Do Remittances Boost Household Spending: New Evidence from Migrants' Household Survey

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Declaration of Interest

The authors declare no competing interests.

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Abstract

Remittances play a crucial role in supporting households and rural communities, particularly in emerging markets like the Philippines. However, the 2014 "de-risking" policies and the 2020 COVID-19 pandemic have affected migration, employment, and remittance flows. Central banks are now working to better understand these shifts. This study examines how remittance recipients use these funds and what the impact of remittances is on household consumption. Through unique surveys conducted on migrant households and banks, findings show that cash remittances significantly boost household spending. The growth of remittances is positively influenced by the number of overseas Filipino workers (OFWs), unemployment rates, and peso depreciation, while high wages and transaction costs reduce remittances. These new results are consistent across multiple robustness tests.

Keywords: Remittances, household spending, migration

1. Introduction

In 2023, global remittances to low- and middle-income countries reached USD669 billion, up by 3.8 percent from the levels in 2022 (World Bank, 2023). While these flows reflect a recovery from the impact of the COVID-19 pandemic in the previous two years, concerns about the risk of declining real incomes for migrants in the face of global inflation and low growth prospects remain.

The growth in remittances in 2023 was particularly strong in Latin America and the Caribbean (8.0 percent), driven by increased employment opportunities in the United States (US). Remittance growth was also strong in South Asia (7.2 percent) mainly due to continued remittances to India. Growth was more moderate in East Asia and the Pacific (3.0 percent), although if China is excluded, the growth rate was 7.0 percent. Sub-Saharan Africa saw a 1.9-percent increase in remittances, matching the remittances growth for Nigeria, the region's largest recipient of remittances.

Remittance growth forecast for 2024 is 3.1 percent, but risks are tilted to the downside. This is due to potential escalations in the conflicts in Ukraine and the Middle East, increased volatility in oil prices and exchange rates, and deeper-than-expected economic slowdowns in high-income countries.

The US remained the largest source of remittances in 2023. The top five recipient countries were India (USD125 billion), Mexico (USD67 billion), China (USD50 billion), the Philippines (USD40 billion), and Egypt (USD24 billion). In the Philippines, personal remittances have been stable at 8.0–9.0 percent nominal GDP since 2017. However, cash remittances sent through banks have been slightly lower, at 7.0-8.0 percent, and cumulative growth for both types has trended downward (Bangko Sentral ng Pilipinas, 2024).

Remittances provide macroeconomic benefits remittance-dependent developing economies such as the Philippine, where a significant portion of the population lives and works abroad.

They augment foreign currency reserves, alleviate pressure on the exchange rate, and reduce the need for foreign borrowing. Unlike foreign borrowing and investments, remittances do not create future obligations. They also support capital market development, enabling recipients to accumulate productive assets and invest in financial instruments, while enhancing human capital. Remittances can also alleviate government financial burdens for social welfare programs.

Remittances are an attractive source of foreign exchange, as they are more stable and dependable than private capital flows, such as debt or equity investments. Bangko Sentral ng Pilipinas (BSP) data show that remittances were a significant source of foreign exchange for the Philippines from 2007–2023, next to foreign borrowing. Remittances are also less prone to sharp fluctuations of portfolio flows.

A substantial decline in remittances would have serious consequences at both the macroeconomic and household levels. Vulnerable remittance-receiving households could face reduced access to education and healthcare, negatively affecting their quality of life. Local communities that rely heavily on remittances could experience economic disruptions. For instance, during the COVID-19 pandemic, families of overseas Filipino workers (OFWs) saved and invested less. The percentage of households that used remittances to save dropped from 33.4 percent in Q4 2020 to 31.7 percent in Q4 2021. This figure slightly rose to 32.1 percent in Q1 2024. Similarly, those who used remittances for investments decreased from 11 percent in Q3 2021 to 6.2 percent in Q1 2024.

In Q1 2024, 96.6 percent of the 324 surveyed OFW households used remittances for food and household needs, 58.3 percent for medical expenses, and 10.8 percent for home purchases, all higher than in Q4 2023. Meanwhile, the proportion of households that used remittances for education (63.9 percent), savings (32.1 percent), consumer durables (18.8 percent), debt

payments (17.0 percent), motor vehicle purchases (7.4 percent), and investments (6.2 percent) declined from the figures in Q4 2023.

Despite slower remittance growth, data show that many households and rural communities still rely on remittances for their livelihood. This study examines how households use remittances and how remittances influence overall consumption in the Philippines.

Our study is guided by two research questions: First, do remittances significantly influence household spending; and second, what drives remittance inflows into the country? To address the first question, we analyzed data from the Survey on Overseas Filipinos (SOF) from 2007-2022, exploring remittance dynamics at household and regional levels. We used logistic regressions to assess the patterns of remittance use among households left behind by OFWs, supplemented by data from the Family Income and Expenditure Survey (FIES). To answer the second question, we estimated factors influencing regional remittance inflows using a panel generalized method of moments (GMM). This analysis was informed by an annual survey (2015-2023) of the financial costs of sending remittances to the Philippines, covering 44 universal and commercial banks and 15 non-bank entities.

Our findings indicate that cash remittances significantly affect household spending. The inflow of remittances is positively influenced by the number of OFWs abroad, the unemployment rate, and the depreciation of the peso. Conversely, higher regional wages and bank transaction costs reduce remittances.

The study is structured as follows: Section 2 reviews the literature; Section 3 presents the datasets; Section 4 examines the impact of remittances on household consumption; Section 5 analyzes remittance drivers; and Section 6 concludes with prospects and policy implications.

2. Our findings fit into the outcomes of related empirical literature

Consumption is a key component of any economy, contributing to government revenue through taxes on purchases and services. Household consumption plays a crucial role in driving economic growth, which is closely tied to household income. As household income increases, consumption tends to rise, further fueling economic growth. Yin et al. (2022) suggest that household consumption also affects financial development, poverty reduction, trade liberalization, and foreign capital flows.

To understand the impact of remittances, identifying the drivers of household income and consumption is essential. Yin et al. (2022) highlight that remittances significantly influence household consumption. Studies show that migration is often motivated by altruism, where migrants remit money to support their families, thus increasing household spending. This effect is more pronounced in countries with high unemployment and debt-laden households (Antoniades et al., 2018).

Another reason for remittances is to smoothen household consumption and diversify income sources (Rosenzweig & Stark, 1989). Similar to the altruism model, consumption smoothing leads to increased remittances when the home country's economy worsens. This is supported by Mandelman and Zlate (2012), who find that remittance flows respond to business cycles in both sending and receiving countries. Bedi et al. (2008) and Amuedo-Dorantes and Pozo (2011) also suggest that remittances act as a coping mechanism during economic shocks. Migrants may send money to fund investments or large purchases, such as education, healthcare, or real estate, or to build precautionary savings (Amuedo-Dorantes & Pozo, 2006). In this context, remittances act as insurance, particularly for new migrants facing uncertainty.

For instance, despite the COVID-19 pandemic, remittances to the Philippines remained stable in 2020. Personal remittances slightly decreased slightly by 0.8 percent, from USD33.5 billion in 2019 to USD33.2 billion in 2020, while cash remittances fell marginally to USD29.9 billion from USD30.1 billion. This modest decline contrasts with the Global Financial Crisis

(GFC) of 2009, when cash remittances grew by 5.6 percent, and the Gulf War in the early 1990s, when remittances saw double-digit growth. Policymakers acknowledge the resilience of remittances in supporting the Philippine economy during global economic shocks (Tuaño-Amador et al., 2022).

Remittance decisions are influenced by demographic, geographic, cultural, and economic factors, which vary across host and home countries. These motives are not mutually exclusive, as migrants often remit for multiple reasons, which evolve over time (Tuaño-Amador et al., 2022).

Our findings contribute to four areas of research on remittances and consumption: (1) the general relationship between remittances and consumption, (2) the different impact of remittances versus other income sources, (3) the effect of remittances on consumption volatility, and (4) the short- and long-run relationships between remittances and consumption. Most studies focus on individual countries with few cross-country comparisons.

The first group of studies consistently shows a positive relationship between remittances and consumption. Examples include Ramcharran (2020) for Latin America and the Caribbean, Dhakal and Oli (2020) for Nepal, Haider et al. (2016) for Bangladesh, and Ajefu and Ogebe (2020) for sub-Saharan Africa.

Several studies have also examined the determinants of remittances, considering household and migrant characteristics and macroeconomic factors. Income and wage differentials between migrant-hosting and origin countries are frequently cited as key determinants (Ratha et al., 2011). Adenutsi and Ahortor (2021), Bunduchi et al. (2019), and Yoshino et al. (2017) all report a positive relationship between wage differentials and remittances. However, Bunduchi et al. (2019) also note that higher tax burdens on labor income reduce remittances by lowering disposable income.

Several factors explain the resilience of remittance flows to the Philippines during extreme economic conditions, such as the COVID-19 pandemic. Overseas Filipinos (OFs) are a diverse group, and their ability to remit varies with employment stability. OFs in essential sectors, such as healthcare, likely continued sending remittances, while those in more vulnerable sectors experienced declines. According to the Philippine Statistics Authority's (PSA) SOF, the most affected groups included managers, clerical workers, and machine operators. Additionally, domestic conditions in the Philippines may have encouraged OFs to remit more, supporting the altruistic motivation. This paper explores these factors.

3. Data

We discuss in this section the annual pattern of overseas remittances and characteristics of the migrant recipient households based on the SOF from 2007-2022. We also present the supplementary secondary household survey database used and regional profile of migrant households.

a. Features of the Survey on Overseas Filipinos

We use the remittance information gathered in the SOF from 2007-2022 to explore the dynamics of remittances at the household and regional levels. The SOF is a nationally representative annual migrant household survey conducted by the PSA as a rider to the October round of the Labor Force Survey (Philippine Statistics Authority, 2019). Specifically, it captures the information of OFs who left the Philippines within five years prior to the reference period.

