclined to engage in entrepreneurial endeavors when contrasted with those unemployed. Highly skilled migrants and care workers often possess advanced expertise and qualifications, making them attractive candidates for entrepreneurial success. As Figueiredo and Brochado (2015) argue, knowledge, competence, and perceived experience increase the likelihood of entrepreneurial activity. Their educational and professional backgrounds provide them with the confidence and expertise necessary to navigate the challenges of starting and

managing a business, increasing their likelihood of entrepreneurial success. Migrants have gained knowledge and skills lacking in their country of origin; thus, working abroad provides them with a competitive advantage fundamental to the growth and success of their businesses (Nielsen & Riddle, 2010).

In addition, business owners in Japan already have experience in entrepreneurship, and this familiarity with the entrepreneurial landscape can make them more inclined to initiate new ventures. As Krasniqi and Williams (2019) state, migrants with business experience are more likely to have entrepreneurial intentions that can contribute to the homeland. They may identify market gaps or opportunities, leveraging their existing business acumen to start new enterprises.

Furthermore, the intention to return to the Philippines is intricately linked to an increased probability of migrant respondents actively participating in entrepreneurial activities in all estimation models. Individuals with return intentions often perceive it as a unique opportunity to make entrepreneurial investments in their home country (Krasniqi & Williams, 2019). They regard entrepreneurship as a strategic avenue for harnessing the savings and resources they have accrued during their stay in Japan. This mindset of viewing return as an avenue for financial reinvestment and resource utilization is pivotal in fostering entrepreneurial initiatives among these migrants.

6.3 Complementary Effects of Monetary and Non-monetary Remittances

Table 6.2 reports the estimation results when the interaction term of monetary and non-monetary remittances is introduced. This interaction term proposes the hypothesis that the simultaneous consideration of both remittances amplifies the probability of engaging in entrepreneurial activities. Rather than viewing them independently, the interaction term posits that the combined influence of both forms of remittances creates a more pronounced impact on the likelihood of migrants participating in entrepreneurial ventures.

Results indicate that when control variables are incorporated into the model, the joint utilization of both remittance forms exhibits a noteworthy influence on the likelihood of entrepreneurship, especially at higher levels of monetary remittances at 10% and 5% levels shown in Models (4) and (5), respectively. The integration of control

variables into the analysis isolates and accounts for external factors that might confound the relationship between remittances and entrepreneurship. By doing so, we are better equipped to discern the unique impact of the combined remittance types. The finding that this combined impact becomes more pronounced when non-monetary remittances are substantial suggests a dynamic interaction between these forms of support.

However, as pointed out in the study of Kakhkharov (2019), the interpretation of binary outcome models becomes intricate when incorporating interaction terms, where the coefficients of interaction terms may not accurately represent the marginal effects of the interaction between two variables. Hoetker (2007) recommends using graphical presentations for a more suitable illustration of the interaction effect. Figure 6.1 presents the combined impact of monetary and non-monetary remittances at mean values of each control variable included in Model (5) of Table 6.2.

Table 6.2. Complementary effects of monetary and non-monetary remittances on entrepreneurship.

Independent Variables	Likelihood of engaging in entrepreneurship				
	(1)	(2)	(3)	(4)	(5)
Non-monetary	1.112***	1.062***	1.202***	1.172***	1.225***
	(0.295)	(0.303)	(0.301)	(0.311)	(0.314)
Monetary (*reference: no remittance*)					
less than 200,000JPY	-0.627*	-0.681*	-0.592	-0.679*	-0.643
	(0.355)	(0.373)	(0.371)	(0.398)	(0.396)
more than 200,001JPY	-0.735	-1.187***	-0.952*	-1.608***	-1.728***
	(0.551)	(0.420)	(0.550)	(0.476)	(0.473)
Non-monetary*Monetary (< 200,000JPY)	0.0826	0.190	-0.0209	0.115	0.0122
	(0.413)	(0.433)	(0.428)	(0.455)	(0.462)
Non-monetary*Monetary (> 200,001JPY)	0.199	0.742	0.239	0.957*	1.056**
	(0.595)	(0.487)	(0.585)	(0.536)	(0.533)
Migrant Characteristics					
Age (*reference: 20-30 years old*)					
31-40 years old		-0.200		-0.276	-0.297
		(0.211)		(0.228)	(0.228)
41-50 years old		-0.536*		-0.689*	-0.696*
		(0.289)		(0.357)	(0.356)
51-60 years old		-0.274		-0.290	-0.291
		(0.318)		(0.427)	(0.438)
61 or over		-0.444		-0.495	-0.433
		(0.490)		(0.581)	(0.600)
Marital status (*reference: single*)					
Married		0.277		0.236	0.251
		(0.194)		(0.216)	(0.218)
Divorced		-0.441		-0.664	-0.745
		(0.397)		(0.469)	(0.482)
Widowed		2.220**		2.665***	3.008***
		(1.068)		(1.030)	(0.946)

Table 6.2 (continued).

Independent Variables	(1)	(2)	(3)	(4)	(5)
			Likelihood of engaging in entrepreneurship		
Separated		1.306**		1.322**	1.299**
		(0.612)		(0.635)	(0.646)
Tertiary education (*completed=1*)		-0.109		-0.247	-0.0719
		(0.157)		(0.212)	(0.245)
Gender (*female = 1*)		0.0979		0.172	0.118
		(0.173)		(0.192)	(0.196)
Economic and Risk Profile					
Average monthly income (*reference: < 200,000JPY*)					
200,001 – 400,000 JPY			0.00339	0.137	0.165
			(0.206)	(0.233)	(0.239)
>400,001 JPY			0.423	0.672*	0.814**
			(0.341)	(0.347)	(0.370)
Length of stay (*reference: < 10 years*)					
11-15 years			-0.224	-0.284	0.422
			(0.301)	(0.321)	(0.448)
>15 years			-0.0949	-0.0972	0.0372
			(0.202)	(0.344)	(0.388)
Present Occupation (*reference: unemployed*)					
Skilled labor/Factory worker			0.411	0.394	0.473*
			(0.254)	(0.278)	(0.285)
Services/entertainer			0.180	0.0908	0.105
			(0.424)	(0.464)	(0.472)
Care worker			0.893**	1.059**	1.204***
			(0.387)	(0.430)	(0.437)
Self-employed/own business			1.174**	1.090**	1.154**
			(0.493)	(0.498)	(0.502)
Highly skilled professional			0.566*	0.462	0.512*
			(0.294)	(0.302)	(0.303)
Intention to return (*reference: not yet decided*)					
With intention to return			0.322*	0.442**	0.450**
			(0.174)	(0.197)	(0.195)
No intention to return			0.129	0.259	0.222
			(0.260)	(0.274)	(0.276)
Risk			-0.107	-0.130	-0.107
			(0.157)	(0.169)	(0.172)
Tertiary education*Length of stay (*reference: < 10 years*)					
11-15 years					-1.368**
					(0.631)
more than 15 years					-0.253
					(0.425)
Constant	-0.799***	-0.739**	-1.336***	-1.236***	-1.403***
	(0.246)	(0.306)	(0.355)	(0.444)	(0.462)
Wald Chi2	44.24	70.71	63.10	93.31	99.98
Prob. > Chi2	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.1262	0.1560	0.1652	0.2046	0.2160
Obs			**323**		

