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How Mental Accounting, and Financial Literacy Shape the Financial Situation of Overseas Filipino Workers (OFWs): A Multinomial Logistic Regression Study

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**How Mental Accounting, and Financial Literacy Shape
the Financial Situation of Overseas Filipino Workers (OFWs):
A Multinomial Logistic Regression Study**

Akira Murata *

Abstract

This study explores the factors affecting the financial situation of overseas Filipino workers (OFWs), using survey data from 313 OFWs in two rural areas of the Philippines: Dingras and Bansalan. A multinomial logistic regression model was employed to analyze the influence of various aspects, including mental accounting, self-control, human capital, remittance behavior, and financial literacy, on the balance between income and expenditure. The findings indicate that higher education, long-term future orientation, and enhanced self-control contribute positively to better financial management, while participation in financial literacy programs, the presence of loans, and high personal expenditures are associated with poorer financial outcomes. The study introduces a novel method for measuring self-control among OFWs through a hypothetical scenario involving Jollibee, a popular fast-food chain in the Philippines. The paper concludes with policy recommendations to improve financial literacy, loan management, and spending habits, thereby enhancing the financial well-being of OFWs and their families.

Keywords: Overseas Filipino Workers, Mental Accounting, Financial literacy, Remittance Behavior

JEL codes: D14, D91, F22, F24, I22

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1. Introduction

The Philippines is one of the major labor-exporting countries in the world, with millions of its citizens working abroad as overseas Filipino workers (OFWs). OFWs are regarded as the “new heroes” of the nation, as they send back remittances to their families and communities that boost the economy and support social development. The amount of remittances sent by OFWs to the Philippines increased steadily even during the COVID-19 pandemic, reaching \$29.9 billion in 2020, \$31.4 billion in 2021, and \$32.54 billion in 2022. In 2023, the total cash remittances of OFWs amounted to \$33.49 billion (Bangko Sentral ng Pilipinas 2020). These remittances are used for various purposes, such as consumption, education, health, housing, and investment. However, OFWs also encounter various difficulties and dangers in their migration and work experiences, such as exploitation, abuse, discrimination, isolation, and stress, that can affect their financial situation and well-being, as well as their financial behavior and decisions. In this context, it is important to understand how OFWs perceive and manage their finances, and what factors influence their financial situation and outcomes. The present study fills the gap which pertains to the lack of empirical research on the psychological and behavioral factors influencing the financial management of OFWs in the literature and is based on survey data obtained from 313 OFWs in two areas of the Philippines, Dingras and Bansalan. The survey data was collected as part of the Philippine Remittance Research Project of the JICA Research Institute “Study on Remittances and Household Finances in the Philippines and Tajikistan.”¹

The motivation for this study is to provide new insights into the financial behavior and well-being of OFWs, who are a large and important segment of the Philippine population and economy. By understanding the factors that affect their financial situation, policy makers and practitioners can design and implement more effective intervention methods and programs to improve their financial literacy and management skills and assist them to address their financial challenges and needs. Moreover, this study also contributes to the literature on self-control and financial management, by proposing and testing a novel method to measure the level of self-control of OFWs, using a hypothetical scenario and four questions. This method can capture the cognitive and behavioral aspects of self-control, and can be applied to other contexts and populations, as long as the hypothetical scenario is relevant and realistic for the target group.

The rest of this paper is organized as follows. Section 2 reviews the relevant literature on the financial situation and behavior of OFWs, and the theoretical and empirical frameworks that guide this study. It introduces the concepts and measurement approaches of financial literacy and mental accounting and discusses their role and their implications for migrant remittances. Section 3

¹ https://www.jica.go.jp/english/jica_ri/research/growth/growth_20150315-20170331.html.

develops the hypotheses that are tested in this study. Section 4 provides a detailed explanation of the data and variables utilized in this study, along with the measurement and estimation methodologies employed. Section 5 presents and interprets the results of the multinomial logistic regression analysis. Lastly, Section 6 encapsulates the principal findings and contributions of this study, while also acknowledging the encountered limitations and challenges. Furthermore, it suggests potential avenues for future extension and enhancement of the study.

2. Theoretical frameworks of financial literacy and mental accounting

2.1 Financial literacy: a multidimensional concept and its measurement approaches

Financial literacy is a multifaceted concept that has been defined and studied from various angles in the academic literature. Over time, the definition has evolved, with different studies emphasizing aspects such as decision-making, financial knowledge, skills, and experience. Due to the complexity of the concept, it cannot be measured directly, and proxies are often used instead. In their literature review on measuring financial literacy, Ouachani, Belhassine, and Kammoun (2020) present several examples of such proxies. In addition, Xu and Zia (2012) argue that financial literacy is a crucial component of financial policy reform worldwide, as it can empower individuals to make sound financial decisions and enhance their well-being. They provide an overview of the evidence on financial literacy levels, correlates, and causal investigations from both developed and developing countries, using a set of three questions that test basic financial concepts: interest rate compounding, inflation, and risk diversification.

Hilgert, Hogarth, and Beverly (2003) assert that financial education is vital for both individuals and communities, as it enables consumers to make informed decisions and contribute to economic development. They explore the connection between financial knowledge and behavior, using data from the University of Michigan's monthly Surveys of Consumers conducted in November and December 2001 (University of Michigan Survey Research Center, 2001). Also, data from the Survey of Consumer Finances, which are triennial surveys sponsored by the Federal Reserve Board and provide detailed information on the financial characteristics of U.S. households, particularly families' assets and liabilities, are used for purposes of comparison. In the US President's Advisory Council on Financial Literacy (PACFL) report (2008), financial literacy is considered a critical and urgent national goal that requires collaboration between the public and private sectors, especially in the context of the 2008 economic crisis. Subsequently, Huston (2010) posited that financial literacy is a two-dimensional construct consisting of knowledge and application of personal finance information, suggesting that financial literacy measures should encompass four content areas (basic, borrowing, saving/investing, and protection), use both knowledge and application items, and provide a rating method for interpretation.

Building on this, Lusardi and Mitchell (2014) then review the rapidly growing literature on financial literacy, which they define as the ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and risk diversification. They provide a theoretical framework for financial literacy as a form of human capital investment. Hung, Parker, and Yoong (2009) also review the existing literature on how financial literacy is defined, measured, and related to other constructs, such as financial education, numeracy, cognitive abilities, and decision-making competence. They suggest though that financial literacy may be domain-specific, requiring different knowledge and skills for different financial topics, such as saving, investing, or debt. For example, Moore (2003) examined the financial knowledge, behavior, attitudes, and outcomes of two distinct groups: the general population and a victim pool involved in a predatory lending case, finding that the victim pool exhibited significantly lower financial knowledge, more negative and risky behaviors, compromised attitudes, and more harmful loan terms compared to the general population.

Finally, one of the most comprehensive definitions of financial literacy, widely used internationally, is that proposed by the OECD (2013). The OECD definition combines the literacy definition in the Program for International Student Assessment (PISA) domains with the specificities of the financial field. The OECD definition encompasses several dimensions of financial literacy, such as financial knowledge, understanding of that knowledge, acquisition and use of that knowledge, self-assessment of knowledge (confidence to use), and effective decision-making.

French and McKillop (2016) also support the OECD's approach of developing a core questionnaire and a catalogue of supplementary questions to assess financial literacy and financial inclusion across countries and economies. They argue that this methodology allows for cross-comparable data and international benchmarking, as well as for tailoring the survey to specific contexts and needs. Recently, the OECD International Network on Financial Education (OECD/INFE) has developed one of the most widely used and internationally recognized frameworks for defining and measuring financial literacy. Financial literacy encompasses financial awareness, knowledge, skills, attitudes, and behaviors, all of which are necessary for making sound financial decisions and achieving individual financial well-being.