The SOF defines OFs as OFWs with and without contracts, Filipinos who work at a Philippine consulate or embassy abroad, and other Filipinos abroad, including tourists,

students, immigrants, and those on official mission. The reference period is from April to September of any given year.

The respondents of the SOF are the Philippine-based households whom OFs have left behind. It asks households about several migrant characteristics, such as sociodemographic characteristics, country or region of deployment, date of departure and expected return (if applicable), reason for going abroad, and information on remittance inflow and its allocation in household spending.

Respondents are asked three questions on remittance inflows. The first question asks, "*How much cash remittance was received by the family during the month of April to September 20XX?*" These include cash remittances coursed through banks, money transfer operators (MTOs), agencies/local offices, friends/co-workers, door-to-door transfers, and other channels. We use this information as the primary cash remittance data to study the relationship between remittances and households' spending behavior.

Apart from this, the survey also asks, "*How much cash did [the Overseas Filipino] bring home during the period April to September 20XX?*" This question is conditional on whether the OF returned to the Philippines from April to September of the reference year.

Finally, respondents are asked about the goods and products received by the Philippine-based households from their OF family members during the April-to-September reference period. The question asks the Philippine peso value of appliances, jewelry, chocolates and canned goods, alcoholic beverages, cigarettes, personal care and effects, clothing, and others. Similar to the first question, the data on the imputed value of in-kind remittances are encoded as the sum of the responses. This question is also conditional on whether the Philippine-based household received goods and products from the OF member during the reference period.

Responses to the three questions are valued in Philippine peso. In addition, consistent with the International Monetary Fund (IMF)'s[1], "personal remittances" is computed as the sum of the responses to the three questions.

The number of OFWs was estimated at 1.96 million in 2022, up by 7.6 percent from 1.83 million in 2021. Of the total OFWs, the number of overseas contract workers (OCWs), or those with existing work contracts, was recorded at 1.94 million. Other OFWs who worked abroad without working visas or work permits but were employed and worked full-time in other countries were estimated at 26,000. In terms of proportion to the total OFWs, OCWs had the larger share at 98.7 percent, while other OFWs had a 1.3 percent share.

Among age groups, the largest number of OFWs in 2022 was in age group 30 to 39 years old, which accounted for 41.4 percent of the total OFWs. The 45 years and over comprised the second largest group (22.7 percent), followed by the 25 years and below age group. In terms of occupation groups, OFWs engaged in simple and routine tasks[2] made up the largest share at 44.4 percent of the total OFWs in 2022. Service and sales workers were the second largest group of OFWs with 15.5 percent, while plant machine operators and assemblers were the third largest group, accounting for 12.4 percent.

Moreover, banks are the most preferred channel for sending cash remittances. In 2022, about ₱83.19 billion or 57.2 percent of the total cash remittances were sent by OFWs through banks. Cash remittances through money transfer services or through non-banks amounted to ₱59.85 billion or 41.2 percent. Around 1.6 percent of the cash remittances sent by the Filipinos working in other countries were sent through agency/local office of the OFW, friends/co-workers, door to door, and others.

INSERT FIGURE 1

As shown in *Figure 2*, Southern Tagalog (Region IV-A or CALABARZON) has the largest proportion of OFWs at 15.3 percent of the estimated 1.96 million OFWs in 2022. This was

followed by Central Luzon or Region III (13.3 percent), Western Visayas or Region VI (11.1 percent), National Capital Region (10.9 percent), and Ilocos Region or Region I (9.1 percent).

INSERT FIGURE 2

Figure 3 shows the top five destinations of OFWs in 2022: Asia (80.8 percent), Europe (9.0 percent), North and South America (6.3 percent), Australia (2.9 percent), and Africa (1.0 percent). Of the total 1.96 million OFWs in 2022, about 23.0 percent worked in Saudi Arabia, followed by the United Arab Emirates at 13.7 percent. Other Asian countries with many OFWs included Kuwait (7.7 percent), Hong Kong (6.1 percent), Qatar (5.8 percent), and Singapore (5.0 percent).

INSERT FIGURE 3

b. Remittance allocation information

The SOF asks the respondents how they spend cash remittances. More precisely, the survey asks, "*How was the remittance of [the Overseas Filipino] spent?*" The estimated percent share allocated towards consumption, investments, savings, gift, and others provided by the respondent. While the question provides useful information on the explicit allocation of cash remittances, it also has caveats. First, this question was introduced only during the 2008 SOF round; hence, previous years do not provide this information. Second, the option of spending cash remittances for gifts and donations was added only during the 2014 round. Third, a more itemized description of consumption allocation is not provided in the SOF. The literature highlights the important links between international remittances and expenditures on productive and welfare-enhancing products and services, such as healthcare, education, housing, and similar items. We supplement our analysis with the use of the FIES.

We analyzed the itemized expenditure information and the availability of data on whether households receive cash from abroad in the FIES. The FIES is a nationally representative

household survey that gathers information on family income and expenditure. The survey is conducted every three (3) years. In this study, we use the 2018 and 2021 rounds of the FIES to capture the pre-pandemic and post-pandemic information on household remittance receipt and domestic consumption.

4. Remittances and household spending in the Philippines

We analyze the spending and saving behavior of migrant and remittance-receiving households in this section. We primarily use the data from SOF to analyze the behavior of migrant households. We further supplement this with the FIES to expand the analysis on their spending and saving behavior.

a. Remittance-receiving households give greater priority to immediate consumption over saving and investing

Figure 4 shows the average saving and investing rate of OFW households. We It is discovered find that, on average, OFW households tend to allocate cash remittances to-wards savings than on investments. The saving rate for cash remittances peaked in 2009, where an average of 13.1 percent of cash remittances were allocated for savings. Since 2009, the average saving rate for cash remittances among OFW households has slightly declined to around 9.0-10.0 percent. Overall, the average saving rate from 2008 to 2022 is at 9.9 percent.

By contrast, the average investing rate for cash remittances is around 7.0–8.0 percent from 2008-2022. However, this rate gradually increased during the COVID-19 global pandemic in 2020 and 2021, surpassing the saving rate during the latter year to 10.6 percent.

INSERT FIGURE 4

The difference between the average saving and investing rate is also worth examining. *Figure 4* shows that the average difference between the average saving and investing rate has

steadily declined despite the aberration caused by the global pandemic in 2020–2021. Tuaño-Amador et al. (2022) argued that overseas remittances continued to hold up during the pandemic due to the government's support and regulatory relief measures for OFWs and their beneficiaries.

At the household level, about 50 percent of the pooled OFW households from 2008–2022 did not allocate cash remittances for savings (*Figure 5a*), while 75 percent did not allocate cash remittances for investments (*Figure 5b*). This is contrary to more than half of OFW households that allocated at least 90 percent of cash remittances for immediate consumption (*Figure 5c*). Furthermore, most OFW households did not allocate cash remittances for gifts and donations (*Figure 5d*).

INSERT FIGURE 5

We can conclude from these trends that while OFW households tend to allocate cash remittances toward savings than investments, the overall narrative on the OFW households' immediate spending pattern over time specifically starting 2015 may be relatively stable but soft.

b. Migration status and migrants' educational attainment affect households' remittance receipt allocation decisions

Docquier and Rapoport (2006) noted that consistent with the exchange motive, the size of remittances may increase alongside the migrants' intention to return home. Specifically, remittances may serve as funds to cater to possible post-retirement life and to take care of assets in the migrants' home country (Docquier & Rapoport, 2006; Mahapatro, 2017). These scenarios could make remittances allocated for savings or investments.

We assess this relationship for the Philippines' case in Table 1, where we compare the average saving and investing rate of OFW households and households with migrant members.

Our findings show that OFW households tend to save more than households with immigrant members.

INSERT TABLE 1

Following the theoretical predictions of Docquier and Rapoport (2006), migrants with a higher propensity to return to the Philippines (either permanently or temporarily) may remit with the intention of increasing future liquidity upon returning home. Filipino immigrants who may have less propensity to return to the Philippines have a lower incentive to send remittances for savings allocation. We cannot hold the same for investments, where there is no significant difference between the investing rate of the two groups. These predictions are also consistent when we use their expected date of return to the Philippines as an alternative measure of their propensity to return.[3]

Table 1 also presents the differences in the saving and investing behavior between migrants who have high school or lower level of education and migrants who have high school or higher education level. The allocative decision of remittance receipt based on educational attainment may give us some inferences on the financial literacy of remitters. Specifically, literature on financial literacy predicts that higher financial literacy compels individuals to make sound financial decisions (Agarwalla et al., 2013; Georgiou, 2015; Lusardi & Tufano, 2015). For migrants, results show that migrants with higher educational attainment have a higher saving rate than those with at most secondary education. However, consistent with the findings above, there is no significant difference between the investing behavior of these two classes of migrants.

Table 2 further provides the binomial logistic regression on the determinants of the saving and investing behavior of migrant households in odds ratio. We perform the regressions using cash remittances and personal remittances as alternative measures of remittance receipt towards households. We control for region of residence and the year in all regression runs.

INSERT TABLE 2

Findings show that higher cash and personal remittances received by migrant households are associated with higher odds of investing and saving. Meanwhile, migration status (i.e., whether the migrant is an OFW or an immigrant) may be a more robust indicator of the permanence or transience of migration than the propensity to return of a migrant. We find that migrant households with OFW members (whether contract- or non-contract-based) tend to save and invest more than migrant households with immigrant members. Consistent with the results in Table 1, educational attainment is also a viable indicator of whether a migrant household saves or invests. Finally, households with male migrants are more likely to save than those with female migrants. However, the same cannot be concluded for the investing behavior of migrant households.