*** Significant at 1%, ** 5%, and * 10% level.

Figure 6.1 shows that, at lower levels of monetary remittances, non-monetary remittances emerge as significant catalysts for initiating entrepreneurial activities. Specifically, when received as non-monetary remittances, physical capital goods are valuable assets that can be directly sold or used in the home country. This implies that recipient households can engage in business activities without the necessity of having substantial initial capital. In essence, the infusion of tangible assets in the form of physical capital goods not only jumpstarts entrepreneurial endeavors but also circumvents the household's traditional requirement of upfront financial investment. This dynamic underscores the transformative potential of non-monetary remittances, particularly in facilitating entrepreneurship where financial barriers might otherwise impede the initiation of economic activities.
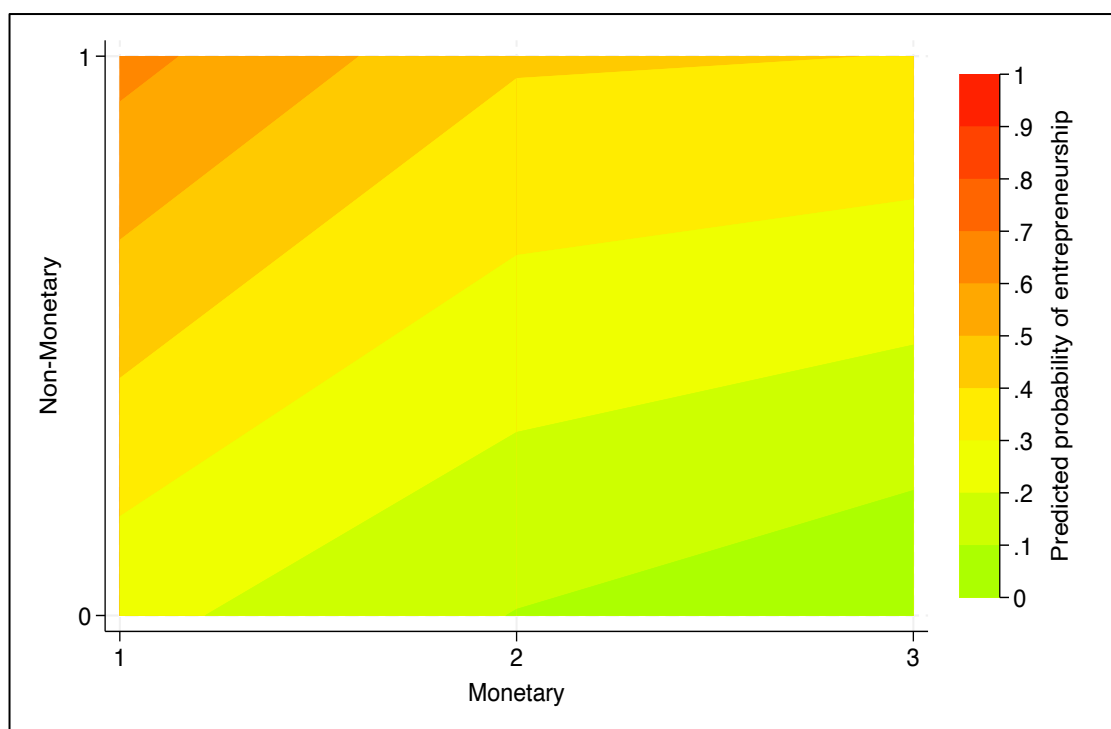
Figure 6.1. Interaction effect of monetary and non-monetary remittances.
Note: Non-monetary remittances = 1 if the migrant sends goods and shares knowledge and skills with the household; = 0 if otherwise; and Monetary remittances = 1 if the migrant does not send monetary remittances; = 2 if the migrant sends less than 200,000JPY; = 3 if migrant sends more than 200,001JPY.

Furthermore, at lower levels of non-monetary remittances, the graph indicates a diminished likelihood of initiating a business even when receiving monetary remittances across all levels. This suggests that in the absence of non-monetary support, households

predominantly allocate monetary remittances toward daily consumption and subsistence needs.

The observed pattern underscores a critical point: Without the complementary assistance provided by non-monetary remittances, the primary focus of households is on meeting immediate necessities rather than investing in entrepreneurial endeavors. The limited capacity to allocate monetary remittances toward business initiation implies prioritizing essential daily requirements, reflecting the fundamental role that non-monetary support plays in creating the foundation for economic ventures.

This insight deepens our understanding of the interplay between different forms of remittances. It suggests that non-monetary support, such as tangible assets or knowledge transfer, may act as a catalyst, enabling households to move beyond immediate consumption needs and embark on entrepreneurial activities. The absence of this non-monetary foundation, on the other hand, appears to constrain the allocation of monetary remittances toward business ventures, relegating these financial inflows primarily to the immediate and essential aspects of daily subsistence.

Consequently, understanding the balance between non-monetary and monetary remittances becomes imperative for devising comprehensive strategies that empower households not only to meet their immediate needs but also to harness the potential for sustainable economic development through entrepreneurial endeavors. As both monetary and non-monetary remittances increase to a certain point, there appears to be a synergistic effect. This suggests that a balanced combination of financial resources and non-monetary assets creates a more conducive environment for households to venture into entrepreneurship. When complemented by non-monetary support, the financial backing from monetary remittances empowers households not only to meet immediate needs but also to invest in sustainable and potentially transformative business initiatives.

In this study, certain limitations warrant careful consideration. First, the challenge arises from the inherent disparity in measuring monetary and non-monetary remittances. While monetary contributions are quantifiable in currency values, the lack of standardized valuation for non-monetary remittances hinders a direct and accurate comparison of their respective impacts. This limitation underscores the complexity of assessing and interpreting the true extent of the contributions from each form of remittance. Furthermore, the study acknowledges that the survey questionnaire, while

comprehensive in capturing monetary aspects, falls short in providing detailed information on the valuation of non-monetary contributions. This gap points to the need for more sophisticated survey instruments to understand the nuanced value of non-monetary remittances. Future research should also consider incorporating diverse methodologies, such as focus group discussions and key informant interviews, to enhance result reliability through triangulation.

6.4 Do Non-monetary Forms of Remittances Matter for Entrepreneurship Development?

In the context of the Filipino migrant community in Japan, this chapter explored the complex relationship between migration, remittances, and entrepreneurship. Leveraging the substantial diaspora and the distinct proximity between the Philippines and Japan, this research aimed to understand the dynamics of remittances, with a particular emphasis on their non-monetary facets, and to discern their profound impact on entrepreneurial development.

This study was grounded in a comprehensive theoretical framework emphasizing the varying aspects of remittances, specifically focusing on non-monetary forms. It was guided by two key hypotheses: first, that non-monetary remittances significantly influence entrepreneurship, and second, that a combination of monetary and non-monetary remittances has a significant impact on entrepreneurship. These hypotheses sought to understand how diverse resources, both financial and non-financial, impact the entrepreneurial pursuits of migrants.

Significantly, the study highlights the compelling revelation that non-monetary remittances, encapsulating skills, knowledge, and tangible assets exert a discernibly favorable impact on the inclination of entrepreneurial engagement within the Filipino migrant community in Japan. Migrants who channel non-monetary remittances manifest a higher proclivity toward entrepreneurial activities. Essentially, the provision of these tangible and intangible assets not only boosts entrepreneurial activities but also eliminates the traditional need for upfront financial investments by the household. This underscores the transformative potential of non-monetary remittances, particularly in facilitating

entrepreneurship where financial barriers might otherwise impede the initiation of economic activities.

Conversely, the study highlighted a counterintuitive revelation that monetary remittances correlated with a diminished proclivity for entrepreneurial pursuits. Migrants refraining from sending monetary remittances found themselves in a more favorable financial position. By refraining from sending these financial transfers, they could accumulate savings abroad, creating a robust financial foundation that allows them to make investment decisions in entrepreneurial endeavors.

Of particular importance, the findings show that when monetary and non-monetary remittances are combined, they exhibit a synergistic, positive influence on entrepreneurship. This interaction highlights the complementary nature of these two forms of support in bolstering entrepreneurial development. The contrast between the positive influence of non-monetary remittances and the negative impact of monetary remittances underscores the critical importance of including non-monetary resources in the realm of entrepreneurship development. This juxtaposition highlights that the presence of non-monetary remittances significantly matters in fostering entrepreneurial activities.

