

OFW Remittances, the Macroeconomy and COVID-19



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東南アジアでは海外出稼ぎ労働者からの送金が国のGDPに占める割合を無視できない。しかしCOVID-19の蔓延で世界的に経済活動が停滞した。このことが出稼ぎ労働者からの送金にどのような影響を及ぼしたかを検証した。

Abstract

The study evaluates the relationship between remittances and the country's GDP, as well as its effects on household consumption and national savings. Moreover, the COVID-19 pandemic served as the external shock which hampered the growth of economies around the world, therefore, this paper also hopes to shed light on the effects of the pandemic on remittances and its relationship with households and the GDP. To achieve these objectives, the authors formulated a framework/model based on a study on the necessity of financial inclusion for enhancing the economic impacts of remittances. Using an exponential generalized autoregressive conditional heteroskedastic (EGARCH) regression procedure, the study will be able to show how remittances act as a leverage during hard times. Based on the results of this study, as one of the largest countries with overseas workers, remittances cushion the Philippine economy during hard times, especially during the pandemic. The study hopes to shed light on the benefits remittances have on the GDP, household spending, national savings, and the COVID-19 pandemic. This paper aims to answer the following question: What is the impact of remittances on the macroeconomy and households? The study aims to answer its main question by analyzing the following objectives: First, to identify the relationship between Overseas Filipino Workers (OFW) remittances with macroeconomic variables, and second, to identify the impact of the COVID-19 pandemic on remittances. Despite the challenges brought about by the pandemic, remittances remained resilient. Based on the results from the model simulated for our first objective, it showed that remittances cushion GDP, household consumption, and national savings in hard times.

Keywords Remittances, EGARCH, volatility, consumption smoothing

Introduction

The outbreak of COVID-19 globally forced nations to close their respective borders in hopes to contain the virus. This has caused the entire world economy to slump, more so hitting the developing countries. With the closure of borders, people were restricted from traveling not only locally but also internationally. With that, local sectors across the globe were hit severely. As of March 16, 2021, the cumulative number of cases worldwide has hit more than 121 million. Health systems around the world were overwhelmed by the pandemic

that even the developed countries struggled. Meanwhile, in developing countries, access to relevant supplies such as face masks, COVID-19 swab tests, and hospital equipment were limited that it led to faster rates of increase in cases as well as deaths. Poor government handling also made the situation worse for many developing countries. In the Philippines, it was only on the 15th of March 2020 that the Philippine government decided to put the country under the Enhanced Community Quarantine (ECQ), wherein the country is put into lockdown.

For a country like the Philippines, whose overseas workers account to 2.2 million in population, the left and right imposition of travel bans affected not only the overall economy but also Filipino households. The shut-down of almost all economies across the globe forced Filipinos working abroad to not have income (be it because of being laid off or reduced salaries), thus, not be able to send money to their families in the Philippines. In the 2019 Survey on Overseas Filipinos, 96.8% of the 2.2 million OFWs who worked abroad from April to September 2019 were Overseas Contract workers (OCWs), while 3.2% worked abroad without contract.

By the end 2020, the Department of Foreign Affairs (DFA) reported a total of 327,511 repatriated OFWs. 70.7% (231,537) of which were land-based repatriates coming from at least 90 countries around the world. The remaining 29.3% (95,974) of which were seafarers from cruise ships, oil tankers, and other bulk vessels. With the uncertainty brought about by the pandemic, a lot of people and OFWs lost their jobs. A month after the imposition of lockdown in most countries across the globe, personal remittances in April 2020 continued to pour even reaching \$2.3 billion. Its year-to-date level stood at \$10.5 billion, which is a slight dip of 2.9% (\$10.8 billion) from the same period in the previous year (January-April 2019). Similarly, cash remittances coursed through banks declined by 16.2% to \$4 billion in April 2020 due to the repatriation of some OFWs in countries heavily affected by the pandemic. With that, the economy expected remittances to fall, which would massively affect the country's GDP. Based on research, however, OFW remittances stood still and proved the projections wrong. The authors hope to shed light on the benefits remittances have on the GDP, household spending, national savings, and the COVID-19 pandemic. This study will show through the results of the structural EGARCH that although leverage still has an effect due to the vulnerability of the country, remittances, that is, cash and non-cash (money that is not sent through a bank, and can also be clothing, food, and other necessities), act as a cushion on the vulnerability of GDP from exchange rate fluctuations and external shocks such as oil price hikes. These are factors which contribute to the

volatility of GDP and GDP growth.

This paper aims to answer the following question: What is the impact of remittances on macroeconomy and households? The study aims to answer its main question by analyzing the following objectives. First, to identify the relationship between OFW remittances with macroeconomic variables. Second, to identify the impact of the COVID-19 pandemic on remittances.