To quantify financial literacy levels across various countries and economies, the OECD/INFE has designed a survey instrument known as the Toolkit. This Toolkit assesses multiple facets of financial literacy. It computes financial literacy scores based on responses to survey questions.

This comprehensive approach provides a holistic understanding of financial literacy, emphasizing the importance of a balanced combination of awareness, knowledge, skill, attitude, and behaviour in achieving sound financial decision-making and individual financial well-being (OECD 2023).

2.2 Mental accounting theory: a review of its concepts and implications

Mental accounting is a psychological construct that elucidates how individuals mentally segregate and manage their financial transactions into distinct categories, thereby influencing their economic behavior. Thaler (1985) proposed that individuals can overcome cognitive limitations encountered when making difficult economic decisions by simplifying their economic environment or decision process in systematic ways. This mental accounting model describes how boundedly rational individuals adopt internal control systems to evaluate and regulate their budgets, which can systematically affect spending, saving, and other household behaviors. This theory marked a radical break with the standard neoclassical model of utility-maximizing consumers, offering a psychology-based theory of how limited cognition affects individual spending, saving, and other household behavior. Thaler's work on mental accounting has significantly influenced the field of behavioral economics, providing insights into how individuals' mental framing of money can lead to irrational decision-making.

The mental accounting theory encompasses several facets, including hedonic editing, categorization of gains and losses, earmarking and labeling of income and assets, and mental budgeting. Initially, hedonic editing as proposed by Thaler (1985) delineates how individuals frame transactions to optimize pleasure and minimize discomfort. For instance, consumers may derive more satisfaction from a substantial purchase by amalgamating smaller gains into a mental account or perceive a series of minor losses as less distressing than a single larger loss. Following this, the categorization of gains and losses involves the classification of income and expenditure into mental categories. This perspective is rooted in the field of behavioral economics, where it is believed that individuals mentally compartmentalize their financial transactions.

Thaler and Johnson (1990) argue that this mental accounting process, as it is often called, plays a crucial role in how people perceive and evaluate their financial decisions. For instance, some individuals might categorize certain income as "disposable" while others construe them as "savings," or view some expenditures as "investments" and others as "waste." These mental categories can significantly influence their spending and saving behaviors, risk tolerance, and overall financial management. They further suggest that understanding these mental categorizations can provide valuable insights into consumer behavior and can be used to develop more effective financial literacy programs and policies. This viewpoint contributes to the

literature by highlighting the psychological aspects of financial decision-making, which are often overlooked in traditional economic models.

Earmarking and labeling, as discussed by Heath and Soll (1996), involves allocating specific funds to designated purposes. This concept is a good example of a behavioral economic theory suggesting that individuals assign different levels of importance to different pools of money based on subjective criteria, which can influence their spending behavior. Heath and Soll (1996) argue that earmarking, or setting aside money for a specific purpose, and labeling, or associating money with a particular goal, are significant cognitive strategies that individuals use to manage their finances. These strategies can help individuals save more effectively, make more informed spending decisions, and feel more in control of their financial situation. However, Heath and Soll (1996) also note that these strategies can sometimes lead to irrational financial behavior if individuals overly restrict their spending in particular areas or fail to optimize their overall financial resources.

Lastly, mental budgeting is a key aspect of mental accounting, which deviates from the rational economic model where money is considered fungible. Shefrin and Thaler (1988) argue that individuals often create mental budgets, allocating their income into different categories or “accounts” for specific purposes, such as rent, groceries, entertainment, and savings. This process of mental budgeting is a significant departure from the traditional economic model, which assumes that money is fungible and that individuals make financial decisions based on the total amount of money they have, rather than on the basis of these mental categories. Shefrin and Thaler (1988) suggest that this mental budgeting can influence spending and saving behaviors, often leading to decisions that may seem irrational from a traditional economic perspective but make sense to the individual based on their mental accounting.

According to Abdel-Ghany et al. (1983), mental budgeting can affect how consumers respond to windfall income, or unexpected and irregular gains, such as lottery winnings, inheritances, or tax refunds. They tested the permanent income hypothesis, which states that consumers base their spending on their expected long-term income rather than their current income and found that the marginal propensity to consume regular income was greater than the marginal propensity to consume windfall income for windfalls that were large relative to regular income. However, when windfall income was less than ten percent of regular income, the relationship reversed. This suggests that consumers may treat windfall income differently depending on its size and relative importance, and that mental budgeting may lead to deviations from the permanent income hypothesis.

Mental budgeting is not only a financial management tool, but also a psychological mechanism related to time preference and self-control issues. Cheema and Soman (2006) posit that individuals use mental budgeting as a self-control device to manage their consumption and resist the temptation to borrow. By allocating income into different mental accounts for specific purposes, individuals can set boundaries on their spending, which helps them avoid impulsive purchases and excessive borrowing. This process of mental budgeting allows individuals to delay gratification and prioritize long-term financial goals over immediate desires, reflecting their time preferences. However, Cheema and Soman (2006) also note that while mental budgeting can enhance self-control, it may also lead to rigid spending behavior and missed opportunities for optimizing financial resources.

Additionally, Cheema and Soman (2006) posit that mental budgeting is particularly beneficial for households with limited financial means. This means that these households often rely on mental budgeting as a tool to manage their limited resources effectively and to avoid falling into debt. By creating mental budgets, these households can allocate their income to different categories, such as food, rent, and utilities, and ensure that their essential needs are met. Cheema and Soman (2006) also argue that mental budgeting serves as a self-control device, helping individuals resist the temptation to overspend or borrow excessively. However, they note that the practice of mental budgeting can be expected to decrease when a household gains higher income and wealth. As households become wealthier, they may have more financial flexibility and may rely less on strict mental budgets. However, Cheema and Soman (2006) emphasize that regardless of income level, mental budgeting can still be a useful tool for promoting responsible financial behavior and achieving financial goals. However, the level of debts may increase mental budgeting (Antonides, De Groot, and Van Raaij 2011).

Overall, mental budgeting is seen as a positive influence on consumers' financial situation overview and household financial management. Importantly, it serves as a self-control device, especially for households with lower income and wealth, helping them manage their finances more effectively. Antonides, De Groot, and Van Raaij (2011) also investigated the prevalence and implications of mental budgeting within the context of household finance. They discovered that mental budgeting was not only pervasive but also significantly influenced by factors such as general education, saving goals, financial knowledge, time orientation, and the individual's financial situation. Importantly, they observed a positive correlation between mental budgeting and effective financial management, suggesting that mental budgeting can equip individuals with a clearer overview of their expenses and current accounts. This highlights the potential utility of

mental budgeting strategies in augmenting household financial management.

In addition, Thaler (1999) provides a comprehensive overview of mental accounting, a cognitive process employed by individuals and households to organize, evaluate, and monitor financial activities. Thaler (1999) identifies three core components:

- Perception and experience of outcomes, decision-making, and subsequent evaluation. The mental accounting system offers inputs for both ex-ante and ex-post cost-benefit analyses;
- Assignment of activities to specific accounts. Both the sources and uses of funds are labeled in real and mental accounting systems. Expenditures are grouped into categories (e.g., housing, food), and spending is occasionally constrained by implicit or explicit budgets; and
- Frequency of account evaluation and “choice bracketing.” Accounts can be balanced daily, weekly, yearly, etc., and can be defined narrowly or broadly.