Thus, the study has shown that by acknowledging the pivotal role of non-monetary remittances, policymakers and stakeholders can shape strategies and interventions that recognize the multifaceted nature of migrant support. This approach promotes entrepreneurship development by harnessing the strengths of both non-monetary and monetary remittances, ultimately creating a more comprehensive and conducive environment for entrepreneurial success within migrant communities.

Chapter 7: Concluding Remarks

7.1 Summary of Findings

The movement of people across borders presents a complex landscape, and remittances have played a crucial role in providing financial support and improving the economic well-being of many households. However, remittances induce dependency, decreased engagement in economic activities, and conspicuous expenditure among recipient households (Amuedo-Dorantes, 2014). As families become increasingly reliant on the predictable inflow of cash remittances, the impending return of the migrant raises critical questions about the sustainability of their economic well-being. Over the past decades, much of the literature has explored ways to foster entrepreneurship among migrant households. For many migrants, starting a business or investing in productive activities represents a potential pathway to the eventual return to their home country. However, traditional methods of sending money back home can be limiting, as much of the funds are used for immediate consumption, making it challenging to accumulate sufficient savings or knowledge to launch a business.

Hence, this research offers an alternative perspective: migrants can redirect their remittances in the form of physical capital goods or the transfer of intangible goods like skills and knowledge instead of solely relying on money transfers. This non-monetary approach presents a transformative opportunity, allowing migrants to establish alternative income streams, thereby mitigating the potential economic disruptions associated with the cessation of regular cash remittances. However, despite its embedded transformative potential, this non-monetary dimension of the remittance landscape still needs to be explored in academic discourse. Thus, this study contributes to the remittance literature, focusing on the unexplored nexus of monetary and non-monetary remittances and entrepreneurship development. It aims to address the following objectives: (1) develop a novel theoretical foundation that considers remittances, both monetary and non-monetary, as capital inflow for recipient households; (2) examine the differential factors influencing migrants' monetary and non-monetary remittance behaviors; and (3) investigate the independent and joint effects of monetary and non-monetary forms of remittances on entrepreneurship development.

To address the first objective, Chapter 3 introduces a model centered on a utility maximization framework, where both the utility of the migrant and the recipient household are considered. The utility functions for the migrant and the recipient household are constructed to capture the well-being derived from consumption over two periods, emphasizing the interdependent utility gains between the migrant and the recipient household. The utility of the migrant is a function of their own consumption and the household's utility, illustrating the altruistic motive underlying remittance behavior. The model incorporates a discount factor for future consumption, highlighting the forward-looking nature of the migrant's decision-making process. It also integrates a parameter representing the proportion of non-monetary remittances, showcasing the model's focus on both monetary and non-monetary aspects of remittances.

Applying derivatives in solving optimization problems is critical for determining the optimal remittance strategy. By setting the first-order conditions derived from the utility function to zero, the methodology facilitates a nuanced analysis of how different variables impact the decision-making process. Specifically, the partial derivatives of the utility function with respect to remittances enable the examination of the sensitivity of the migrant's utility to changes in remittance levels, offering insights into the balance migrants seek between their consumption, the welfare of their households, and investment returns.

The theoretical findings in Chapter 3 highlight that although a certain level of monetary support is necessary to establish a foundation for entrepreneurship, non-monetary forms of remittances can support the probability of starting an enterprise. The theoretical model underscores that a key component in promoting entrepreneurship is diversifying the migrant's remittance portfolio, and migrants could achieve the best results by choosing an optimal combination of monetary and non-monetary remittances based on their assessment of risks and potential returns. This approach is vital because entrepreneurship often involves significant risk-taking, and non-monetary remittances, such as information, knowledge, and networks, can mitigate some of the risks associated with entrepreneurship. Thus, based on the theoretical proposition in Chapter 2, the inclusion of non-monetary forms of remittances in the model amplifies the impact of monetary remittances to foster entrepreneurship among migrants. This approach can help

reduce the risks associated with entrepreneurship and encourage migrants to start businesses in their home country.

Furthermore, while remittance literature has extensively provided theoretical and empirical evidence on the determinants of remittances, the main interest of this study lies not only in the factors influencing monetary remittances but also in the often-overlooked aspect of non-monetary remittances. Specifically, the study explored the significant differences influencing the migrant's monetary and non-monetary remittance behaviors. The findings in Chapter 5 show that the decision to remit is strongly affected by the migrant's socioeconomic characteristics, with the self-interest motive as a ubiquitous underlying element. The migrant's age, marital status, duration of stay, and current occupation are identified as influential factors affecting monetary remittances. At the same time, these aspects exhibit no significant impact on non-monetary remittances, indicating a disparity in the determinants influencing these two types of contributions.

Moreover, obtaining a university degree differentiates migrants' behavior between monetary and non-monetary forms, where migrants with university degrees are more likely to send monetary remittances than their counterparts. Interestingly, the study highlights a higher prevalence of non-monetary remittance practice among women than men, suggesting that non-monetary remittances serve as an alternative avenue for Filipino women in Japan to fulfill familial obligations back home despite economic disparities within their Japanese households. Lastly, the findings reveal that the location of residence in the home country matters for the remittance form, with rural and distant regions preferring monetary remittances.

Finally, the findings in Chapter 6 provide a thorough analysis of the impact of non-monetary remittances on the entrepreneurial engagement of Filipino migrants in Japan. The study found that non-monetary remittances, which encompass skills, knowledge, and tangible assets, have a significant and positive effect on the inclination of Filipino migrants to engage in entrepreneurial activities. This highlights the importance of non-monetary support in promoting entrepreneurship in migrant communities. Moreover, the study also reveals that when monetary and non-monetary remittances are combined, they exhibit a synergistic effect that enhances the potential for entrepreneurship. Combining these highlights the complementary nature of monetary and non-monetary support in bolstering entrepreneurial development. The findings suggest that both forms of support

are essential and should be considered together in promoting entrepreneurship among migrant communities.

7.2 Contributions of the Study

By addressing the current gap in the literature, this study provides valuable insights to significantly augment the current remittance literature and make novel contributions to the remittances and entrepreneurship development nexus. First, the study offers theoretical and empirical perspectives on the potential of integrating monetary and non-monetary remittances to foster entrepreneurship development. To the best of our knowledge, this is the first attempt to model remittances used for entrepreneurship development, which considers monetary and non-monetary forms such as physical capital goods (used cars, agricultural machinery, used computers, etc.) and intangible goods (skills, expertise, technical knowledge, etc.). Much of the literature has only focused on the impact of financial remittances on entrepreneurship development. Therefore, this research offers a fresh perspective that incorporates non-monetary forms of remittances into the remittance framework. The inclusion of both monetary and non-monetary forms of remittances in the analysis provides a more comprehensive perspective on the impact of remittances on entrepreneurship development.

Second, the existing literature on remittances and entrepreneurship development has primarily relied on empirical analysis. To contribute to this area of research, a two-period theoretical model was developed to provide a more comprehensive understanding of the relationship between remittances and entrepreneurship development. This model proposes a new definition of the 'remittances' variable by distinguishing between monetary and non-monetary forms. The monetary form refers to the actual amount of money that the migrant transfers to their home country. In contrast, the non-monetary form encompasses other forms of support, such as physical capital goods, knowledge, skills, and networks that migrants may provide to their home countries.

Additionally, the theoretical model considers return migration in the second period, which motivates the migrant to make investment decisions. Several factors, such as economic conditions and family ties, can influence the decision to return to their home country. This return migration can lead to investment decisions that are beneficial for both

the migrant and their home country. Therefore, this theoretical model serves as a foundation for future research in this area. It can be further modified and expanded upon to provide a more nuanced understanding of the relationship between remittances and entrepreneurship development and encourage more productive activities in communities that rely on remittances as a source of income.