Columns (1) and *(2)* assess the determinants of whether a migrant household allocates remittance receipt towards savings. *Columns (3)* and *(4)* show the determinants of whether the migrant household allocates remittance towards investments. From these results, we find that the migrants' heterogenous characteristics are significant determinants for the allocating decisions of migrant households. Further, these characteristics may reveal the motivations for remittances as theoretically predicted by Docquier and Rapoport (2006). However, these are not the only significant drivers of remittance flows towards migrant households. We can also infer the level of financial literacy of migrants from their educational attainment, and how it affects the allocating decision of their respective households.

c. Migrant households' immediate consumption tends toward non-food consumption relative to non-migrant households

The earlier section gives an overview of how remittances affect migrant household spending behavior through their allocation for savings, investments, and immediate

consumption. We see that migrant households still prioritize immediate consumption over saving and investing. The previous section further ex-pounds on the determinants of the saving and investing decision of migrant households. In this section, we turn to the item-by-item consumption decision of migrant households. We use the information in the FIES.

We compare the expenses of migrant and non-migrant households before and after the first year of the Covid-19 global pandemic. Figure 6 shows that on average, pre-global pandemic household expenditures are higher across households, and migrant households tend to have higher expenditures than non-migrant households. We also note that on average and in absolute terms, both migrant and non-migrant households tend to allocate their budget towards food relative to other consumption goods. In absolute terms, food consumption is higher for migrant households than non-migrant households, which is consistent with what is previously observed in the Philippines by Murakami, Shimizutani, and Yamada (2021).

Average education and health expenditures, which serve as proxies to human capital investments for households, may be higher among migrant households relative to non-migrant households. These observations generally hold true for 2021, which corresponds to the post-global pandemic year. However, we note that the average household expenditures are relatively lower than the pre-global pandemic period.

INSERT FIGURE 6

Findings from previous studies observed that migrant households tend to allocate more towards non-food expenditures and less on food expenditures than non-migrant households (Mishra, Kondratjeva, and Shively, 2022; Kamal and Rana, 2019; Wang, Hagedorn, and Chi, 2019) for as long as migrant households are not considered poor. This trend is consistent with Engel's Law, which states that lower income households tend to prioritize consuming essential goods particularly for nourishment relative to higher income households (Chai and Moneta, 2010). To assess this in the Philippine case, Figure 7 shows the share of selected commodities

to total household expenditure in 2018 and 2021 for migrant and non-migrant households. We show that while for all cases, the food consumption occupies the bulk of total household expenses, the share of food expenses is lower for migrant households in 2018 and 2021. In fact, about 50 percent of non-migrant household expenditures are from food expenditures. For both periods, expenditure towards non-food commodities and services of non-migrant households tend to be larger relative to the share of said commodities among migrant households.

It is worth noting that the average share of health and education expenses are relatively low even for migrant households, albeit higher than non-migrant households. We also see the impact of the global pandemic on migrant household spending, where the average share of health expenditures increased while the share of education expenditures decreased in 2021. Finally, Figures 6 and 7 show that expenditures on housing and utilities dominate non-food expenditures. These also include household spending on water, fuel, electricity, gas, and other utilities.

INSERT FIGURE 7

We further assess the effects of remittances on consumption spending of remittance-receiving households through an econometric technique. However, the analysis may be prone to two issues. First, the dataset used is a nationwide household dataset which comprises both migrant and non-migrant households. Hence, we are prone to a selection bias – that is, our subsample of migrant households from the database may not be randomly selected and remittance receipts are dependent on whether households have migrant members. Second, a reverse causation may exist between remittances and household expenditures, such as what is demonstrated in Mishra, Kondratjeva, and Shively (2022) and Ajefu and Ogebe (2020). The difficulty with the second issue is that identifying an instrument that only affects remittance receipts and not household consumption may be challenging either due to having weak instruments or due to data availability constraints. In the absence of a feasible set of

instrumental variables, we follow Randazzo and Piracha (2019) in assessing how remittances affect household spending behavior.

According to Randazzo and Piracha (2019), in the absence of strong and reliable instruments, we may estimate the average treatment effect through a propensity score matching (PSM) technique. This method assesses the difference between the average expenditure behavior of remittance-receiving households with the non-receiving households. Further, since we are interested at the marginal expenditure behavior of households, we implement the Working-Leser model. Hence, Randazzo and Piracha (2019) used the Working-Leser method with the following specification:

$$Y_{ij} = \beta_0 + \beta_1 \ln cons_j + \boldsymbol{X^T \gamma} + \theta_i R_{dj} + \varepsilon_{ij} \quad (1)$$

where Y_{ij} is the budget share for a good i of household j, $\ln cons_j$ is the natural logarithm of total household expenditure, $\boldsymbol{X^T}$ are the control covariates, R_{dj} and pertains to the dummy variable of whether the household receives remittances. Control variables include the region of residence, household head age, and the ratios of female household members, married household members, employed household members, and household members with at least secondary educational attainment.

While this approach addresses issues of endogeneity, selection bias still persists. Randazzo and Piracha (2019) suggest the use of a multinomial treatment regression (MTR) model. However, this requires transforming into a multinomial variable that shall serve as the selection dependent variable to address the selection bias issue. In this study, we distinguish between households that receive international remittances, those who receive domestic remittances only, and those who do not receive remittances. Further, the excluded variables in the selection model include the number of RTCs and UKBs per square kilometer in a province, the migration rate in the province, and the ratio of OFWs in the household.

Given this, Table 3 shows the baseline average treatment effects of receiving remittances using the propensity score matching technique. The results suggest that remittance-receiving households indeed have a lower share of food expenditures than non-receiving ones. Meanwhile, remittance-receiving households tend to spend more on health, education, clothing, and housing and utilities. Table 4 provides corrected coefficients when the selection bias is addressed. As seen in the results, external remittance recipients' food expenditure share is 0.097 percent lower than non-remittance recipients. Meanwhile, remittance-receiving households have 0.038 percent and 0.054 percent higher expenditures on education and health, respectively. Finally, there are no significant differences between these households' expenditures on durable goods.

INSERT TABLE 3

INSERT TABLE 4

A Working-Leser specification also allows us to determine the expenditure elasticity of goods and assess whether households treat remittances differently from other types of income. Consistent with the previous results, Table 5 shows that remittance-receiving households allocate foreign remittances into productive use.[4] However, no significant differences arise in the allocation towards relatively non-essential commodities. Hence, this coincides with the body of literature that remittances are treated as transitory income rather than compensatory income.

INSERT TABLE 5

d. Rise in financial costs of sending remittances dampens remittance flows

The earlier section of this paper shows that banks and non-banks are the most preferred channels for sending cash remittances. Using the data gathered from supervised banks and non-banking financial institutions of the BSP, *Figure 8* and *Figure 9* show the average financial cost

per transaction of outgoing remittances. Real-Time Gross Settlement (RTGS) is a funds transfer system that allows for the instantaneous transfer of money, securities, or other obligations on a transaction-by-transaction basis. The lone Peso RTGS system in the Philippines is the PhilPaSS^{plus}, which is owned and operated by the BSP in accordance with its authority under the National Payment Systems Act. The PhilPaSS^{plus} enables efficient and low-risk settlement of large-value fund transfers between financial institutions. It also facilitates the settlement of fixed-income security trades, foreign exchange trades, and other financial market transactions. By settling retail payment clearing results, the PhilPaSS^{plus} ensures that individuals, businesses, and the government can securely send and receive money through several channels—check, ATM, InstaPay, and PESONet.

Meanwhile, the Philippine Domestic Dollar Transfer System (PDDTS) is the only Philippine payment system that allows dollar-fund transfers from one bank to another without going through correspondent banks in the US Specifically, when sending remittances, the beneficiary or the bank may opt to debit/credit the peso or USD account. Beneficiaries of overseas remittances may also pick up the remittances from banks.

Figure 8 shows that relative to average cash remittances per OFW, transfer fees for outgoing remittances to any location in the Philippines done through the PDDTS are relatively more expensive than other channels. However, fees imposed by non-banks are less expensive.

INSERT FIGURE 8

INSERT FIGURE 9

For incoming remittances, the fees for telegraphic transfers and the Society for Worldwide Interbank Financial Telecommunication (SWIFT) are more expensive. Worth noting is that intermediary fees are included in telegraphic transfers. *Figure 9* shows that remittances from abroad to the Philippines can be sent through RTGS, PDDTS, telegraphic, or SWIFT. In many respondent UKBs, intermediary fees and additional transfer fees in the form of penalties (e.g.,

amendments to transfer details, cancellation), if any, are collected from beneficiaries of overseas remittances.

The decline in cash remittances from 2015 may also be attributed to the termination or restriction of business relationships between remittance companies and smaller local banks in certain regions of the world or the practice of "de-risking."

This is related to the impact of increasing global anti-money laundering (AML) requirements and the hefty penalties imposed by some jurisdictions (e.g., the US, the United Kingdom) for AML violations. Based on reports, there were cases of de-risking in 2014 where foreign correspondent banks closed the accounts of Philippine banks. The effect is a reduction in cross-border corridors and difficulty in processing/sending cross-border transactions, including cash remittances. These remittances are also usually coursed through banks by land-based and sea-based workers. Cash remittances for the period ending December 2015 dropped to 7.1 percent from an annual growth of 9.4 percent in the same period in the previous year. There could be other factors that affect the trend of cash remittances. Meanwhile, evidence is still limited on whether OFW and migrant households exhibit consistency with Engel's law, as demonstrated in the studies of Kamal and Rana (2019), Wang, Hagedorn, and Chi (2019), and Mishra, Kondratjeva, and Shively (2022) on migrant households in Bangladesh, Kyrgyzstan, and Nepal, respectively. With this, a crucial question arises: Will OFW households' consumption spending—a crucial component of the national expenditure account—hold up over the medium run?