Thaler (1999) posits that each of these components contravenes the economic principle of fungibility, thereby influencing choice. Essentially, Thaler (1999) contends that mental accounting, despite its deviation from traditional economic principles, significantly influences financial decision-making processes, rendering it a pivotal area of study in behavioral economics. This understanding of mental accounting bears significant implications for our comprehension of consumer behavior and the formulation of effective economic policies. Building on Thaler’s (1999) insights into mental accounting, we can now turn our attention to a specific population where these principles may have profound implications - the overseas Filipino migrant workers (OFWs).

3. Hypotheses

The financial situation of overseas Filipino migrant workers (OFWs) is an important topic that has implications for their well-being, their families, and their country. However, there is a lack of empirical research on the factors that influence how OFWs manage their finances, especially in relation to their psychological and behavioral characteristics. In this paper, we fill this gap by investigating how various aspects of mental accounting, human capital, remittance behavior, and financial literacy affect the financial situation of OFWs. We define the financial situation as the balance of total expenditure and income of the OFWs, and we measure it by asking them about their usual financial situation during the past 12 months. We propose nine hypotheses that specify the expected relationships between the financial situation and the independent variables, based on theoretical and empirical literature. These hypotheses are tested using survey data from 313 OFWs. The following paragraphs describe each hypothesis in detail:

Hypothesis 1: Mental budgeting refers to the process of planning and allocating one's income and expenditure into different categories, such as necessities, savings, and discretionary spending. We hypothesize that the mental budgeting scale (explained below) is positively associated with managing finances, as it may indicate more organization and discipline in financial matters. Thus, migrants who have higher mental budgeting scores may be more likely to balance their income and spending and avoid financial difficulties;

Hypothesis 2: Future orientation refers to the degree to which one focuses on the present or the future when making financial decisions, such as by preferring immediate gratification or avoiding uncertainty. We hypothesize that the short-term future orientation scale is negatively associated with managing finances, as it may imply more impulsiveness and risk-taking in financial matters. Migrants who have higher short-term future orientation scores may be more likely to spend more than they earn, and face financial problems;

Hypothesis 3: Long-term future orientation refers to the degree to which we focus on the distant future when making financial decisions, such as by considering long-term goals and consequences. We hypothesize that the long-term future orientation scale is positively associated with managing finances, as it may imply more foresight and prudence in financial matters. Migrants who have higher long-term future orientation scores may be more likely to save and invest for the future and achieve financial stability;

Hypothesis 4: Education may capture the human capital of the migrant workers, which may affect their income and expenditure levels. We hypothesize that higher education attainment is positively associated with managing finances, as more educated migrants may have higher incomes and better financial skills. Migrants who have higher education attainment may be more likely to earn more and spend wisely and thus improve their financial situation;

Hypothesis 5: Remittances are the money that the migrant workers send to their families or households in the Philippines, which may have an impact on their financial decisions. We hypothesize that being the decision maker in sending remittances is positively associated with managing finances, as it may indicate more confidence and responsibility in handling money. Migrants who are the decision makers of sending remittances may therefore be more likely to control and monitor their financial flows and avoid financial conflicts;

Hypothesis 6: Saving refers to the act of setting aside a portion of our income for future use, which

may influence our financial situation. We hypothesize that saving money is positively associated with managing finances, as it may imply more prudence and foresight in planning for the future. Migrants who save money may therefore be more likely to have a buffer for emergencies and opportunities and act to enhance their financial security;

Hypothesis 7: Financial literacy refers to the knowledge and awareness of financial concepts and products, which may affect financial choices and outcomes. We hypothesize that financial literacy scores are positively associated with managing finances, as more financially literate migrants may have better financial management and problem-solving skills. Migrants who have higher financial literacy scores may be more likely to make informed and optimal financial decisions and achieve financial well-being;

Hypothesis 8: Remittances are the money that the migrant workers send to their families or households in the Philippines, which may have an impact on their income and savings. We hypothesize that value of remittance in cash is negatively associated with managing finances, as higher remittances may reduce the income and savings of the migrants. Migrants who send a larger part of remittance in cash may be more likely to have lower disposable income and savings, and face financial constraints;

Hypothesis 9: Expenditure refers to the amount of money spent on living expenses, which may affect the remitter's financial balance. We hypothesize that expenditure is negatively associated with managing finances, as higher expenditure may increase the gap between income and spending. Migrants who have higher expenditures may be more likely to have lower savings and surplus and encounter financial difficulties.

4. Methodology

4.1 Survey design

The data collection for this study was conducted as part of the “Philippine Remittance Research Project” of the JICA Research Institute. This project was joint research with a survey conducted on overseas Filipino workers (OFWs) and their households as part of a project called *Remittance Investment Climate Analysis in Rural Hometowns* (RICART) in the Philippines (Opiniano and Ang 2020). The RICART project, supported by the JICA Research Institute, was conducted in two municipalities: Dingras in Ilocos Norte (northwest of Luzon Island) and Bansalan in Davao del Sur (southern part of Mindanao Island).

To ensure the relevance and accessibility of the survey for participants in the RICART project,

the questionnaire was initially developed in English and subsequently localized to resonate with the cultural and contextual nuances of two rural areas in the Philippines. This localization process was crucial to accurately capture the experiences and perspectives of OFWs originated from the survey areas of the RICART project. By adapting the questionnaire to the local settings, the study aimed to facilitate a more authentic and meaningful engagement with the respondents, thereby enhancing the reliability of the data collected on remittance investment climates in their rural hometowns.

In this survey, OFWs participated in face-to-face interviews upon their return to their hometowns. The interview period spanned from December 19th, 2016, through April 26th, 2017, encompassing both the Christmas and Easter holiday periods. Dingras is a municipality with a history of migration to Hawaii, USA, and Bansalan has a diaspora community in the USA. One of the reasons for selecting these two municipalities was that reliable financial institutions existed in the rural hometowns of overseas migrants. In addition, Dingras is far away from the nearest provincial capital, while Bansalan is next to the city. As Opiniano and Ang (2020) explain, the RICART project aims to unravel the relationship between the economic competitiveness of the local community in the hometown of overseas migrants and the investment by remittances, and the proximity and distance from the nearest city to the migrant hometowns with a large number of OFWs were also criteria for selecting these two rural areas.

4.2 Definition and measurement of variables

The dependent variable in our estimation model is managing finances, which measures the balance of total expenditure and income of the OFWs during the past 12 months. We use a three-point scale to capture this variable, where 1 means that total expenditure is greater than total income, 2 means that total expenditure is equal to total income, and 3 means that total expenditure is less than total income. The independent variables include various aspects of mental accounting, human capital, remittance behavior, and financial literacy. We define and measure these variables in Table 1.