Lastly, by focusing on the Filipino diaspora in Japan, this research has shed light on a unique context emphasizing the distinctive potential of non-monetary remittances in the form of advanced technological equipment, which Japan is primarily known for, to stimulate entrepreneurship development. The study has brought attention to the significant benefits of utilizing advanced specialized equipment as a form of remittance. This option is not typically available in the migrant's home country, as it requires a level of technological infrastructure and expertise that is often lacking. By leveraging this form of remittance, aspiring entrepreneurs can gain access to valuable resources, such as modern equipment and machinery, which can be integral to the success of their businesses. Furthermore, the study has emphasized that advanced technological equipment can help to address some of the challenges faced by migrant entrepreneurs, including limited access to capital and resources. By providing this form of remittance, migrant workers can support their families and communities back home while contributing to their host countries' economic growth.

7.3 Implications and Recommendations

The research findings of this study provide compelling implications for policymakers in migrant-sending countries. First, there is a need to focus on facilitating monetary remittances, such as reducing transaction costs and exchange rate risks, while also considering ways to support non-monetary remittance channels that can generate resources and skills for entrepreneurship development. Policies that promote the development of non-monetary remittance channels, such as technology-based platforms, can complement policies that facilitate the transfer of monetary remittances. By facilitating monetary and non-monetary remittance channels and providing a range of resources and options, policymakers can create an enabling environment for migrant entrepreneurs to succeed and contribute to economic development in their home countries.

Second, the study forwards a crucial policy alternative that aims to encourage the diversification of remittance channels, explicitly emphasizing the potential of non-monetary remittances in the form of physical capital goods. This necessitates the development of clear customs guidelines and incentives for migrants to send technologically advanced equipment, machinery, and other tangible assets valuable for productive economic activities back to their home country. This policy aims to facilitate the transfer of expertise and resources from migrants to rural communities, boosting productivity and rural development. By creating an enabling policy environment that streamlines customs procedures and provides support, migrant-sending countries can leverage these non-monetary remittances to empower local entrepreneurs and farmers while fostering a mutually beneficial relationship between migrants and the country's economic development.

Finally, the successful reintegration of migrants should be part of the mainstream discussion of migration and should be prioritized as a cornerstone of policy initiatives in migrant-sending countries. It goes beyond a mere return; instead, it facilitates a seamless and purposeful re-participation in the home country's social, cultural, and economic life. Effective policies must align with the motivations and aspirations that initially propelled individuals to migrate, ensuring that their return is well-supported and conducive to personal growth and societal contribution. To ensure that returning individuals can achieve their migration goals and make meaningful contributions to society, it is crucial to establish an environment that fosters their growth. This environment must offer the necessary resources and support for successful reintegration into their communities, ultimately improving their economic and social standing.

Moreover, returnees require access to various services, such as employment opportunities, healthcare, education, and housing. These services should be tailored to meet the unique needs of each returnee and assist them in attaining their personal objectives. Additionally, a supportive community is vital to the integration process and provides a sense of belonging. By establishing such an environment, returnees can hone their skills, impact society positively, and reach their full potential. This, in turn, leads to an overall improvement in the economic and social status of the community and the nation. Therefore, it is crucial to invest in creating a welcoming and supportive environment for returnees, ensuring their successful reintegration and the advancement of society.

7.4 Limitations and Directions for Future Research

As for the study limitations, some words of caution are in order. First, it should be recognized that entrepreneurship development is influenced by a multitude of factors, including government policies, institutional support, access to markets, and so on. The potential for non-monetary remittances to boost entrepreneurship development may be contingent upon these context-specific factors, which may not be fully captured in a theoretical analysis. Second, cultural and social norms can significantly impact the utilization and effectiveness of non-monetary remittances. These norms can influence how non-monetary resources are received, shared, and utilized for entrepreneurial activities. The impact of these norms can vary depending on the specific community or society in which they are practiced. Therefore, it is essential to consider cultural and social norms when analyzing the impact of non-monetary remittances.

Moreover, the challenge arises from the inherent disparity in measuring monetary and non-monetary remittances. While monetary contributions are quantifiable in currency values, the lack of standardized valuation for non-monetary remittances hinders a direct and accurate comparison of their respective impacts. This limitation underscores the complexity of assessing and interpreting the true extent of the contributions from each form of remittance. Furthermore, the study acknowledges that the survey questionnaire, while comprehensive in capturing monetary aspects, needs to provide detailed information on the valuation of non-monetary contributions. This gap points to the need for more sophisticated survey instruments to understand the nuanced value of non-monetary remittances. Future research should also consider incorporating diverse methodologies, such as focus group discussions and key informants.

Lastly, to gain a deeper insight into the various remittance behaviors of migrants in Japan, it is imperative to broaden the research scope and include other migrants living and working in Japan. This would allow the comparison of different remittance practices, including the forms of remittances sent, various channels used to send and receive money, the frequency of transfers, and the factors that influence these transactions. One area of study that is particularly intriguing is the behavior of migrants from various countries when it comes to sending non-monetary forms of remittances. By focusing on the informal exchange of goods, services, and knowledge, this area of study provides valuable insight into the social, cultural, and economic ties that bind migrants to their

homelands. A comprehensive investigation of this subject has the potential to uncover pivotal information about the motivations behind non-monetary remittance practices, the possibility of harnessing non-monetary forms of remittances for entrepreneurship development, and the opportunities for collaboration and development between migrant groups and their countries of origin.

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Appendix

Appendix to Chapter 1
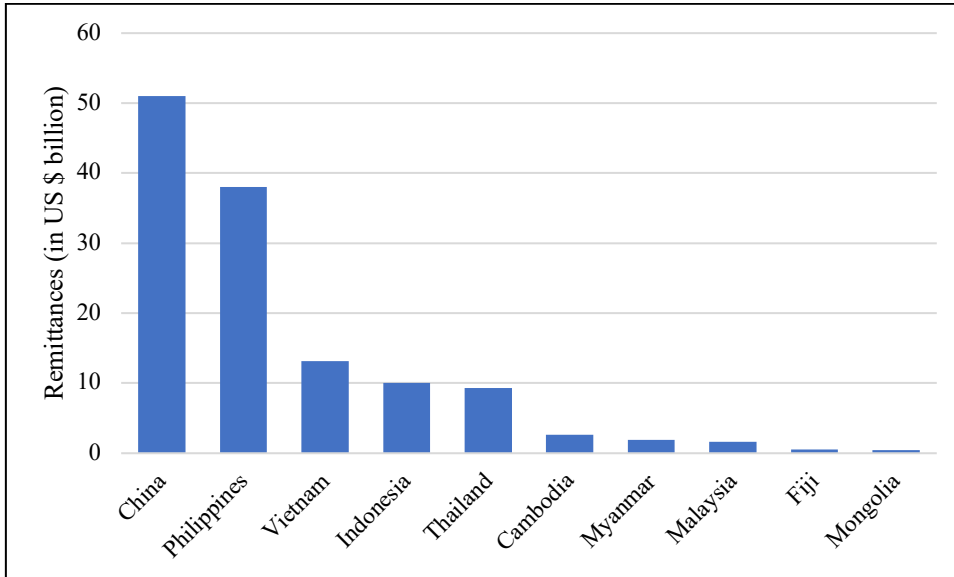
Figure A1.1 Top remittance recipients in the East Asia and Pacific Region, 2022.
Sources: World Bank-KNOMAD staff; World Development Indicators; IMF Balance of Payments Statistics.