5. What determines remittance receipts?

It is clear from the previous section that remittances affect the spending behavior of migrant households. Migrant-level heterogeneities also influence the allocating decisions of

households for immediate consumption and savings. Given the role of remittances on consumption, this section assesses the drivers that allow remittance receipts to persist.

a. Panel data empirical methodology

We compile an annual panel dataset of remittances by aggregating cash and personal remittances from the SOF based on the 17 regions of the Philippines from 2007-2022. We also add subnational variables into the panel dataset, which include the gross regional domestic product (GRDP) per capita, the number of OFWs, the average regional wage, unemployment rate, inflation rate, and bank deposit liabilities. The GRDP per capita and inflation rate are from the published data of the PSA. Bank deposit liabilities, which are obtained from the BSP, may serve as proxy for financial development in a region (Odhiambo & Nyasha, 2020). We also use the following national-level variables in lieu of any subnational measure: nominal USD-to-PHP exchange rate, and incoming remittance transfer costs. We proxy the latter variable with our surveyed data on the average telegraphic transfer fees of sending remittances from abroad to the Philippines through banks. Using these variables, we estimate the following equation:

$$\begin{aligned} Remit_{it} = {} & \beta_1 + \beta_2 Remit_{it-1} + \beta_3 GRDPpc_{it} + \beta_4 OFW_{it} + \beta_5 wage_{it} \\ & + \beta_6 \pi_{it} + \beta_7 unemployment_{it} + \beta_8 forex_t + \beta_9 cost_t \\ & + \varepsilon_{it} \end{aligned} \qquad (2)$$

We get the logarithmic transformation of the remittance receipts and the regressors except for unemployment rate, inflation rate, exchange rate, and remittance transaction cost. The regressors in Equation (2) may be heavily affected by endogeneity. To mitigate this, we estimate Equation (2) using the two-step system panel GMM following Roodman (2009). The methodology allows the lagged values of the dependent variable and the covariates to be used as instruments for the endogenous regressors, while allowing the number of instruments to be greater than the number of regressors. Table 6 shows the descriptive statistics for the covariates

used in the model. The table shows that on average, each region has 139,000 OFWs deployed abroad from 2007-2022. The average regional daily wage recorded in the Labor Force Survey is ₱354.13, while the unemployment rate stands at an average of 6.0 percent across all regions.

INSERT TABLE 6

b. Panel data results

This section shows the regression results from the panel GMM. We show the determinants of cash and personal remittances by estimating Equation (1). We also provide the results of the same types of remittances sent by land-based and sea-based OFWs as checks for alternative specifications of the model. Columns (1) to (3) of cash and personal remittances in Table 7 shows the specification of the model should the development indicator be the GRDP per capita. Column (4) under the two types of remittances estimates Equation (2) where the development indicator pertains to financial development.

The specification for cash remittances shows that should the USD/PHP nominal exchange rate and remittance transfer costs be excluded from the estimation, the model tends to perform poorly. In fact, Column (1) shows that only the number of OFWs abroad and inflation are significant determinants of remittance receipts. When the aforementioned variables are included in the estimation, as in Column (4), we have the following results. First, cash remittance receipts increase with the GRDP per capita. Second, should the average wage rate in the resident regions of OFWs increases, remittance receipts tend to decline. Regional unemployment rate is also a significant determinant of remittance receipts, where higher unemployment rate may increase remittances. Exchange rate depreciation would also increase remittance receipts, while higher transfer costs significantly decrease them. For the specification that uses financial development, higher financial development (as indicated by

outstanding bank deposit liabilities) may increase cash remittances. Further, only regional wage rates and transfer costs are significant in this specification.

INSERT TABLE 7

For personal remittances, Column (3) shows the muted effects of GRDP per capita on remittance receipts. Only the number of OFWs abroad, exchange rate, and transfer fees are significant and positively correlated with their effects on cash remittances. The negative impact of transfer fees on personal remittances suggests that the dominant effect in this dynamic is between transfer fees and cash remittances, which is a significant subset of personal remittances. The effect of financial development still holds for personal remittances, as suggested in Column (4).

Overall, the results suggest the following important findings: First, at a regional and annual level, remittance receipts can be procyclical with economic development. This is aligned with the literature about the investment motive of remittances concerning business cycles (De et al., 2019; Docquier & Rapoport, 2006). This means that while remittances may expand during growth periods of regional economies, they may also contribute to the decline of regional economies during recessionary periods (Tuaño-Amador et al., 2022).

Second, while the investment motive is relative to the relationship between remittances and GRDP per capita, a relatively altruistic motive may be suggested by the relationship between the regional unemployment rate and remittance receipts. Higher unemployment rates may expose households to an unfavorable labor market; hence, domestic receipts and household consumption may be vulnerable. From an altruistic perspective, the positive relationship between a higher unemployment rate and remittances may suggest that the latter serves as a possible cushion or insurance against any detrimental effects caused by the former. This conclusion conflicts with the investment motive of remittances, where a higher unemployment rate tends to weaken the bargaining power of resident households, hence, lower remittance

receipts. The altruistic motive can also be observed in the negative relationship between remittances and regional wage rates. Docquier and Rapoport (2006) suggest that the altruistic motivation to remit decreases as domestic incomes increase. This is because the latter phenomenon reduces the necessity for migrant households to receive transfers.

It is no surprise that these two oft-cited motives of remittances can coincide as determinants of remittance receipts since the estimation results are conducted at an aggregated level. Hence, while heterogeneous motivations already exist at an individual level, further heterogeneity of remittance motives exists at the regional level.

We also see two other important drivers of remittance receipts apart from motivation-related drivers. The first factor is telegraphic transfer fees for incoming remittance receipts through banks. Intuitively, higher costs may significantly and negatively affect remittance receipts. This becomes an important factor since the previous figures show that telegraphic transfer fees for incoming remittances comprise around 6.0–7.0 percent of the average remittance receipts sent by OFWs. This represents the cost of sending remittances through the Philippines' formal financial intermediaries. We note that the estimated costs are higher than the reported declines in remittance costs of about 4.0 percent of remittances in 2021 and the target reduction to less than 3.0 percent in line with Sustainable Development Goal (SDG) 10: Reduced Inequalities. Reducing transfer costs in formal financial institutions at the domestic side of remittance corridors may also incentivize the further inclusion of households into the formal financial sector.

Financial development is also key to increasing remittance receipts. This is especially true if this occurs within the circumstances of (1) financial inclusion into the formal financial sector, and (2) lower transfer fees within the formal financial sector, as mentioned above. The results above become more meaningful as financial development is measured through bank deposit liabilities. An increase in this metric may suggest an increase in uptake in formal financial

services rather than the mere availability of formal financial services in regions. Therefore, should an increase in demand for formal financial services, the realization of this demand, and coupled with lower transfer fees for remittances in this sector occur, then remittance receipts may increase.

We also provide alternative specifications for the model to assess whether the same results and implications hold for land-based and sea-based remittances in Table 8. Columns (1) and (2) of cash and personal remittances correspond to receipts from land-based OFWs, while Columns (3) and (4) correspond to receipts from sea-based OFWs. Among the potential drivers for remittances, transfer fees remain to have a highly significant and negative effect on remittances sent by land-based OFWs. This effect is relatively more muted for the case of remittances sent by sea-based OFWs. The remaining determinants of remittances apart from the number of land-based and sea-based OFWs abroad generate inconclusive or weakly significant effects on cash and personal remittance receipts. We cannot draw similar conclusions regarding the possible altruistic and self-interested motivations at the level of deployment type as with the results in Table 7. These inconclusive results may suggest the need to assess the motivations of sea-based and land-based OFWs at a more granular level. However, data limitations in the SOF might hinder the current undertaking to substantially draw results on these matters.

INSERT TABLE 8

6. Conclusion

Our study investigates whether remittances affect the spending behavior of households. Should remittances have a positive impact on the spending behavior of households, we assess the factors that drive the flow of remittance receipts into the country.

In our analysis, we find that OFW households prioritize immediate consumption over saving and investing. Second, migration status and migrants' educational attainment affect households' remittance receipt allocation decisions. This is specifically true when differentiating between the saving rate of OFW households from migrant households, as the former reveals the intention of OFW members to return to the Philippines and have enough liquidity should they decide to settle in the country. Third, migrant households' immediate consumption tends towards non-food consumption relative to non-migrant households. These non-food commodities are largely welfare-inducing commodities such as health, education, and housing. The allocation towards productive consumption goods shows that remittances are treated as transitory income.

Given the welfare-inducing effect of remittances toward remittance-dependent households, we also assess the drivers and barriers of remittance receipts at the regional level. Our estimates reveal that receipt of cash remittances is positively driven by the number of OFWs abroad, unemployment rate, and the depreciation of the peso against the dollar. However, high regional wages and bank financial transaction costs reduce remittance receipts. The effect of unemployment rate and wages on remittance receipts highlight the altruistic motivation of sending remittances. This suggests that in the short-term, remittances may cushion the welfare-reducing effects of shocks on the labor market that induces higher unemployment rate and lower wages such as what had occurred during the height of the COVID-19 pandemic. However, given the global effect of such shocks, this may also expose remittance-receiving households to risks if their OF members cannot send remittances due to the economic conditions in their respective host countries. This phenomenon remains unexplored in this study and could be the subject of a future research.