Table 1: Definition of variables

Variable	Type	Description	Measurement
Managing finances	Dependent	Balance of total expenditure and income in the past 12 months	3-point scale 1: expenditure > income, 2: expenditure = income, 3: expenditure < income
Survey location	Independent (Dummy)	Whether the OFW was surveyed in Dingras or Bansalan	Dummy coding (Dingras = 1, Bansalan = 0)
Gender	Independent (Dummy)	Gender of the OFW	Dummy coding (Male = 1, Female = 0)
Age	Independent (Continuous)	Age of the OFW in years	Years
Marital status	Independent (Dummy)	Marital status of the OFW	Dummy coding (Married = 1, Not married = 0)
Higher education	Independent (Dummy)	Whether the OFW has a college degree or higher	Dummy coding (Yes = 1, No = 0)
Religion	Independent (Dummy)	Whether the OFW is a Roman Catholic	Dummy coding (Catholic = 1, Other = 0)
Overseas work experience	Independent (Dummy)	Whether the OFW has less than two years of overseas work experience	Dummy coding (Less than 2 years = 1, More than 2 years = 0)
Remittance decision maker	Independent (Dummy)	Whether the OFW decides how much and how often to send remittances	Dummy coding (Yes = 1, No = 0)
Remittance in cash	Independent (Continuous)	Amount of money sent to families in the Philippines in a year	Philippine pesos
Migrant's expenditure	Independent (Continuous)	Amount of money spent on living expenses in a month	Philippine pesos
Saving money	Independent (Dummy)	Whether the OFW saves money regularly	Dummy coding (Yes = 1, No = 0)
Loan	Independent (Dummy)	Whether the OFW has taken a loan	Dummy coding (Yes = 1, No = 0)
Business ownership	Independent (Dummy)	Whether the OFW owns a business	Dummy coding (Yes = 1, No = 0)
Financial literacy score	Independent (Continuous)	Financial knowledge and awareness based on a score from 0 to 7	Score from 0 to 7
Took financial literacy program	Independent (Dummy)	Whether the OFW has taken a financial literacy program before migration or not	Dummy coding (Yes = 1, No = 0)

Source: *Study on Remittances and Household Finances in the Philippines (JICA 2017)*.

The data collected for this study includes a variety of variables related to OFWs. The survey location is a dummy variable indicating whether the OFWs were surveyed in Dingras or Bansalan, two areas in the Philippines with significant migrant populations. Gender, marital status, higher education, religion, overseas work experience, remittance decision maker, saving money, loan, business ownership, and whether the OFWs took a financial literacy program are all represented as dummy variables. Age, remittance in cash, migrant's expenditure, and financial literacy score are continuous variables. The age variable measures the OFW's age in years. The remittances in the cash variable measure the annual amount of money that the OFWs send to their families or households in the Philippines in Philippine pesos. The migrant's expenditure variable measures the OFW's monthly living expenses in Philippine pesos. The financial literacy score is based on seven questions about basic financial concepts and products, with each question coded as 1 for a correct answer and 0 for an incorrect or don't know answer, summed to get a range from 0 to 7. This financial literacy score is consistent with the Toolkit developed by the OECD/INFE.

The financial literacy of OFWs is of paramount importance as it directly impacts their ability to manage their earnings, plan for the future, and contribute to the Philippine economy. Therefore, understanding their financial literacy scores can provide valuable insights for policy-making and educational interventions. In the Philippine context, the World Bank conducted a Financial Capability Survey and constructed seven financial literacy questions to evaluate Filipino financial knowledge and basic numeracy skills, covering basic calculus and financial concepts such as simple interest rates, inflation, compound interest, risk diversification, and the main purpose of insurance products (Mylenko 2015). Thus, in this survey we use the financial literacy index and questions developed by the World Bank as our theoretical base.

This context underscores the significance of our study on the financial literacy of OFWs in the Philippines. The comprehensive dataset obtained provides a detailed picture of the OFW's demographic, economic, and financial characteristics, which can be used to analyze various aspects of their lives and behavior. These are the variables that we use in our estimation model to analyze the factors that influence the financial situation of OFWs. We expect to find significant and meaningful relationships between the dependent and independent variables, based on our hypotheses and literature review.

4.3 Migrant characteristics

One of the objectives of this study is to examine the factors that influence the financial management of OFWs. To achieve this, we analyzed the survey data from 313 OFWs from two areas in the Philippines: Dingras in Ilocos Norte and Bansalan in Davao del Sur. These locations

are part of the National Irrigation Sector Rehabilitation and Improvement Project (NISRIP) of the Japan International Cooperation Agency (JICA), which aims to enhance agricultural productivity by rehabilitating irrigation facilities, strengthening irrigators' associations, and providing agricultural support.²

Dingras, a 2nd class municipality in Ilocos Norte, has a population of 40,127 people (as of 2020) and consists of 31 Barangays, which are the smallest administrative units in the country.³

It is known for its strong cultural ties to Hawaii, where many residents have migrated for better economic opportunities, while still maintaining connections to their hometown. Bansalan, on the other hand, a 1st class municipality in Davao del Sur, has a population of 62,737 people (as of 2020) and comprises 25 Barangays.⁴

Both Dingras and Bansalan are among the ten NISRIP project sites in the Philippines, emphasizing their strategic importance in improving local agricultural conditions and economic stability, including the financial well-being of OFW households.

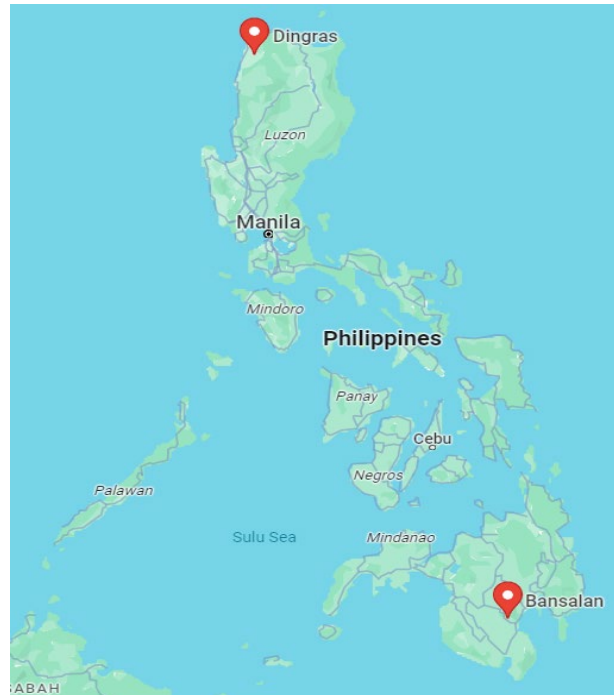
Figure 1 shows the locations of the two municipalities and the survey sites where data were collected. The survey sites represent the hometowns of the interviewed Filipino migrant workers who have left to work abroad but maintain strong ties to their origins.

² https://www.jica.go.jp/Resource/philippine/english/office/topics/news/210806_01.html

³ <https://www.philatlas.com/luzon/r01/ilocos-norte/dingras.html>.

⁴ <https://www.philatlas.com/mindanao/r11/davao-del-sur/bansalan.html>.

Figure1: Survey locations



Source: [Google Map](#)

Table 2 shows the descriptive statistics of the sample migrants, including their demographics, human capital, remittances, and financial literacy characteristics. There are 183 sample migrants for Dingras (58%) and 130 for Bansalan (42%). The average age of the OFWs is 36.78 years, and most of them are female (77.32%), married (55.91%), and Roman Catholic (73.48%). 22% of them have a college degree or higher, and 38.3% have had more than two years of overseas work experience. The majority of the OFWs are the decision makers who decide how much and how often to send remittances to their families or households in the Philippines (93.9%), and the average amount of remittance in cash is approximately 40,000 Philippine pesos per year. The OFWs also spend an average of around 8,000 Philippine pesos per month on their living expenses, and most of them save money regularly (57.5%). However, 16.6% of them also have taken a loan in the Philippines or abroad, and 17.2% of them own a business in the Philippines or abroad. The financial literacy score of the OFWs ranges from 0 to 7, with an average of 4.56869, and 36.4% of them took a financial literacy program before migration.