Appendix to Chapter 3

Appendix A3: Mathematical Proofs of Propositions

A3.1. Proof of Proposition 3.1

To simplify the notations, we define utility functions as follows:

$$u_1 = U(C_m^1) = U(y_m^F - R) \tag{A1}$$
$$u_2 = U(C_m^2) = U(y_m^O + \bar{I}) = U(y_m^O + \sigma\theta R) \tag{A2}$$
$$u_3 = U(C_h^1) = U(y_h^1 + \widetilde{R_M}) = U(y_h^1 + (1-\sigma)R) \tag{A3}$$

Thus, the migrant's utility function and first-order condition for the remittance take following form,

$$U_m = u_1 + \beta^m u_2 + u_3 + \beta^h U(C_h^2) \tag{A4}$$

$$\frac{\partial U_m}{\partial R} = -u_1' + \beta^m \sigma\theta u_2' + (1-\sigma)u_3' = 0 \tag{A5}$$

(i) Differentiate Eq. (A5) with respect to y_m^F and rearrange:

$$0 = -u_1''\left(1 - \frac{\partial R^*}{\partial y_m^F}\right) + \beta^m \sigma\theta\left(u_2''\sigma\theta\frac{\partial R^*}{\partial y_m^F}\right) + (1-\sigma)u_3''\left((1-\sigma)\frac{\partial R^*}{\partial y_m^F}\right) \tag{A6}$$

$$\frac{\partial R^*}{\partial y_m^F} = \frac{u_1''}{u_1'' + \beta^m \sigma^2\theta^2 u_2'' + (1-\sigma)^2 u_3''} > 0$$

The last inequality follows from the fact that $u_i'' < 0, i = 1, 2, 3$.

(ii) To prove that $\frac{\partial R^*}{\partial y_h^1} < 0$, differentiate Eq. (A5) with respect to y_h^1 and rearrange:

$$0 = -u_1''\left(-\frac{\partial R^*}{\partial y_h^1}\right) + \beta^m \sigma\theta\left(u_2''\sigma\theta\frac{\partial R^*}{\partial y_h^1}\right) + (1-\sigma)u_3''\left(1 + (1-\sigma)\frac{\partial R^*}{\partial y_h^1}\right) \tag{A7}$$

$$\frac{\partial R^*}{\partial y_h^1} = \frac{-(1-\sigma)u_3''}{u_1'' + \beta^m \sigma^2\theta^2 u_2'' + (1-\sigma)^2 u_3''} < 0$$

Note that $(1-\sigma) \in (0,1)$ because μ and α belong to $(0,1)$ and $(1-\mu)(1-\alpha) < 1$. Thus, the numerator becomes positive, and the denominator is negative.

(iii) Differentiating Eq. (A5) with respect to y_m^O and then rearranging gives:

$$0 = -u_1''\left(-\frac{\partial R^*}{\partial y_m^O}\right) + \beta^m \sigma\theta u_2''\left(1 + \sigma\theta\frac{\partial R^*}{\partial y_m^O}\right) + (1-\sigma)u_3''\left((1-\sigma)\frac{\partial R^*}{\partial y_m^O}\right) \tag{A8}$$

$$\frac{\partial R^*}{\partial y_m^O} = \frac{-\beta^m \sigma \theta u_2''}{u_1'' + \beta^m \sigma^2 \theta^2 u_2'' + (1-\sigma)^2 u_3''} < 0$$

Since β^m, θ, and σ are all positive, therefore the numerator becomes positive, and the denominator is negative.

A3.2. Proof of Proposition 3.2

The following utility functions are specified:

$$u_1 = U(C_m^1) = U(y_m^F - \widetilde{R_M} - I) \tag{A9}$$
$$u_2 = U(C_m^2) = U(y_m^O + \theta I) \tag{A10}$$

$$u_3 = U(C_h^1) = U(y_h^1 + \widetilde{R_M}) \tag{A11}$$

Hence, maximizing the migrant's utility function with respect to I gives,

$$\frac{\partial U_m}{\partial I} = -u_1' + \beta^m \theta u_2' = 0 \tag{A12}$$

(i)   From Eq. (A12), the following can be derived:
$$0 = -u_1''\left(1 - \frac{\partial I^*}{\partial y_m^F}\right) + \beta^m \theta \left(u_2'' \theta \frac{\partial I^*}{\partial y_m^F}\right) \tag{A13}$$

$$\frac{\partial I^*}{\partial y_m^F} = \frac{u_1''}{u_1'' + \beta^m \theta^2 u_2''} > 0$$

(ii)   Differentiating Eq. (A12) with respect to y_m^O and rearranging gives:

$$0 = -u_1''\left(-\frac{\partial I^*}{\partial y_m^O}\right) + \beta^m \theta u_2'' \left(1 + \theta \frac{\partial I^*}{\partial y_m^O}\right) \tag{A14}$$

$$\frac{\partial I^*}{\partial y_m^O} = \frac{-\beta^m \theta u_2''}{u_1'' + \beta^m \theta^2 u_2''} < 0$$

(iii) Using Eq. (A12), $\frac{\partial I^*}{\partial \theta}$ is derived as follows:

$$0 = -u_1''\left(-\frac{\partial I^*}{\partial \theta}\right) + \beta^m \left\{u_2' + \theta u_2'' \left(I + \theta \frac{\partial I^*}{\partial \theta}\right)\right\} \tag{A15}$$

$$\frac{\partial I^*}{\partial \theta} = \frac{-\beta^m \{u_2' + u_2'' \theta I\}}{u_1'' + \beta^m \theta^2 u_2''} > 0, \qquad if \quad -\frac{u_2''}{u_2'} I > \frac{1}{\theta}$$

Given that the denominator is always negative, the sign of this derivative is determined by the sign of the term $u_2' + u_2''\theta I$, or by rearranging $1 + \frac{u_2''\theta I}{u_2'}$. Hence, $\frac{\partial I^*}{\partial \theta} > 0$ if $-\frac{u_2''}{u_2'}I > \frac{1}{\theta}$ which is the RRC.

A3.3. Proof of Proposition 3.3

The utility functions are simplified as follows:

$$u_1 = U(C_m^1) = U(y_m - ([R_M - R_M^I] + [R_M^I + R_N])) \qquad (A16)$$
$$u_2 = U(C_m^2) = U(y_m^O + \theta R_M^I + \theta R_N) \qquad (A17)$$
$$u_3 = U(C_h^1) = U(C_h^1) = U(y_h^1 + R_M - R_M^I) \qquad (A18)$$

Hence, the following first-order conditions are derived:

$$\frac{\partial U_m}{\partial R_N} = -u_1' + \beta^m \theta u_2' = 0 \qquad (A19)$$

$$\frac{\partial U_m}{\partial R_M^I} = \beta^m \theta u_2' - u_3' = 0 \qquad (A20)$$

(i)   Differentiating Eq. (A19) with respect to θ, and rearranging gives,

$$0 = -u_1''\left(-\frac{\partial R_N}{\partial \theta}\right) + \beta^m\left\{u_2' + \theta u_2''\left(R_M^I + \theta\frac{\partial R_N}{\partial \theta} + R_N\right)\right\} \qquad (A21)$$

$$\frac{\partial R_N}{\partial \theta} = \frac{-\beta^m\{u_2' + u_2''\theta(R_M^I + R_N)\}}{u_1'' + \beta^m\theta^2 u_2''} > 0, \qquad \text{if } -\frac{u_2''}{u_2'}I > \frac{1}{\theta}$$

(ii)   From Eq. (A20), differentiating with respect to θ gives:

$$0 = \beta^m\left\{u_2' + \theta u_2''\left(\theta\frac{\partial R_M^I}{\partial \theta} + R_M^I + R_N\right)\right\} \qquad (A22)$$

$$\frac{\partial R_M^I}{\partial \theta} = \frac{-\beta^m\{u_2' + u_2''\theta(R_M^I + R_N)\}}{\beta^m\theta^2 u_2''} > 0, \qquad \text{if } -\frac{u_2''}{u_2'}I > \frac{1}{\theta}$$

Note that $I = R_M^I + R_N$.

A3.4. Proof of Theorem 1.