Financial development tends to increase remittance receipts in the country, provided that this is accompanied by greater financial inclusion in the formal financial sector and lower

transaction costs in using formal remittance channels. The role of transaction costs is pivotal since it has been observed that the apparent decline in cash remittances can be attributed to the rise in the cost of sending remittances from abroad to any point in the Philippines. Should transaction costs remain high, remitters may be incentivized to use informal and unregulated channels of remittances.

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Endnotes

[1] From the perspective of the balance of payments (BOP), personal remittances are defined as the sum of current and capital transfers receivable from households and the net compensation of employees. This already includes remittances (in cash and in kind) that flow through informal channels.

[2] In the SOF, this is also called "elementary occupations," which typically require handheld tools and considerable physical effort. It includes cleaning; restocking supplies and performing basic maintenance in apartments, houses, kitchens, hotels, offices, and other buildings; washing cars and windows; helping in kitchens and performing simple tasks in food preparations; delivering messages or goods; carrying luggage and handling baggage; doorkeeping and property watching; stocking vending machines or reading and emptying meters; collecting garbage; sweeping streets and similar places; performing various simple farming, fishing, hunting, or trapping tasks; performing simple tasks connected with mining, construction, and manufacturing, including product-sorting and simple hand-assembling of components; packing by hand; freight handling; pedaling or hand-guiding vehicles to transport passengers and goods; and driving animal-drawn vehicles or machinery.

[3] The SOF asks the expected date of return of a household's migrant member. The question also allows "Not Expected to Return" as a response.

[4] The expenditure elasticity of remittance-receiving households tends to be lower than non-receiving households. This may be explained by the remittance-receiving households' diminishing marginal utility from consuming the said commodities since the expenditure share of these commodities to the total expenditure of households tends to be higher than the expenditure share of non-receiving households.

List of Tables

Table 1. Comparison of Average Saving, Investing, and Consumption Rate across Different Migrant Characteristics

	Sample Size	Saving Rate	Investing Rate	Consumption Rate
A. Overseas Filipino status				
OFW	48,067	10.354	8.113	78.621
Immigrant	522	7.398	7.153	81.872
T-statistic (1-tail)		4.506***	1.196	-2.786[a]
B. Propensity to Return				
Expected to return	36,760	10.280	8.126	78.991
Not expected to return	3,985	9.646	7.958	79.294
T-statistic (1-tail)		-2.347**	-0.569	0.712
C. Educational Attainment				
HS or higher	44,876	10.582	8.028	78.521
At most HS	3,859	7.311	8.873	80.432
T-statistic (1-tail)		-13.430***	2.723	4.605[a]

*Note: * p < 0.10, ** p < 0.05, *** p <0.01*

[a] *These results assess whether the mean of the second category is greater than the mean of the first category. Results are significant at p < 0.01. For the remaining saving and investing rate columns, the one-tail t-test assesses whether the mean of the first category (i.e., OFW) is greater than the mean of the second category (i.e., immigrant). HS pertains to high school. The average saving and investing rates are in percent. The t-test with unequal variances is done for the pooled sample of migrant households from 2007 to 2022. For the test on the differences by educational attainment, we include Overseas Filipinos who are not OFWs nor immigrants.*

Source of basic data: Authors' calculations; Philippine Statistics Authority.

Table 2. Logistic Regression (reported in odds ratios) on the Saving and Investing Behavior of Migrant Households (robust standard errors in parenthesis)

	Saving		Investing	
	(1)	(2)	(3)	(4)
Cash remittance (natural log)	1.768***		1.796***	
	(0.024)		(0.027)	
Personal remittance (natural log)		1.704***		1.711***
		(0.022)		(0.025)
Overseas Filipino Worker	1.442***	1.460***	1.336**	1.353**
(base: immigrant)	(0.157)	(0.157)	(0.160)	(0.162)
Propensity to return	0.995	0.982	1.008	0.994
(base: not expected)	(0.036)	(0.035)	(0.041)	(0.040)
Educational attainment	1.203***	1.192***	0.931*	0.925*
(base: at most HS)	(0.050)	(0.049)	(0.040)	(0.040)
Age	0.982**	0.980***	0.957***	0.955***
	(0.007)	(0.007)	(0.008)	(0.008)
Age-squared [a]	1.000*	1.000**	1.000***	1.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Sex (base: female)	1.425***	1.438***	0.993	1.008
	(0.031)	(0.032)	(0.024)	(0.025)
Year controls	Yes	Yes	Yes	Yes
Regional controls	Yes	Yes	Yes	Yes
Wald chi-square	3,794.31***	3,695.67***	2,347.68***	2,251.36***
Pseudo R-square	0.077	0.075	0.055	0.052
No. of observations	43,089	43,090	43,089	43,090

Note: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

[a] *Standard errors are small and cannot be displayed at three decimal places.*

Source of basic data: Authors' Calculations; Philippine Statistics Authority.

Table 3. Average Treatment Effects between Remittance and Non-Remittance Receiving Households

Consumption as share to total expenditure	Average treatment effects	Robust standard errors	Sig.	No. of obs.
Food	-0.0133	0.0008	***	147,717
Education	0.0021	0.0003	***	147,717
Health	0.0022	0.0004	***	147,717
Clothing	0.0018	0.0002	***	147,717
Housing and utilities	0.0124	0.0007	***	147,717
Durable goods	-0.0003	0.0004		147,717

Source of basic data: Authors' calculations; Philippine Statistics Authority.

Table 4. Multinomial Treatment Regression results for the Working-Leser Model (standard errors in parenthesis)

Dependent variable	Food	Education	Health	Clothing	Housing & Utilities	Durable Goods
External recipient	-0.0097***	0.0038***	0.0054***	0.0016***	0.0111***	0.0001
	(0.0009)	(0.0003)	(0.0004)	(0.0002)	(0.0008)	(0.0005)
Internal recipient only	0.0026***	0.0018***	0.0070***	0.0004**	-0.0045***	0.0041***
	(0.0009)	(0.0003)	(0.0004)	(0.0002)	(0.0008)	(0.0006)
Total expenditures	-0.1375***	0.0153***	0.0144***	0.0033***	0.0081***	0.0307***
(in natural log)	(0.0005)	(0.0002)	(0.0002)	(0.0001)	(0.0005)	(0.0003)
Region of residence	0.0126***	-0.0101***	-0.0109***	-0.0096***	0.0675***	-0.0191***
(base: Outside National Capital Region)	(0.0008)	(0.0003)	(0.0004)	(0.0002)	(0.0007)	(0.0005)
Proportion of female household members	-0.0100***	-0.0003	0.0044***	-0.0023***	0.0163***	-0.0029***
	(0.0011)	(0.0004)	(0.0005)	(0.0002)	(0.0010)	(0.0007)
Age of household head	-0.0009***	-0.0009***	0.0005***	-0.0001***	0.0011***	-0.0002***
	(0.00002)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Proportion of married household members	0.0090***	-0.0061***	0.0052***	-0.0017***	-0.0096***	0.0019***
	(0.0009)	(0.0004)	(0.0004)	(0.0002)	(0.0008)	(0.0006)
Proportion of household members with	-0.0513***	0.0041***	0.0026***	0.0048***	0.0317***	-0.0133***
at least secondary education	(0.0010)	(0.0004)	(0.0005)	(0.0002)	(0.0008)	(0.0006)
Family size	0.0262***	-0.0031***	-0.0038***	-0.0004***	-0.0139***	-0.0028***
	(0.0001)	(0.0001)	(0.0001)	(0.00003)	(0.0001)	(0.0001)
Proportion of household members who	-0.0042***	-0.0100***	-0.0151***	0.0016***	-0.0246***	0.0047***
are currently employed	(0.0010)	(0.0004)	(0.0005)	(0.0002)	(0.0009)	(0.0006)
Constant	2.1015***	-0.1557***	-0.1655***	-0.0041***	0.0918***	-0.3245***
	(0.0059)	(0.0023)	(0.0028)	(0.0013)	(0.0052)	(0.0036)
Wald chi-square	204,745.97***	45,912.46***	46,766.16***	40,053.82***	74,810.36***	45,137.36***

*Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

Source of basic data: Authors' calculations; Philippine Statistics Authority.

Table 5. Expenditure Elasticities of Commodities for External Remittance Recipients and Non-Recipients (standard errors in parenthesis)

	Food	Education	Health	Clothing	Housing and utilities	Durable Goods
Non-remittance receiving	-0.0236	0.8578	2.5351	0.1230	0.0696	0.0097
	(0.0001)	(0.0158)	(0.0393)	(0.0015)	(0.0002)	(0.0002)
External remittance recipient	-0.0245	0.7057	1.9141	0.1221	0.0658	0.0097
	(0.0000)	(0.0110)	(0.0322)	(0.0012)	(0.0002)	(0.0002)
Two-tailed test	9.748***	8.158***	12.524***	0.498	14.665***	0.1939

*Note: * p < 0.10, ** p < 0.05, *** p < 0.01*

Source of basic data: Authors' calculations; Philippine Statistics Authority.

Table 6. Descriptive Statistics of Independent Variables, Pooled Dataset (2007 – 2022)

Variable	Obs no.	Mean	Std. Dev.	Min	Max
Gross regional domestic product per capita[1]	272	120,985.40	72,396.10	40,753.76	456,532.50
Number of OFWs	272	138,797.10	116,708.10	15,910.70	562,871.70
Average regional wage[1]	272	354.13	100.57	186.15	706.72
Inflation rate[3]	272	0.0386	0.0212	-0.0008	0.1283
Unemployment rate[3]	272	0.0598	0.0223	0.0234	0.1337
Nominal exchange rate (USD to PHP)	272	47.3153	3.6392	42.2373	54.5019
Telegraphic transfer fee (as ratio to average remittance per OFW)[3]	272	0.0700	0.0049	0.0599	0.0772
Bank deposit liabilities[2]	187	685,493.5	1,875,817.7	5,470.7	11,641,012.1

Source of basic data: Authors' calculations; Philippine Statistics Authority

[1] in PHP

[2] in million PHP

[3] in ratios

Table 7. Two-step Panel System GMM Results for Cash and Personal Remittances Sent by All Types of Overseas Filipino Workers, 2007 – 2022.