Table 2: Sample migrant characteristics

Variable	Obs	Mean	Std. dev.	Min	Max
Dingras	313	.5846645	.4935689	0	1
male	313	.2268371	.4194569	0	1
age	313	36.77316	10.15724	20	82
marital status	313	.5591054	.4972893	0	1
higher education	313	.2204473	.4152121	0	1
religion	313	.7348243	.4421336	0	1
overseas work experience	313	.3833866	.4869897	0	1
remittance decision maker	313	.9392971	.2391669	0	1
remittance in cash	313	40878.26	319838	0	4000000
expenditure	313	8040.723	16454.52	20	105000
saving money	313	.5750799	.4951224	0	1
loan	313	.1661342	.372797	0	1
business ownership	313	.172524	.3784402	0	1
financial literacy score	313	4.56869	1.26437	0	7
took financial literacy program	313	.3642173	.4819805	0	1

Source: *Study on Remittances and Household Finances in the Philippines (JICA 2017)*.

4.4 Psychological variables

4.4.1 Mental budgeting

Mental budgeting is a concept that describes how people mentally plan and allocate their income and expenditure into different categories, such as necessities, savings, and discretionary spending. Mental budgeting may affect how people perceive and manage their finances, as well as their spending and saving behaviors. To measure this variable, we use a mental budgeting scale that consists of four items, each answered on a 5-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree):

- I have reserved money (budget) for different expenses, such as food, clothing, transportation, etc.;
- I never spend more than a fixed amount on food, clothing, transportation, etc.;
- If I spend more on one thing, I economize on other expenses;
- If I spend more than normal on one thing in 1 month, I spend less on other things in the next month.

We recode the four items such that higher scores refer to higher levels of mental budgeting. We

also omit the respondents who indicate the “don’t know” category from the analysis, as they do not express a clear opinion on the items. We then perform a principal component analysis of the four items, which results in one factor, labeled *mental budgeting*. This factor captures the common variance among the four items and represents the overall score of mental budgeting behavior for each respondent. We use this factor as the independent variable in our estimation model, to analyze its relationship with the dependent variable, managing finances.

4.4.2 Short-term future orientation

Short-term future orientation is a concept that describes how people focus on the present or the near future when making financial decisions, such as by preferring immediate gratification or avoiding uncertainty. Short-term future orientation may affect how people perceive and manage their finances, as well as their spending and saving behaviors. To measure this variable, we use a short-term future orientation scale that consists of four items, each answered on a 5-point Likert scale, ranging from 1 (not at all applies to me) to 5 (totally applies to me). The four items are:

- I only focus on the short term;
- The future will take care of itself;
- I live more for the day of today than for the day of tomorrow;
- My convenience plays an important role in the decisions I make.

We recode the four items such that higher scores refer to higher levels of short-term future orientation. We then perform a principal component analysis of the four items, which results in one factor, labeled *short-term future orientation*. This factor captures the common variance among the four items and represents the overall score of short-term future orientation for each respondent. We use this factor as the independent variable in our estimation model, to analyze its relationship with the dependent variable, managing finances.

4.4.3 Long-term future orientation

Long-term future orientation is a concept that describes how people focus on the distant future when making financial decisions, such as by considering long-term goals and consequences. Long-term future orientation may affect how people perceive and manage their finances, as well as their spending and saving behaviors. To measure this variable, we use a long-term future orientation scale that consists of four items, each answered on a 5-point Likert scale, ranging from 1 (not at all applies to me) to 5 (totally applies to me). The four items are:

- Regarding my future I want to leave as little as possible to fate;

- I often act in order to achieve something that may not result for many years;
- I believe it is important to save for the future;
- Regarding the future one always has to take into account that things may get worse.

We recode the four items such that higher scores refer to higher levels of long-term future orientation. We then perform a principal component analysis of the four items, which results in one factor, labeled *long-term future orientation*. This factor captures the common variance among the four items and represents the overall score of long-term future orientation for each respondent. We use this factor as the independent variable in our estimation model, to analyze its relationship with the dependent variable, managing finances.

4.4.4 Self-control measure

Self-control is the ability to regulate one's impulses, emotions, and actions to achieve one's goals. Self-control is an important factor for financial management, as it can help individuals to save more, spend less, and avoid debt. However, measuring self-control is not easy, as it involves both cognitive and behavioral aspects. By asking a simple hypothetical choice scenario, Ameriks et al. (2007) assumed that people will understand whether they face a control problem and know how it will affect their choices. Based on the scenario and survey questions developed by Ameriks et al. (2007), we propose a novel method to measure the level of self-control of OFWs.

We use a hypothetical scenario to elicit the preferences and expectations of the OFWs regarding their financial decisions. We ask the OFWs to imagine that they receive 10 certificates from their employer, which can be used to receive a "dream restaurant night in a Jollibee." On each night, OFWs and their companions will get the best table and an unlimited budget for food and drink at the Jollibee branch they select. There will be no cost to them: all payments, including gratuities, come as part of the prize. The certificates are available for immediate use, starting from the survey dates, and there is an absolute guarantee that the certificates will be honored by any Jollibee if they are used within a two-year window. If the certificates are not used up within this two-year period, however, any that remain are valueless. We then ask the OFWs four questions to measure their level of self-control:

- Q1: How many certificates would you ideally like to use in the first year, and how many in the second year?
- Q2: Do you feel tempted to keep more certificates for use in the second year than you ideally would like to (option 1), to use more certificates in the first year than you ideally would like to (option 2), or do you have no temptation in either direction (option 3)?

- Q3: If you feel tempted to deviate from your ideal allocation, how many certificates do you think you would be tempted to use in the first year, and how many in the second year?
- Q4: How many certificates do you expect to actually use in the first year, and how many in the second year?

Based on the answers to these questions, we create a variable that measures the level of self-control of the OFWs. We assign the number of certificates the OFWs would ideally like to use in the first year as *Ideal_Year1*, and the number of certificates the OFWs expect to use in the first year as *Forecast_Year1*. We also assign a numerical value based on the OFWs' answer to Q2, where -1 indicates temptation to keep more certificates for the second year, 1 indicates temptation to use more certificates in the first year, and 0 indicates no temptation. We call this variable *Temptation*. We also assign the number of certificates the OFWs think they would be tempted to use in the first year as *Tempted_Year1*. We then calculate the difference between *Ideal_Year1* and *Forecast_Year1*, and adjust this difference based on *Temptation* and *Tempted_Year1* as follows:

$$Self_Control = Ideal_Year1 - Forecast_Year1 - Temptation \times (Tempted_Year1 - Ideal_Year1) \quad (1)$$

In this formula, a higher *Self_Control* score indicates a higher level of self-control. This is because if the OFWs' forecasted behavior (*Forecast_Year1*) aligns with their ideal allocation (*Ideal_Year1*), and they are not tempted to deviate from this ideal allocation (*Temptation* and *Tempted_Year1*), the *Self_Control* score will be higher. Conversely, a lower *Self_Control* score indicates a lower level of self-control. This is because if the OFWs' forecasted behavior (*Forecast_Year1*) deviates from their ideal allocation (*Ideal_Year1*), and they are tempted to deviate further from this ideal allocation (*Temptation* and *Tempted_Year1*), the *Self_Control* score will be lower.

We believe that this method can capture the cognitive and behavioral aspects of self-control, as it reflects the OFWs' preferences, expectations, and temptations regarding their financial decisions. We also believe that this method can be applied to other contexts and populations, as long as the hypothetical scenario is relevant and realistic for the target group. We thus hope that this method can contribute to the literature on self-control and financial management and provide useful insights for policy makers and practitioners who aim to improve the financial well-being of OFWs and other migrant workers.