The following notations are used to differentiate the migrant's utility function with respect to θ:

$$u_1 = U(C_1^m) = U(y_m - R) \qquad (A23)$$
$$u_2 = U(C_m^2) = U(y_m^O + \theta I) = U(y_m^O + \theta R_M^I + \theta R_N) \qquad (A24)$$

$$u_3 = U(C_h^1) = U(C_h^1) = U(y_h^1 + (1-\mu)R_M) \qquad \text{(A25)}$$

$$\frac{\partial U_m}{\partial \theta} = \beta^m I u_2' = 0$$

Differentiating θ^* *with respect to* R_M^I, we have

$$\frac{\partial \theta^*}{\partial R_M^I} = -\frac{u_2' + u_2'' \theta I}{I u_2'' R_M^I} > 0 \; if \; -\frac{u_2''}{u_2'} I > \frac{1}{\theta}$$

In the same manner, we derive $\frac{\partial \theta^*}{\partial R_N}$ using the above conditions which gives,

$$\frac{\partial \theta^*}{\partial R_N} = -\frac{u_2' + u_2'' \theta I}{I u_2'' R_N} > 0 \; if \; -\frac{u_2''}{u_2'} I > \frac{1}{\theta}$$

Rewriting the equations, the following results can be derived:

$$R_N \frac{\partial \theta}{\partial R_N} = -\frac{u_2' + u_2'' \theta I}{I u_2''}, \quad R_M^I \frac{\partial \theta}{\partial R_M^I} = -\frac{u_2' + u_2'' \theta I}{I u_2''}$$

$$R_N \frac{\partial \theta}{\partial R_N} = R_M^I \frac{\partial \theta}{\partial R_M^I}$$

$$\alpha R \frac{\partial \theta}{\partial R_N} = \mu R_M \frac{\partial \theta}{\partial R_M^I}$$

$$\alpha R \frac{\partial \theta}{\partial R_N} = \mu(1-\alpha)R \frac{\partial \theta}{\partial R_M^I}$$

$$\frac{\partial \theta}{\partial R_N} = \frac{\mu}{\alpha}(1-\alpha)\frac{\partial \theta}{\partial R_M^I}$$

Hence,

$$\frac{\partial \theta}{\partial R_N} > \frac{\partial \theta}{\partial R_M^I}, \qquad \text{if } \frac{\mu}{\alpha}(1-\alpha) > 1$$

Note that,

$$\frac{\mu}{\alpha}(1-\alpha) > 1 \Longrightarrow \frac{\mu}{\mu+1} > 0$$

The above theorem gives the upper limit for α. Thus, the result is stated as follows:
If $\frac{\partial \theta}{\partial R_N} > \frac{\partial \theta}{\partial R_M^I}$ or $\frac{\mu}{\mu+1} > 0$ holds, then $\frac{1}{2} > \alpha$ and $\mu > \alpha$.

Appendix to Chapter 4

Appendix A4: Data Collection Instrument

A4.1. Online Questionnaire

Can be accessed at: bit.ly/remit-survey

A4.2. Paper Questionnaire

SURVEY ON THE REMITTANCE AND INVESTMENT BEHAVIOR OF FILIPINO MIGRANTS IN JAPAN

Dear Participant,

I am Mishael Joy Barrera, a PhD in Economics student at Ritsumeikan University, Shiga, Japan. Currently, I am working on my dissertation titled "Integrating Monetary and Non-monetary Remittances for Entrepreneurship Development in the Philippines", which focuses on the remittance and investment behaviors of Filipino migrants in Japan, particularly on the importance of non-monetary forms of remittances for entrepreneurship development. This survey aims to gather valuable insights and data that will contribute to a better understanding of this crucial economic phenomenon. This survey is entirely voluntary, and no incentives will be provided for your involvement. You can stop at any time, for any reason. I assure you that all responses will remain completely anonymous and confidential. Information from this study will contribute to a better understanding of the remittance and investment behaviors of Filipino migrants in Japan and help inform policies and strategies that could positively impact our community. I anticipate that your participation in this survey presents no greater risk. The estimated completion time for answering the survey is 5-6 minutes.

If you have any questions or concerns, please email gr0550sk@ed.ritsumei.ac.jp.

Thank you for taking the time to contribute to this important academic endeavor. Please proceed if you have read the above information and consent to participate in the study.

A. **Personal Information of the Respondent**

A1	Name (optional)				
A2	Age	1	20-30 years old	4	51-60 years old
		2	31-40 years old	5	61 or over
		3	41-50 years old		
A3	Residence (City/Town, Province/Prefecture)	Philippines [ ] Japan [ ]			
A4	Sex	1	Male		
		2	Female		
A5	Marital Status	1	Single	4	Widow/er
		2	Married	5	Separated
		3	Divorced		

A6	Highest Educational Attainment	1	High School Diploma	4	Master's/Doctoral Degree
		2	Vocational Education		
		3	Bachelor's Degree	5	Others, please specify
A7	What was your previous occupation before coming to Japan?	1	Farming		
		2	Employment in government		
		3	Employment in private sector		
		4	Self-employed/ small business operation		
		5	Unemployed		
		6	Others, please specify		
A8	What is your visa category/type?	1	Highly Skilled Professional Visa	6	Permanent Resident
		2	Working Visa	7	Spouse or child of Japanese national (Naturalized)
		3	Trainee Visa		
		4	Student Visa	8	Others, please specify
		5	Dependent Visa		
A9	What is your present occupation/job?	1	Unemployed/Dependent/Retired	6	Certified Care Worker
		2	Student	7	Service/Entertainment
		3	Skilled Worker/Technical Intern	8	Self-employed
		4	Factory Worker	9	Others, please specify
		5	IT Engineer/ Teacher (ALT)/ Interpreter		
A10	What is your primary source of income?	1	Salaries/wages	4	Family support
		2	Pension	5	Savings
		3	Business/self-employment	6	Others, please specify
A11	How much is your average monthly income?	1	less than 100,000 JPY	4	300,001 JPY – 400,000 JPY
		2	100,001 JPY – 200,000 JPY	5	400,001 JPY – 500,000 JPY
		3	200,001 JPY – 300,000 JPY	6	more than 500,001 JPY
A12	How long have you stayed/lived in Japan?	1	less than 5 years		
		2	6 to 10 years		
		3	11 to 15 years		
		4	16 to 20 years		
		5	more than 20 years		
A13	Do you intend to return/move back to the Philippines, to live there permanently, at some or at any time in the future?	1	Yes		
		2	No **[Skip to B1]**		
		3	Not yet decided **[Skip to B1]**		
A14	For what reasons will make you return to the Philippines?	1	End of employment contract		
		2	Visa expiration		
		3	Retirement		
		4	Emergency situations/ health condition		
		5	Others, please specify		

B. Remittances

B1	Have you sent cash remittances in the last 12 months?	1 Yes 2 No, **[Skip to B9]**		
B2	What is the primary reason for sending money to your family back in the Philippines? *(Please encircle all that applies)*	1 To benefit/help family and friends 2 For a sense of duty/fulfill obligation/repay debt 3 To invest in a business 4 For my retirement/ resettlement in the country 5 Others, please specify		
B3	To whom did you send the money the last time? *(Please encircle all that applies)*	1 Spouse 2 Son/Daughter 3 Father/Mother 4 Brother/Sister	5 Relatives 6 Non-relatives 7 Others, please specify	
B4	What is the most frequent mode of transfer you used in the last 12 months?	1 Hand carried by a relative or other individual 2 Through bank account (bank transfer) 3 Through money transfer operator (Western Union, MoneyGram, etc)	4 Digital banking (mobile application/banking, internet banking, etc.) 5 Others, please specify	
B5	Why do you use this mode to send money? *(Please encircle all that applies)*	1 It is cheaper 2 It is fast 3 It is easy to use/convenient 4 It is secure/reliable	5 It is close to my home 6 It is easily accessible to the people I send money to 7 Others, please specify	
B6	How often do you send money to the Philippines?	1 Monthly (at least once a month) 2 2 – 3 times a year 3 4 – 6 times a year	4 Once a year 5 Only on special occasions or emergencies 6 Others, please specify	
B7	Approximately, how much have you sent in **TOTAL** over the past 12 months?	1 Less than 100,000 JPY 2 100,001 – 200,000 JPY 3 200,001 – 300,000 JPY 4 300,001 – 400,000 JPY 5 More than 400, 001 JPY		
B8	How does your family back in the Philippines regularly use the remittances sent? *(Please encircle all that applies)*	1 Consumption 2 Education 3 Rent/household utilities 4 Agricultural purposes 5 Start a business (non-agricultural)/ entrepreneurial activity 6 Purchase of land, house, vehicles, and other physical assets	7 Pay off debts 8 Health (hospital visits, medicine, etc.) 9 Savings 10 Emergencies (illness, accident, natural disasters) 11 Others, please specify	