Dependent variable	Cash remittances				Personal remittances			
(in natural log):	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Cash remittances (-1)	0.228	0.123	-0.109	0.221				
(natural log)	(0.173)	(0.249)	(0.17)	(0.167)				
Personal remittances (-1)					0.266***	0.216	0.0288	0.137
(natural log)					(0.0973)	(0.191)	(0.154)	(0.161)
GDRP per capita	0.937	0.931	1.086**		0.825	0.887	0.435	
(natural log)	(0.728)	(0.863)	(0.545)		(0.529)	(0.634)	(0.664)	
Bank deposit liabilities				0.505**				0.092
(natural log)				(0.249)				(0.185)
Number of OFWs	0.607**	0.650**	0.579***	0.453	0.511**	0.644***	0.856***	0.731***
(natural log)	(0.247)	(0.281)	(0.187)	(0.317)	(0.232)	(0.220)	(0.317)	(0.272)
Average regional wage	-0.345	-0.537	-0.525*	-0.933**	-0.465	-0.719**	-0.426	-0.602*
(natural log)	(0.373)	(0.484)	(0.309)	(0.401)	(0.323)	(0.351)	(0.323)	(0.366)
Inflation	2.221**	1.069	-0.361	2.325	3.349**	2.706*	0.817	2.247**
	(1.048)	(1.313)	(1.001)	(1.620)	(1.383)	(1.588)	(1.256)	(1.059)
Unemployment rate	0.394	1.898	3.632*	0.592	-0.581	0.879	0.751	0.648
	(2.223)	(3.421)	(2.128)	(1.931)	(2.212)	(3.043)	(2.118)	(2.040)
Nominal exchange rate		0.0203*	0.0203***	0.00162		0.0189*	0.0183**	0.0223***
(USD to PHP)		(0.011)	(0.00717)	(0.0191)		(0.0107)	(0.00771)	(0.00697)
Telegraphic Transfer Fee			-12.46***	-12.72*			-15.16***	-12.99
(as ratio to average remittance per OFW)			(2.462)	(7.462)			(5.362)	(8.839)
Constant	-1.302	3.331	8.319***	5.389	3.832	3.227	9.720**	12.09***
	(3.953)	(3.535)	(3.136)	(4,206)	(3.150)	(2.943)	(4.735)	(3.432)
No. of panels			17				17	
Years		2007-2022		2012-2022		2007-2022		2012-2022
No. of observations		255		187		255		187
Wald chi-squared	114.56***	304.21***	3,125.20***	885.24***	91.77***	196.28***	503.47***	266.98***
Sargan Test of overid. restrictions	155.54	168.83	160.97	117.85	181.81***	188.51**	181.48**	134.89**
Hansen Test of overid. restrictions	10.59	11.01	3.58	6.75	11.77	12.22	6.89	3.80

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

Source of basic data: Authors' calculations; Philippine Statistics Authority.

Table 8. Two-step Panel System GMM Results for Cash and Personal Remittances Sent by Land-based and Sea-based Overseas Filipino Workers, 2007 – 2022

Dependent variable	Cash remittances				Personal remittances			
(in natural log):	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Cash remittances (-1)	0.0877	0.0692	-0.0149	0.158				
(natural log)	(0.173)	(0.125)	(0.264)	(0.288)				
Personal remittances (-1)					-0.0425	0.0636	-0.140	-0.0243
(natural log)					(0.228)	(0.113)	(0.446)	(0.242)
GRDP per capita	1.410		1.069		0.796		4.647	
(natural log)	(1.091)		(2.441)		(1.044)		(6.453)	
Bank deposit liabilities		0.726**		0.363		0.441		0.156
(natural log)		(0.318)		(1.072)		(0.356)		(0.614)
Number of OFWs	0.634**	0.577**	1.016***	1.163**	0.905***	0.903***	1.099**	1.006***
(natural log)	(0.284)	(0.277)	-0.282	(0.577)	(0.145)	(0.306)	(0.557)	(0.294)
Average regional wage	-0.520	-1.156**	-1.359	-1.540	-0.629	-0.944	-3.735	-1.821
(natural log)	(0.563)	(0.543)	-1.203	(2.021)	(0.529)	(0.716)	(3.392)	(1.303)
Inflation	1.351	2.013	1.174	2.046	1.260	2.238	2.016	0.233
	(2.389)	(1.719)	(4.208)	(5.726)	(1.279)	(1.754)	(2.477)	(1.601)
Unemployment rate	3.477	1.54	6.966	4.833	3.525	0.394	16.640	5.821
	(3.357)	(1.701)	(7.329)	(4.792)	(3.372)	(1.870)	(17.670)	(5.109)
Nominal exchange rate	-0.0068	-0.0122	0.0301	0.0277	0.00611	-0.00559	0.00281	0.0594*
(USD to PHP)	(0.0178)	(0.0159)	(0.0497)	(0.052)	(0.00942)	(0.0192)	(0.0758)	(0.0345)
Telegraphic Transfer Fee	-11.970**	-19.030***	-24.08*	-20.13	-19.160**	-20.320*	-21.550	-14.690
(as ratio to average remittance per OFW)	(6.031)	(6.018)	(14.510)	(15.850)	(7.845)	(11.550)	(20.040)	(15.670)
Constant	0.509	3.814	6.791	5.807	8.257*	6.415	-18.230	16.810**
	(7.248)	(4.415)	(21.330)	(22.190)	(4.952)	(6.171)	(47.630)	(6.954)
No. of panels	17	17	17	17	17	17	17	17
Years	2011-2022	2011-2022	2011-2022	2011-2022	2011-2022	2011-2022	2011-2022	2011-2022
No. of observations	170	170	163	163	170	170	163	163
Wald chi-squared	142.45***	304.53***	103.40***	130.09***	3002.23***	262.51***	72.68***	60.53***
Sargan Test of overid. restrictions	102.6	99.31	119.09*	119.74*	107.64	114.05	103.89	101.22
Hansen Test of overid. restrictions	9.11	6.08	9.24	8.40	9.46	7.62	8.01	8.89

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

The lag of cash and personal remittances pertain to the land-based and sea-based remittances received by regions per column. Columns (1) and (2) of each type of remittance corresponds to land-based remittances, while Columns (3) and (4) corresponds to sea-based remittances. The number of OFWs under these columns also correspond to land-based and sea- based deployment, respectively.

Source of basic data: Authors' calculations; Philippine Statistics Authority.

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Figure 1. Distribution of OFWs across Different Age Groups, 2007–2022. (Source of basic data: Authors' calculations; Philippine Statistics Authority)

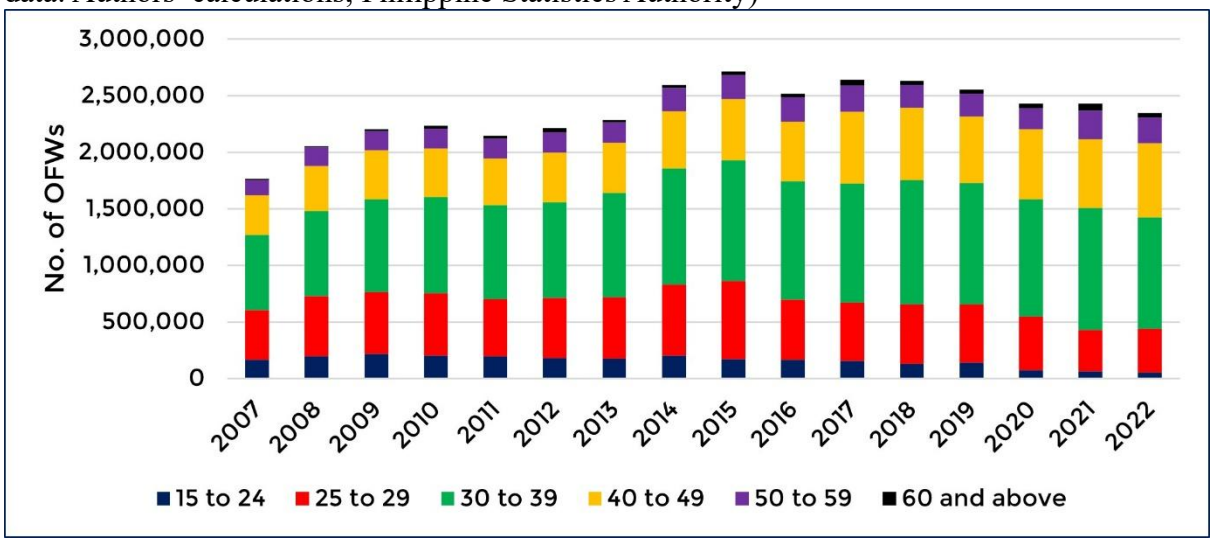

Figure 2. OFW Region of Residence, 2007–2022. (Source of basic data: Authors' calculations; Philippine Statistics Authority)