4.5 Estimation model

To investigate the factors that influence the financial situation of OFWs, we use multinomial logistic regression as our estimation model. Multinomial logistic regression is a type of regression analysis that can handle a categorical dependent variable with more than two non-ordered categories. In our case, the dependent variable is managing finances, which measures the balance of total expenditure and income of the OFWs during the past 12 months. We use a three-point scale to capture this variable, where 1 means that total expenditure is greater than total income, 2 means that total expenditure is equal to total income, and 3 means that total expenditure is less than total income. We treat the second category (i.e., total expenditure is equal to total income) as the reference category and compare the probabilities of the other two categories with it. The independent variables include various aspects of mental accounting, self-control, human capital, remittance behavior, and financial literacy, as described in the previous section.

We estimate the parameters of the model using maximum likelihood estimation, and report the odds ratios, confidence intervals, and p-values for each independent variable. The odds ratio measures the change in the odds of being in a certain category versus the reference category, given a one-unit change in the independent variable. The confidence interval provides a range of plausible values for the odds ratio, and the p-value tests the null hypothesis that the odds ratio is equal to one, which means no effect. We use a significance level of 0.05(*) and 0.01(**) to determine whether the independent variables have a significant effect on the dependent variable. To interpret the odds ratio, we need to exponentiate it to get the relative risk ratio. The relative risk ratio measures the change in the probability of being in a certain category versus the base category, given a change in the independent variable. Multinomial logistic regression is a statistical method used when the dependent variable is categorical with more than two levels. It generalizes logistic regression, which is used for binary dependent variables. In this study, the model can be written as follows:

For each outcome (j) from 1 to 3 (where J is the number of base category), we have:

$$\log \left(\frac{P(Y_i=j)}{P(Y_i=J)} \right) = \beta_{0j} + \beta_{1j}X_{i1} + \beta_{2j}X_{i2} + \dots + \beta_{kj}X_{ik} \quad (2)$$

Here, (Y_i) is the categorical dependent variable for observation (i), (X_{ij}) are the independent variables, and (β_{kj}) are the parameters to be estimated. The base outcome is total expenditure being equal to total income, and the log odds are calculated relative to this base outcome. The relative risk ratio (RRR), also known as the odds ratio, for a particular category (j) relative to the

base outcome (J) for a one-unit increase in predictor (X_k) is given by $(e^{\beta_{kj}})$. This can be calculated after the model parameters have been estimated. The dependent variable and independent variables used in the model are listed with their definitions in Table 1.

5. Results

The estimation results of the multinomial logistic regression are shown in Table 3. The multinomial logistic regression is a statistical method that can be used to analyze the relationship between a categorical dependent variable and a set of independent variables. In this study, the dependent variable is the balance of total expenditure and income of the overseas Filipino workers (OFWs) during the past 12 months. There are three categories for the dependent variable: total expenditure being less than total income, total expenditure being equal to total income, and total expenditure being greater than total income. The independent variables include various aspects of human capital, remittance behavior, financial literacy, and self-control, as described in the previous section.

Table 3: Multinomial estimation results

(1) Total expenditure is greater than total income					
Variables	Coefficient		Std. err.	z	P>z
Dingras	.6374072		.4889587	1.30	0.192
male	-.2504592		.4623593	-0.54	0.588
age	.0003069		.0197315	0.02	0.988
marital status	-.2212449		.3658961	-0.60	0.545
higher education	-1.276227	*	.5218918	-2.45	0.014
religion	-.6010269		.3786188	-1.59	0.112
overseas work experience	-.4078907		.4053741	-1.01	0.314
remittance decision maker	.1497682		.7281083	0.21	0.837
remittance in cash	-3.81e-06		.00001	-0.38	0.704
expenditure	-5.39e-06		.0000171	-0.32	0.752
saving money	-.1874753		.4128301	-0.45	0.650
loan	1.371386	**	.4755555	2.88	0.004
business ownership	-.0932243		.4896372	-0.19	0.849
financial literacy score	-.0656908		.1371663	-0.48	0.632
took financial literacy program	.9001826	*	.4097849	2.20	0.028
mental budgeting	-.1623084		.1248392	-1.30	0.194
short time future orientation	-.3035571	*	.1437575	-2.11	0.035

long time future orientation	-.5148838	**	.1549289	-3.32	0.001
self-control measure	-.0485989		.0518967	-0.94	0.349
_cons	-.5111369		1.208839	-0.42	0.672
(2) Total expenditure is less than total income					
Variables	Coefficient		Std. err.	z	P>z
Dingras	1.269242	**	.4806201	2.64	0.008
male	.4505487		.3830542	1.18	0.240
age	-.0195153		.0192861	-1.01	0.312
marital status	.752554	*	.3546322	2.12	0.034
higher education	.1337561		.3969591	0.34	0.736
religion	-.6196992		.3636895	-1.70	0.088
overseas work experience	.4110606		.3910537	1.05	0.293
remittance decision maker	.3396479		.7680586	0.44	0.658
remittance in cash	-5.19e-07		9.00e-07	-0.58	0.564
expenditure	.0000227	*	9.90e-06	2.29	0.022
saving money	-.1380243		.4199933	-0.33	0.742
loan	1.482679	**	.4749721	3.12	0.002
business ownership	.5086184		.4111285	1.24	0.216
financial literacy score	-.2197552		.128627	-1.71	0.088
took financial literacy program	.5684269		.4067631	1.40	0.162
mental budgeting	-.1484685		.1260685	-1.18	0.239
short time future orientation	-.1013799		.1306158	-0.78	0.438
long time future orientation	.0110593		.1443924	0.08	0.939
self-control measure	-.1354117	**	.0435814	-3.11	0.002
_cons	-1.191737		1.226897	-0.97	0.331
Number of obs.			313		
LR chi2(38)			132.02		
Prob > chi2			0.0000		
Log likelihood			-259.06327		
Pseudo R2			0.2031		

Note: ** if $p < .01$, * if $p < .05$. Base category: total expenditure is equal to total income.

Source: Study on Remittances and Household Finances in the Philippines (JICA 2017).

The coefficients, standard errors, z-scores, p-values, and confidence intervals for each independent variable are reported in Table 3 for each category of the dependent variable, except for the base category, which is total expenditure being equal to total income. The coefficients

measure the change in the log odds of being in a certain category versus the base category, given a one-unit change in the independent variable. The standard errors measure the uncertainty of the coefficients. The z-scores measure the significance of the coefficients, by dividing them by the standard errors. The p-values measure the probability of obtaining the coefficients by chance, under the null hypothesis that they are equal to zero. The confidence intervals provide a range of plausible values for the coefficients, with a 95% level of confidence. The log likelihood and pseudo R2 values are also provided at the bottom. The log likelihood measures the fit of the model, by comparing the predicted probabilities with the observed outcomes. The pseudo R2 is a number that shows how well the model fits the data. It is calculated by comparing how likely the model is to produce the observed outcomes, with how likely a simpler model that only uses the average outcome is to produce the observed outcomes. The higher the pseudo R2, the better the model fits the data.

To interpret the results, we need to exponentiate the coefficients to get the odds ratios. The odds ratios measure the change in the odds of being in a certain category versus the base category, given a one-unit change in the independent variable. We can also exponentiate the confidence intervals to get the range of plausible values for the odds ratios. To interpret the significance of the results, we need to look at the p-values and the confidence intervals. A p-value less than 0.05 indicates that the coefficient is statistically significant at the 5% level, while a p-value less than 0.01 indicates that the coefficient is statistically significant at the 1% level. This means that it is unlikely to be zero by chance. A confidence interval that does not include one indicates that the odds ratio is statistically different from one, meaning that there is an effect of the independent variable on the dependent variable. Based on the results, we can see that some independent variables have a significant effect on the dependent variable, while others do not.