B9	Aside from cash, have you sent the following items in the last 12	**Items**	**YES**	**NO**
		Food/Medicine/Clothing/Shoes/toys		
		Mobile phone/ Tablet/ Laptop/ Computer/accessories		

	months? *(Please check the appropriate box/es)* ***Note: If you answered 'NO' in ALL items listed, skip to C1.**	Television/ other electronics/ appliances			
		Vehicle			
		Jewelry			
		Automobile parts			
		Agricultural machineries			
B10	What are the reasons for sending goods to the Philippines? *(Please encircle all that applies)*	1 For household consumption/use 2 To be used as capital to start/improve a business 3 Donation to community 4 Others, please specify			
B11	In the last 12 months, how did you send goods to the Philippines? *(Please encircle all that applies)*	1 Hand carried by a relative or other individual 2 Through courier services (FedEx, DHL, UPS, etc.) 3 Through Japan Post (International Parcel Delivery) 4 Air Cargo/Sea Cargo 5 'Balikbayan Box' 6 Others, please specify			
B12	Why did you choose this mode to send the goods to the Philippines? *(Please encircle all that applies)*	1 It is cheaper 2 It is fast 3 It is easy to use/convenient 4 It is secure/reliable 5 It is close to my home 6 It is easily accessible to the people I send goods to 7 Others, please specify			

C. Investment

C1	Is your family in the Philippines currently engaged in any business or self-employment activity?	1 Yes 2 No **[Skip to C3]**
C2	Did the business exist before you left the country?	1 Yes 2 No
C3	Do you intend to start a business while you are still in Japan or even after you come back to the Philippines?	1 Yes 2 No 3 Maybe/Not yet decided **[Skip to C12]**
C4	What is the type of entrepreneurial activity/business that your household is currently engaged in?	1 Crop farming and gardening 7 Transportation and communication services 2 Livestock and poultry raising 3 Wholesale and retail trade 8 Construction 4 Repair of motor vehicles and motorcycles 9 Other entrepreneurial activities not 5 Manufacturing

		6	Recreational and personal services		elsewhere classified, please specify
C5	How many people are employed in the business?				
C6	Is the business registered with the local government?	1 Yes 2 No			
C7	How satisfied are you with the performance of the business in the Philippines?	1 Very satisfied 2 Satisfied 3 Neutral 4 Dissatisfied 5 Very dissatisfied			
C8	What were the sources of initial capital for this business? *(Please encircle all that applies)*	1 Personal or household savings 2 Remittances 3 Borrowing from family members/relatives/friends 4 Loan from bank or lending company		5 Loan from microfinance organization 6 Grant from government/NGO 7 Others, please specify	

C9	Did your family use the goods sent as capital to start the business or improve the business? *(Please check the appropriate box/es)*	Items	YES	NO
		Food/Medicine/Clothing/Shoes		
		Mobile phone/ Tablet/ Laptop/ Computer		
		Television/ other electronics/ appliances		
		Vehicle		
		Jewelry		
		Automobile parts		
		Agricultural machineries		

|		
C10	Do you take part in making major decisions for the business or provide advice in managing the business?	1 Yes 2 No
C11	To what extent are these skills helpful to your business venture in the Philippines?	1 Very helpful 2 Helpful 3 Somewhat helpful 4 Not helpful at all
C12	What factors would prevent you from investing in the Philippines? *(Please encircle all that applies)*	1 I don't have enough information about investment opportunities 2 I am too far away to manage the investments well 3 I can't find reliable investment partners 4 Limited investment opportunities with good financial returns that match my preferences 5 High risk of possible losses/business failure 6 All of the above 7 None of the above

END OF QUESTIONNAIRE

Appendix to Chapter 5

Table A5.1. Balikbayan box shipping fees and delivery times.

Area	Shipping Fee (in JPY)	Delivery Times
Metro Manila	8,500	4 weeks
Cavite, Rizal, and Bulacan	9,000	4-5 weeks
Laguna and Other Luzon	10,000	4-5 weeks
Visayas Islands	11,000	5-6 weeks
Mindanao and Other Islands	12,500	5-7 weeks

Source: Transtech Co. Ltd. (https://www.balikbayanbox.jp/sp/en/services/balikbayanbox.html)
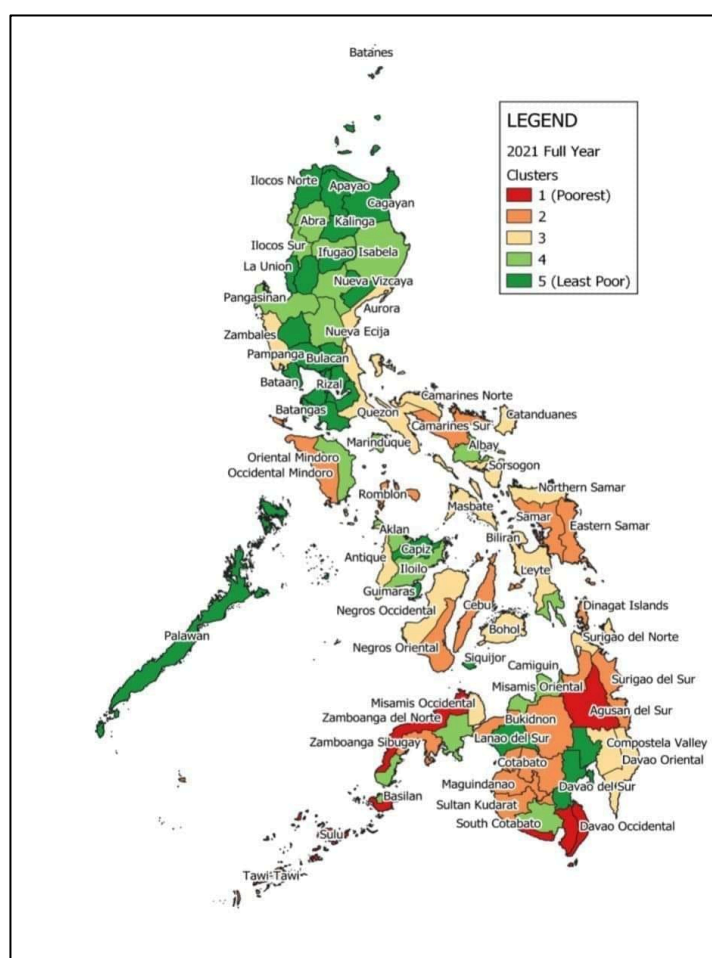
Figure A5.1. Poverty incidence in the Philippines among families, by Province, 2021.
Source: Philippine Statistics Authority (PSA), 2021.

Appendix A5: Does return intention affect remittance behavior? New insights from the case of Filipino migrants in Japan

In Barrera, Alhassan, and Inaba (2024), our objective is to provide insight into the Filipino migrants' return intention-remittance behavior nexus, considering both monetary and non-monetary transfers further examining the effect of return intention differential between short- and long-term Filipino migrants. Using a unique primary data collected from Filipino migrants residing in Japan, we find evidence suggesting that migrants who plan to return are more likely to remit higher monetary remittances, confirming the findings of the extent studies. One of our unique findings entails the positive effect of return intention on non-monetary contributions, especially among long-term migrants in Japan. This finding suggests that for Filipino migrants who intend to eventually return home, sending non-monetary remittances, especially in the form of used goods, is crucial for both keeping familial ties with their non-migrant relatives and in preparation for economic engagements upon return. Thus, our findings make distinct additions to the literature on return intention and remittances.