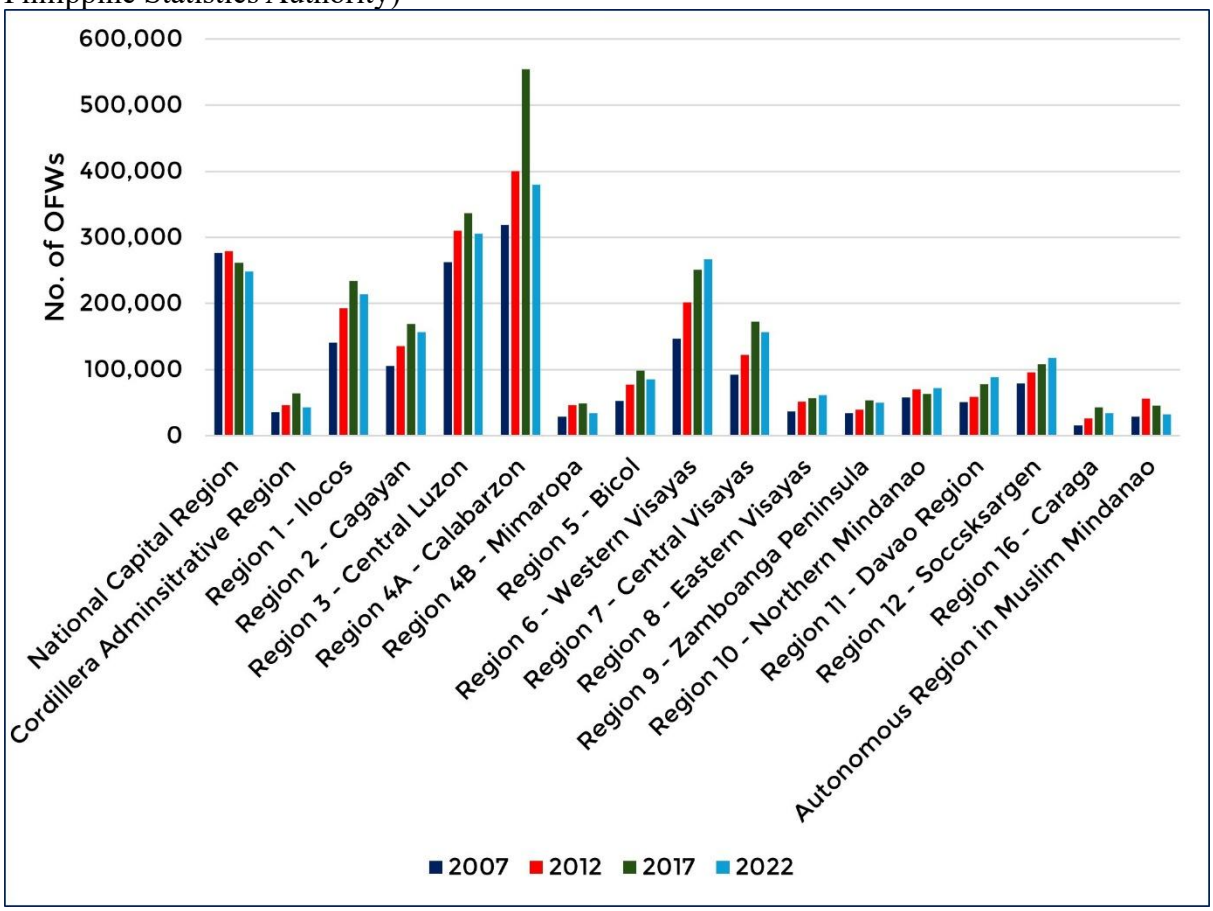

Figure 3. OFW Countries and Regions of Destination, 2007–2022. (Source of basic data: Authors' calculations; Philippine Statistics Authority)

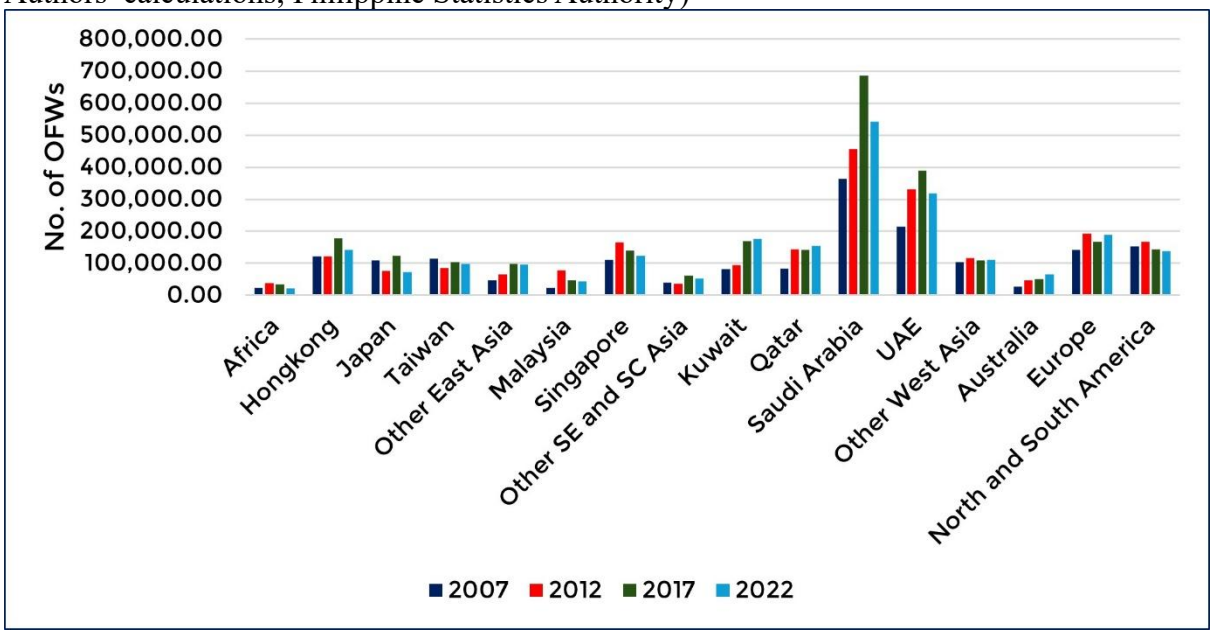

Figure 4. Spending and Saving Behavior of OFW Recipient Households, 2008–2022. (Source of basic data: Authors' calculations; Philippine Statistics Authority)

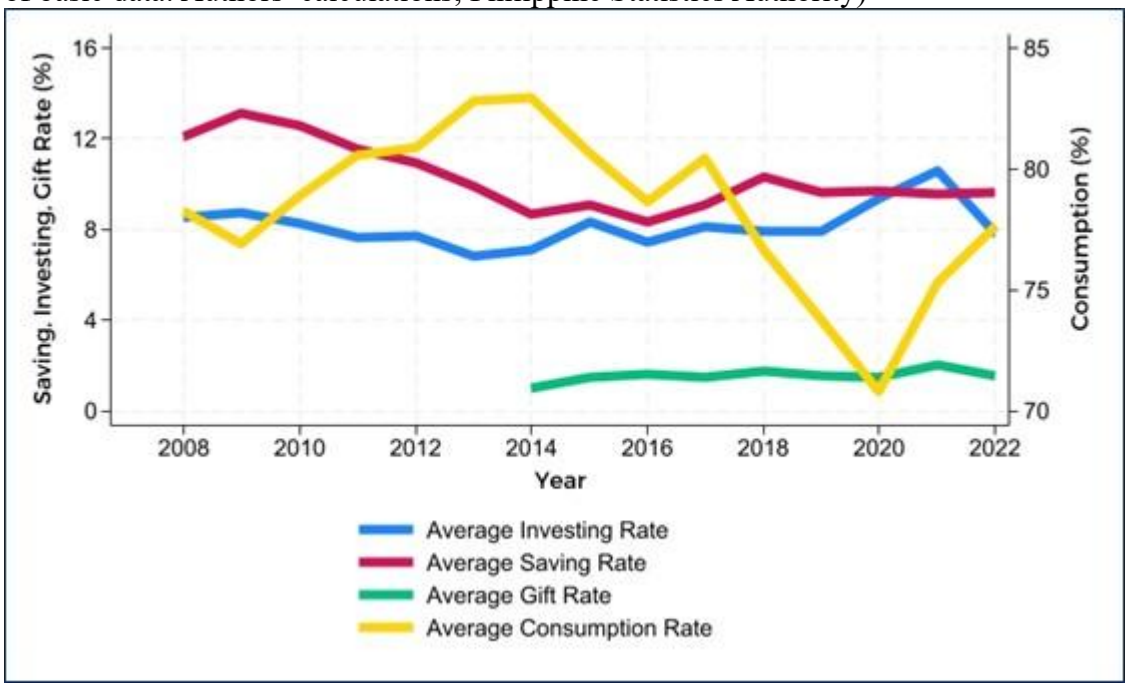

Figure 5. Pooled Distribution of OFW Households and their Allocation Rates for Cash Remittances towards: (a) Saving, (b) Investing, (c) Immediate Consumption, and (d) Gifts and Donations, 2008–2022. (Source of basic data: Authors' calculations; Philippine Statistics Authority)