The results of the multinomial logistic regression show the effects of the independent variables on the probability of being in a certain category of the dependent variable, managing finances, compared to the reference category, total expenditure is equal to total income. In Table 3, we report the odds ratios, confidence intervals, and p-values for each independent variable, and we use a significance level of 0.05(*) and 0.01(**) to determine whether the independent variables have a significant effect on the dependent variable. To interpret the odds ratios, we need to exponentiate them to get the relative risk ratios. The relative risk ratios measure the change in the probability of being in a certain category versus the base category, given a change in the independent variable.

First, in the category where total expenditure exceeds total income, we find that five independent variables are statistically significant: higher education, participation in a financial literacy program, short-term future orientation, loan, and long-term future orientation. The odds ratios of these variables are -1.28, 0.90, -0.30, 1.37, and -0.51, respectively. The relative risk ratios of these variables are $\exp(-1.28) = 0.28$, $\exp(0.90) = 2.46$, $\exp(-0.30) = 0.74$, $\exp(1.37) = 3.94$, and $\exp(-0.51) = 0.60$, respectively. This means that, holding other variables constant: having a higher education reduces the probability of being in this category by 72%; taking a financial literacy program increases the probability of being in this category by 146%; having a higher short-term future orientation reduces the probability of being in this category by 26%; having a loan increases the probability of being in this category by 294%; and having a higher long-term future orientation reduces the probability of being in this category by 40%. These results imply that higher education, short-term future orientation, and long-term future orientation are associated with better financial management, while taking a financial literacy program and having a loan are associated with lower levels of financial management.

Next, for the category total expenditure is less than total income, we find that five independent variables are statistically significant: being married, level of migrant expenditure, Dingras, loans, and self-control measures. The odds ratios of these variables are 0.75, 0.00, 1.27, 1.48, and -0.14, respectively. The relative risk ratios of these variables are $\exp(0.75) = 2.12$, $\exp(0.0000227) = 1.00$, $\exp(1.27) = 3.55$, $\exp(1.48) = 4.38$, and $\exp(-0.14) = 0.87$, respectively. This means that, holding other variables constant, being married increases the probability of being in this category by 112%, having a higher migrant's expenditure increases the probability of being in this category by 0.002%, being from Dingras increases the probability of being in this category by 255%, having a loan increases the probability of being in this category by 338%, and having a higher self-control measure reduces the probability of being in this category by 13%. These results imply that being married, being from Dingras, and having a loan are associated with better financial management, while higher migrant expenditure and self-control measures are associated with lower levels of financial management.

Furthermore, the estimation results provide insights into the nine hypotheses proposed in the study:

- (1) Hypothesis 1 posited that mental budgeting is positively associated with managing finances. However, the results reveal that mental budgeting is not statistically significant in predicting the financial situation of OFWs, suggesting that while it may indicate more organization and discipline in financial matters, it does not necessarily lead to a balance between income and

spending;

- (2) The findings support Hypothesis 2, which suggested that a higher short-term future orientation is negatively associated with managing finances. The study finds that a higher short-term future orientation, implying more impulsiveness and risk-taking, is associated with a higher likelihood of spending more than earning and facing financial problems;
- (3) In line with Hypothesis 3, the results show that a higher long-term future orientation, implying more foresight and prudence, is associated with a higher likelihood of saving and investing for the future and achieving financial stability. This suggests that interventions aimed at enhancing long-term future orientation could be effective in improving the financial situation of OFWs;
- (4) The study confirms Hypothesis 4, which posited that higher education attainment is positively associated with managing finances. More educated migrants may have higher incomes and better financial skills, and thus may be more likely to earn more, spend wisely, and improve their financial situation. This finding highlights the role of education in enhancing financial literacy and promoting sound financial management among OFWs;
- (5) Hypothesis 5 posited that being the decision maker sending remittances is positively associated with managing finances. However, the results reveal that the decision-making role in sending remittances is not statistically significant in predicting the financial situation of OFWs. This suggests that while it may indicate more confidence and responsibility in handling money, it does not necessarily lead to better control and monitoring of financial flows;
- (6) The findings support Hypothesis 6, which suggested that saving money is positively associated with managing finances. The study finds that saving money, implying more prudence and foresight in planning for the future, is associated with a higher likelihood of having a buffer for emergencies and opportunities and enhancing financial security;
- (7) In line with Hypothesis 7, the results show that The coefficients for the financial literacy score in both categories are negative, which might seem counterintuitive as we typically expect higher financial literacy to correlate with better financial outcomes. However, the lack of statistical significance (with p-values of 0.632 and 0.088) means that we cannot confidently conclude that financial literacy has a definitive impact, either positive or negative, on these financial management outcomes based on this analysis. This result could reflect the complexity of financial literacy's role in financial management, suggesting that while financial knowledge is important, other factors may also play critical roles in determining financial outcomes. It could also indicate that the financial literacy programs provided to these OFWs may not be sufficiently tailored to effectively improve their financial management skills, or that the score itself does not capture all aspects of financial literacy

that are relevant to their financial behavior.;

- (8) Hypothesis 8 suggested that the value of remittance in cash is negatively associated with managing finances. The results confirm this hypothesis, showing that higher remittances may reduce the income and savings of the migrants, leading to lower disposable income and savings, and increased financial constraints;
- (9) Lastly, the study confirms Hypothesis 9, which posited that expenditure is negatively associated with managing finances. Migrants who have higher expenditure patterns may be more likely to have lower savings and surpluses and encounter financial difficulties. This finding highlights the importance of managing expenditure in achieving a balanced financial situation.

The multinomial logistic regression analysis reveals a notable finding: OFWs from Dingras, a landlocked municipality in Ilocos Norte, are more likely to have total expenditures lower than their total income compared to OFWs from Bansalan, a coastal municipality in Davao del Sur. This suggests that OFWs from Dingras might exhibit more effective financial management skills than those from Bansalan, despite differing geographic and economic contexts.

Several factors may explain this difference. Dingras has a long history of migration to Hawaii, USA, which has fostered strong social networks and access to remittance channels. The migration of Filipinos to Hawaii began in the early 1900s, primarily to work in the sugar plantations. Many of these early migrants were from the Ilocos region, including Dingras in Ilocos Norte, due to recruitment efforts by plantation owners and labor agents. Over time, this led to the establishment of a well-connected Filipino community in Hawaii that continues to grow and thrive today.⁵

These migration networks provide a unique form of social capital, offering financial literacy information and support systems that encourage prudent financial management practices. The strong community ties and the historical context of migration have likely cultivated a culture of saving, financial planning, and a long-term approach to financial stability among OFWs from Dingras.

Conversely, Bansalan, as a coastal municipality in Davao del Sur, has different economic and geographic conditions. The economy is more diversified, with many residents involved in fishing and related activities. Local development efforts in Bansalan have concentrated not only on enhancing agricultural support, such as improved irrigation, but also on promoting disaster risk

⁵ Information on Filipino migration to Hawaii is available from the "Filipinos in Hawaii" website. Retrieved from <https://www.filipinosinhawaii100.org/how-did-filipinos-end-up-in-hawaii>.

reduction and resilience against natural disasters like flooding and typhoons, which are common in coastal areas.

Dingras, a municipality in Ilocos Norte, demonstrates a relatively stronger financial situation compared to Bansalan, based on several key factors. These factors include higher regular income and revenue, a strategic dependence on the Internal Revenue Allotment (IRA), lower costs of doing business, and a focused economic strategy rooted in agriculture. Together, these elements provide Dingras with a financial stability that sets it apart from other municipalities, including Bansalan.