Preliminary analysis of the data shows that a significant proportion of migrants who intend to return and those who are still undecided are sending less than 200,000 JPY in remittances. In contrast, most of those with no intention to return are not sending any remittances (Figure A5.1).
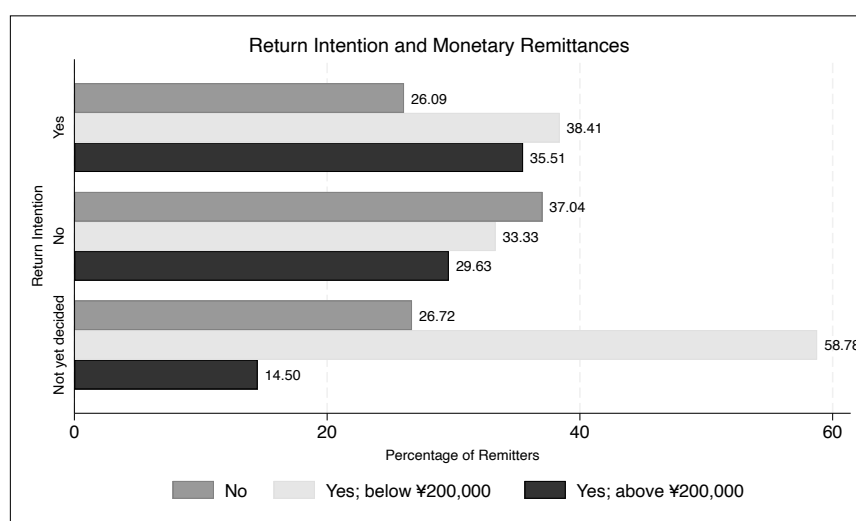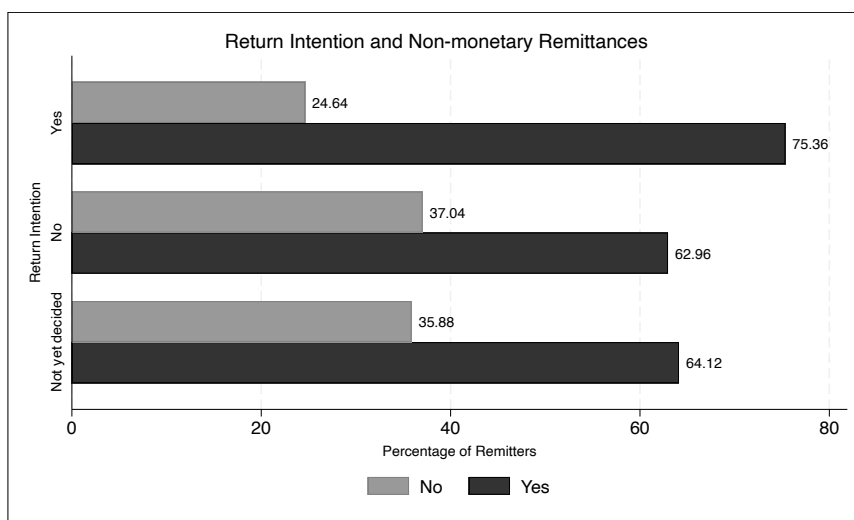

Figure A5.1. Return intention and monetary remittance behavior.

Regarding non-monetary transfers, Figure A5.2 shows that the practice of sending non-monetary forms of support is widespread among Filipino migrants, regardless of their return intentions. This trend indicates that these migrants maintain strong transnational ties through various forms of support, irrespective of whether they plan to return to their home country or not.

Figure A5.2. Return intention and non-monetary remittance behavior.

In modeling migrants' monetary remittance transfers in response to their return intention, we use an Ordered Probit (Oprobit) framework, given that our monetary remittance data is coded in an ordered form, following Collier et al. (2011). The equation for the migrant's level of monetary remittances is expressed as:

$$R_i^M = \beta_0 + \beta_1 r_i + \beta_2 X_i + \varepsilon_i \qquad (A5.1)$$

where R_i^M is a categorical random variable representing monetary remittances, coded 1 if no remittances were sent, 2 if the migrant remits less than 200,000 JPY, and 3 for remittance above 200,001 JPY. r_i reflects the migrant's intention to return to the Philippines, and X_i is a vector of the migrant's socioeconomic characteristics shown in Table 1. Assuming standard normal errors, we derive consistent estimates of β through maximum likelihood estimation (MLE). The interpretation of the regression parameters' signs allows for ascertaining whether the intention to return, among other factors, is associated with an increase in the level of remittances.

On the other hand, to examine the migrant's propensity to remit to the home country in non-monetary forms, we measure such remittance decision as a binary choice and apply the Probit estimation technique. Thus, the Probit model estimated is described in the functional form:

$$Prob\ (R_i^N = 1 \mid r, X) = \delta(r'\beta, X'\gamma) \qquad (A5.2)$$

where β is the coefficient for the migrant's return intention (r), γ is a vector of coefficients for other explanatory variables (X), and δ the standard normal distribution. The observable variable R_i^N is binary and takes value 1 when the migrant sends non-monetary remittances and 0 otherwise.

Table A5.2. Estimation results on migrant's return intention and level of monetary remittances.

Independent Variables	Level of monetary remittances			
	(1)		(2)	
	Coefficient	SE	Coefficient	SE
Return intention (*reference: not yet decided*)				
Yes	0.441***	0.144	0.462***	0.147
No	-0.003	0.221	-0.009	0.224
Tertiary education (*completed = 1*)	0.192	0.155	-0.916	0.635
Age (*reference: 20-30 years old*)				
31-40 years old	-0.097	0.188	-0.409	0.262
41-50 years old	0.131	0.261	0.113	0.305
51-60 years old	-0.645**	0.327	-0.728*	0.411
61 or over	-0.521	0.444	0.064	0.430
Tertiary education*Age (*reference: 20-30 years old*)				
31-40 years old			0.823	0.674
41-50 years old			1.368**	0.655
51-60 years old			0.981	0.682
61 or over			1.121	0.734
Sex (*female = 1*)	0.141	0.146	0.127	0.148
Marital status (*married = 1*)	-0.344*	0.170	-0.353*	0.173
Length of stay (*reference: < 10 years*)				
11-15 years	0.806***	0.248	0.811***	0.250
>15 years	0.283	0.234	0.249	0.236
Average monthly income (*reference: < 100,000JPY*)				
100,001 – 200,000 JPY	0.395**	0.176	0.463**	0.184
200,001 – 300,000 JPY	1.178***	0.262	1.274***	0.268
300,001 – 400,000 JPY	0.844**	0.346	0.884**	0.346
400,001 – 500,000 JPY	0.601	0.458	0.676	0.464
>500,001 JPY	0.814*	0.467	0.941**	0.476
Present Occupation (*reference: unemployed/student/retired*)				
Skilled labor/Factory worker	0.715***	0.217	0.708***	0.221
Services/entertainment	0.778**	0.356	0.595	0.392
Certified Care worker	0.891**	0.302	0.821**	0.303
Self-employed/own business	0.917*	0.474	0.984*	0.497
Skilled professional	0.111	0.261	0.025	0.269
/cut1	0.556**	0.278	0.438	0.289
/cut2	1.955***	0.285	1.850***	0.296
Wald Chi2	73.70		74.12	
Prob > Chi2	0.0000		0.0000	
Pseudo R2	0.0984		0.1044	
Obs		323		

*** Significant at 1%, ** 5%, and * 10% level.

The estimation results presented in Table A5.2. show that migrants with an intention to return are more inclined to remit higher levels of monetary and non-monetary remittances, which are significant at a 1% level. This aligns with the findings of Collier et al. (2011), Pinger (2010), Brzozowski et al. (2017), and Dustmann and Metres (2010), demonstrating that migrants deciding to return exhibit a higher probability of remitting, with increased remittance amounts corresponding to a longer duration spent abroad.