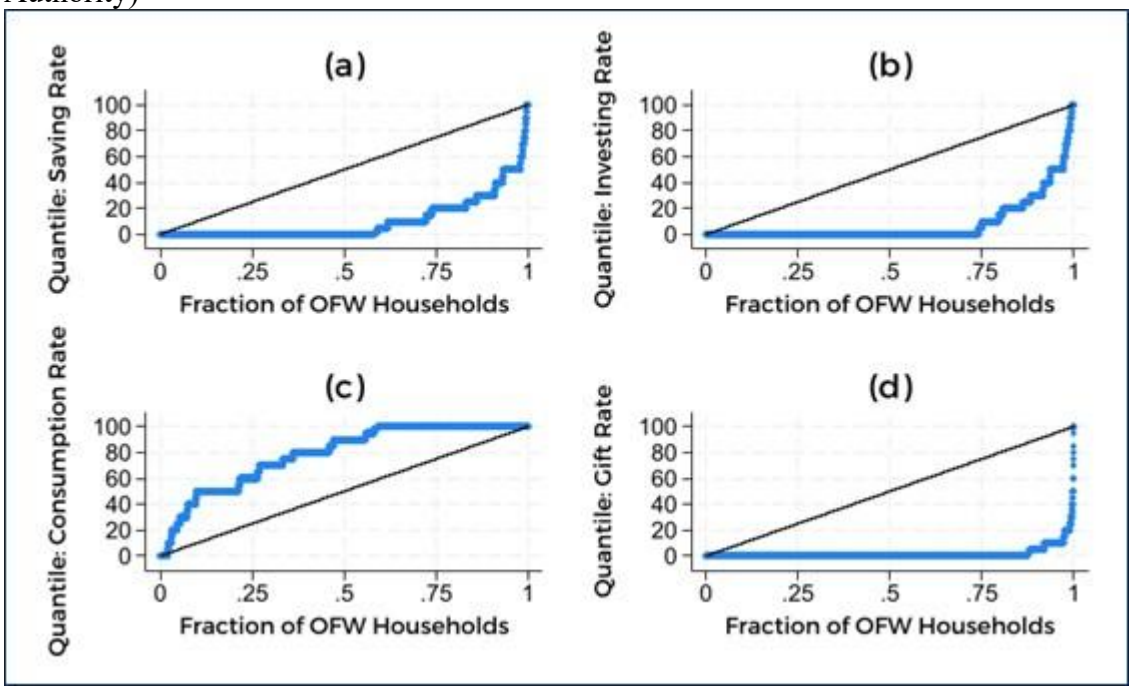

Figure 6. Average household total expenditures and expenditures in selected commodities of migrant and non-migrant households in (a) 2018 and (b) 2021 (in PHP). (Source of basic data: Authors' calculations; Philippine Statistics Authority)

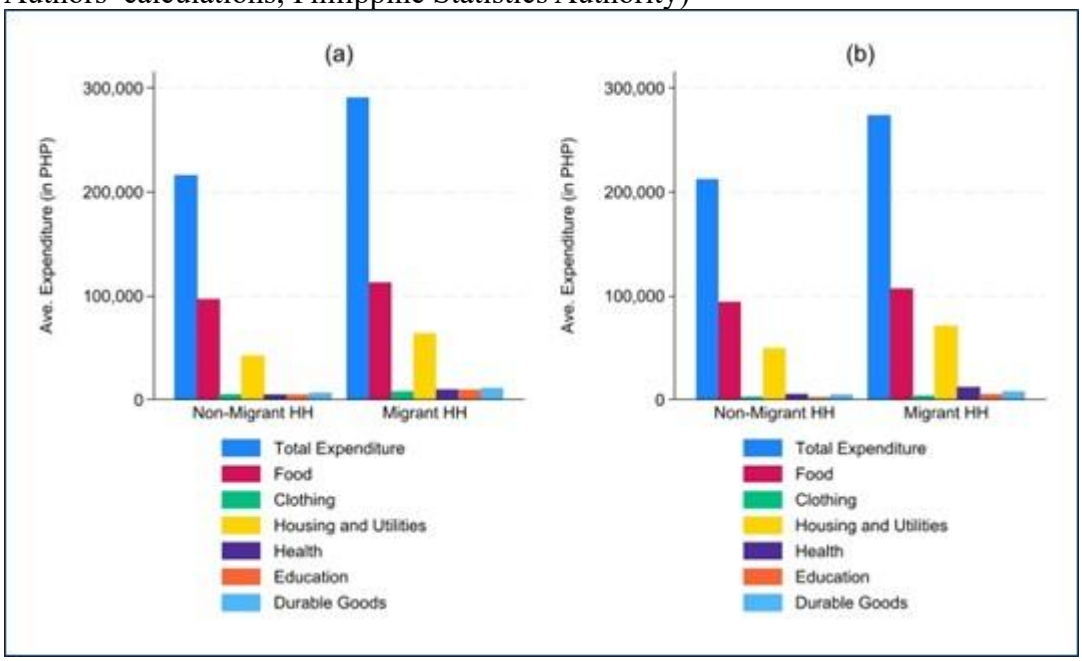

Figure 7. Average share of selected commodities to total household expenditures of migrant and non-migrant households in (a) 2018 and (b) 2021 (in %). (Source of basic data: Authors' calculations; Philippine Statistics Authority)

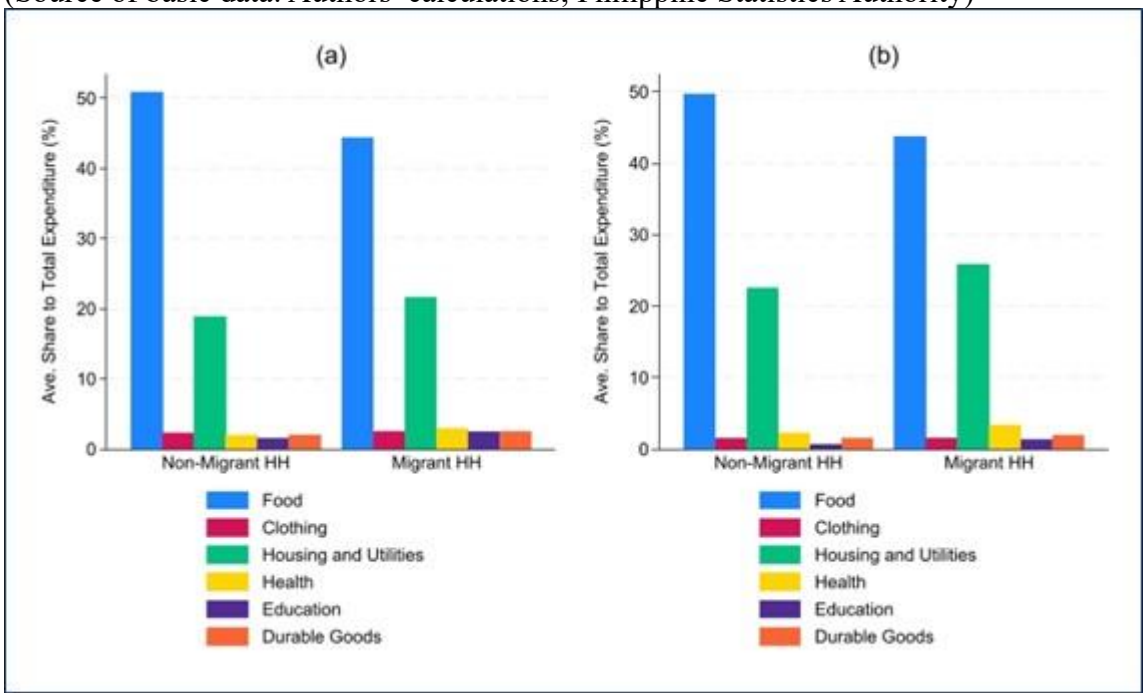

Figure 8. Average Financial Costs of Sending Remittances from Abroad to any Point in the Philippines by Banks and Non-Banks (Outgoing Remittances) as a Ratio of Average Cash Remittances per OFW Worker, 2007–2022. (Source of basic data: Authors' calculations)

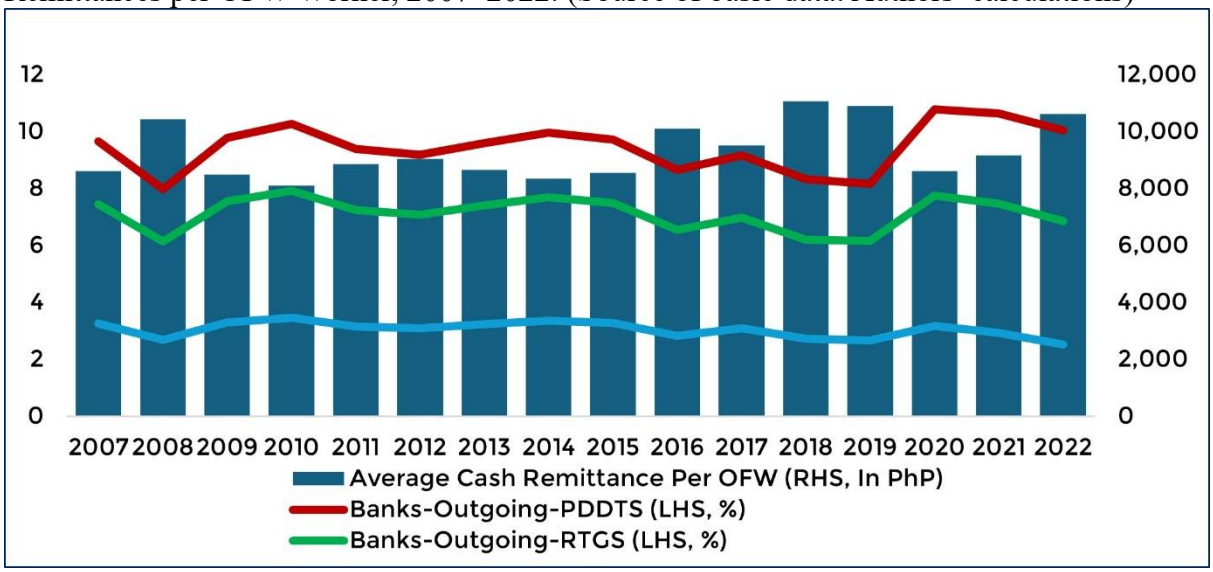

Figure 9. Average Financial Costs of Sending Remittances from Abroad to the Philippines by Banks (Incoming Remittances) as a Ratio of Average Cash Remittances per OFW worker, 2007–2022. (Source of basic data: Authors' calculations)