Firstly, Dingras enjoys a significantly higher annual regular income than the average for municipalities in its province. For the fiscal year 2016, Dingras reported an annual regular income of ₱162,065,253, which far exceeds the average income of all municipalities in Ilocos Norte.⁶ This robust financial base can enhance the capacity of its residents, including OFWs, to practice better financial management. A higher municipal income often translates into improved public services and infrastructure, which in turn can foster a more supportive environment for financial prudence among its population.

Secondly, while Dingras is heavily dependent on the Internal Revenue Allotment (IRA), a mandated share of national taxes, it has demonstrated effective financial management capabilities. Despite its reliance on IRA, Dingras has managed to maintain financial stability through the efficient use of its available resources, even though its local economic activities are less diverse than those of other municipalities (Opiniano and Ang 2020). This reflects the municipality's capacity to make the most out of its financial resources, ensuring stability and continuous development despite potential vulnerabilities due to its limited economic diversification.

Moreover, the cost of doing business in Dingras is relatively lower than in Bansalan. Key factors such as lower electricity rates and rental costs make Dingras a more attractive environment for local entrepreneurs (Opiniano and Ang 2020). This cost advantage contributes to more stable financial conditions within the municipality, encouraging a culture of saving and prudent financial behavior among its residents. Lower business costs can attract more local investment, which can further bolster economic activity and financial health.

Additionally, Dingras is known as the "rice granary" of Ilocos Norte, reflecting its strong focus on the agricultural sector. The municipality's economic activities are concentrated in agriculture,

⁶ <https://www.philatlas.com/luzon/r01/ilocos-norte/dingras.html>

which, while less diverse, provides a more stable but limited economic base (Opiniano and Ang 2020). This concentration in agriculture allows Dingras to capitalize on its natural resources and build a stable economic environment that promotes careful financial planning and management. Less competition in its primary economic sector may also mean more opportunities for local entrepreneurs to thrive.

In summary, Dingras' combination of a strong financial base, efficient management of government funds, lower business costs, and a concentrated economic strategy in agriculture suggests that it is in a relatively stronger financial situation compared to Bansalan. These factors collectively foster a more stable and predictable economic environment, which is crucial for sustained local development and improved financial management practices among its residents. The case of Dingras demonstrates how strategic use of financial resources, even in a less diversified economy, can create a resilient and financially stable community.

6. Conclusions

This study investigated the factors influencing the financial situation of overseas Filipino workers (OFWs) by examining the balance between their total expenditures and income over the past 12 months. Using a multinomial logistic regression model, the study analyzed a range of factors, including mental accounting, self-control, human capital, remittance behavior, and financial literacy.

The findings highlight that several factors, such as higher education, long-term future orientation, and self-control, are positively associated with better financial management among OFWs. Conversely, participation in financial literacy programs, taking on loans, and higher expenditure levels are linked to poorer financial management outcomes. These insights significantly contribute to the understanding of the financial behaviors and challenges faced by OFWs, who represent a crucial segment of the Philippine economy.

While the findings indicate that participation in financial literacy programs is associated with poorer financial management outcomes, this study does not examine the content or delivery of these programs, such as those offered by OWWA. Future research should investigate the effectiveness of such programs to determine whether the issue lies in the program's structure, content, or its alignment with the specific needs of OFWs. This limitation highlights the need for a more comprehensive evaluation of financial literacy initiatives in order to better tailor them to improve financial management outcomes for OFWs.

The study offers two main implications. First, it provides valuable insights for policymakers and practitioners seeking to enhance the financial well-being of OFWs. By identifying the key factors affecting financial management, targeted interventions can be developed to improve financial literacy, promote savings, and manage debt among OFWs. Moreover, the study introduces a novel method for measuring self-control using a hypothetical scenario, which could be adapted to various contexts to capture the cognitive and behavioral aspects of financial management.

Second, the study underscores the importance of regional and migration-specific factors in shaping the financial behaviors of OFWs. It suggests that aid organizations, such as JICA, can enhance their impact by supporting financial management skills at both the individual and regional levels. This support might include improving agricultural productivity in OFW home regions, fostering better financial governance, and providing tailored assistance to specific migration contexts, such as the unique challenges faced by OFWs in Hawaii.

To further support these findings, several recommendations for policy and practice are proposed:

1. **Reassess Financial Literacy Programs:** Current financial literacy programs should be enhanced with practical, hands-on approaches, such as simulations or role-playing exercises, specifically tailored to the needs of OFWs. This strategy would help ensure that financial management concepts are more relatable and applicable to their unique contexts.
2. **Revise Loan Structures:** The association between having a loan and poorer financial management suggests that current loan terms may be misunderstood or disadvantageous to OFWs. Policymakers should consider implementing clearer loan terms, lower interest rates, and more flexible repayment schedules to alleviate these challenges.
3. **Promote Financial Advice Services:** Establishing services that provide accessible and affordable financial counseling could significantly improve decision-making among OFWs. These services would offer personalized guidance on loans, savings, investments, and other financial matters, thereby enhancing their overall financial management skills.
4. **Encourage Savings and Investments:** To reduce reliance on loans, policymakers should develop campaigns and incentives that encourage OFWs to save and invest their money. This could include matching savings contributions or providing tax benefits for certain types of investments, promoting a culture of long-term financial planning.
5. **Continuous Evaluation:** Regular monitoring and assessment of financial literacy programs are crucial to ensure they remain relevant and effective. By continually evaluating these programs, adjustments can be made as needed to better address the evolving financial needs of OFWs.

However, the study acknowledges certain limitations. The data used was not randomly selected, which may affect the generalizability of the findings. Future research should employ larger, more representative samples and comprehensive measures of financial situations, incorporating multiple indicators of income, expenditure, savings, debt, and assets. Additionally, more robust methods should be used to measure variables like mental accounting and self-control, ensuring the full spectrum and dimension of these concepts are captured.

Further studies should also consider using longitudinal or panel data to explore the dynamic relationships between these variables over time and apply advanced statistical methods to establish causality. Addressing these limitations will deepen our understanding of the financial challenges faced by OFWs and help develop more effective policies and interventions.

By advancing our knowledge in this area, this study aims to support the development of targeted, evidence-based strategies that will improve the financial resilience and well-being of OFWs, ultimately contributing to the broader socio-economic stability of the Philippines.

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Abstract (in Japanese)

要 約

本研究は、フィリピンの 2 つの農村地域であるディングラスとバンサラン出身の 313 名の海外フィリピン労働者 (OFWs) に対する調査データを用いて、彼らの財政状況に影響を与える要因を探求する。メンタル・アカウンティング、自己制御、人的資本、送金行動、金融リテラシーといった様々な側面が収入と支出のバランスに及ぼす影響を分析するために、多項ロジスティック回帰モデルを採用した。分析の結果、高等教育、長期的な未来志向、強化された自己制御が良好な財務管理に寄与した可能性がある一方で、金融リテラシープログラムへの参加、借入の存在、高額な個人支出が財政の悪化と関連している可能性があることが明らかになった。また、フィリピンで人気のファストフードチェーン「ジョリビー」を用いた仮想シナリオを通じて、OFWs の自己制御レベルを測定する新たな手法を提案している。最後に、本研究は OFWs およびその家族のファイナンシャル・ウェルビーイングを向上させるための政策的提言を行っている。

キーワード : 海外出稼ぎフィリピン労働者、財政状況、メンタルアカウンティング、金融リテラシー、送金行動

JEL コード : D14, D91, F22, F24, I22