The authors focused on the expenditure side of the National Income Accounts of the Philippines: household final consumption expenditure (HFCE), government final consumption expenditure (GFCE), and the gross capital formation (GCF) as other explanatory variables to determine the relationship of remittances with the country's GDP. Moreover, the remittances used in this study are specifically focused on cash remittances as these are the ones that course through banks (non-cash remittances are still going to be tackled a bit). Data from the Consumption Expectations Survey (CES) specifically for the classification of remittance utilization, conducted by the Philippine Statistics Authority (PSA) in collaboration with the Bangko Sentral ng Pilipinas (BSP) will also be used to gauge the spending allocations of OFW households prior and during the pandemic.

Literature Review

People migrate due to the presence of demographic asymmetries between countries, which can serve as incentives for people to be mobile. People in developing countries such as the Philippines will push to seek jobs or opportunities abroad due to poor economic performance along with the abundant labour population.

Remittances and the Macroeconomy. Abdon et al. (2007) said that remittances affect consumption patterns in two ways as they might be treated as either transitory or permanent income. Transitory means that money will be used for housing, housing repairs, and accumulating durables. Permanent income, on the other hand, means that the money received will be used for basic consumption such as food expenditure. Utilization of remittances also depends on conditions. In a bad year, remittances might be used for consumption of basic

needs such as food expenditures, while consumption of durable goods might be more preferred in a good year. Basu and Rajan (2018) said that remittances are spent mostly on consumption and less on investment. Chikanda and Tevera (2009) concluded a positive relationship between remittances and household savings and expenditures as it stabilized impoverished areas in Zimbabwe. Adams and Cuecuecha (2010) analyzed that households receiving remittances in Indonesia tend to spend their remittances on consumption rather than investment goods. Dhakal (2012) examined the positive relationship between remittances with household savings and expenditures in rural areas of Nepal. Kakhkharov (2018) discovered that remittances associated with livelihoods such as family businesses are supplemented with sufficient savings and investment. Akter (2018) continues to suggest that government policy should focus on leveraging remittance flows to facilitate savings and investment for capital accumulation in developing countries.

Privara and Trnovsky (2020) studied the impact of remittances on household savings in the Baltics. The authors claimed that households that receive remittances spend more on health, education, and housing in comparison to those who do not. They identified the main issue of the limited allocation on investments as households spend more on consumption. The model used in the study included remittances as a contributing factor to the household savings in the Baltics along with macroeconomic variables such as unemployment rate, inflation, FDI inflows, and government debt. In addition, demographic variables such as life expectancy, old-age dependency, and introduction of National Strategy Financial Education as a proxy for financial literacy. The results of fixed effects and OLS methods revealed that remittances are an essential driver of savings in the Baltics. The fixed effect estimation showed that inflation and unemployment appeared to be insignificant factors of savings, while the OLS estimation showed that government debt and unemployment influence savings.

Benhamou and Cassin (2020) developed an Overlapping Generations (OLG) model to explain the process of the interplay between economic growth and

investment in human and physical capital in small island economies. The results brought out the role of migration to explain the choices of parents in terms of education and savings, knowing that intergenerational transfers are included in the budget constraint. An increase in education spending or investment in physical capital are at the expense of savings. This will have high return in human capital which is why families rather spend more on human capital such as education as this will have higher cumulative incentives in the future. The downside, however, is that there will be minimal allocation for savings.

Chami et al. (2012) did an empirical investigation into the issue of whether the size of remittance flows is an important determinant of growth volatility. The authors wanted to determine whether the ratio of remittance receipts to GDP helps to explain the volatility of growth in 70 economies (16 of which are advanced and 54 are developing) after controlling for a large number of variables that have been cited as potential determinants of such volatility. OLS and Generalized Method of Moments (GMM) panel regressions were used to explain the standard deviation of real per capita GDP growth for a sample of 70 countries. The results of the study showed that remittance inflow has tended to be stabilizing on average, which means that it indeed reduces volatility of GDP growth in remittance-receiving countries, even after controlling for a large number of other potential determinants of growth volatility. Chuc et al. (2020) investigated the combined impact of international remittance inflows and financial inclusion on economic growth using a sample of 60 low and middle income countries over 1996-2017. The authors focused on the effect of inclusiveness on a financial system, which they hypothesized to strengthen the growth-boosting effect of remittances. According to their main regression results, the coefficient on the interaction terms of remittances with financial inclusion index is positive, which indicates that under a more financially inclusive financial system, the developmental benefits associated with remittances tend to increase. In addition, the coefficient on the interaction between remittances and availability being insignificant reveals that the availability of

financial products is not important for materializing the growth-enhancing impact of remittances.

ADB and World Bank (2018) claimed that remittances finance consumption needs and have the potential to counterbalance adverse effects during economic downturns and sudden stops in capital flows. Remittances are therefore countercyclical, which means that they can mitigate macroeconomic volatility. Focusing on the behaviour of remittances during periods of large macroeconomic shocks, results showed that remittances remained resilient. Figure 1 shows that during the financial crisis in 2008, while a plethora of sudden stops in capital inflows were experienced, remittances showed less fluctuations or sudden stops. Similarly, during other crises apart from the 2008 financial crisis, remittances behave the same.

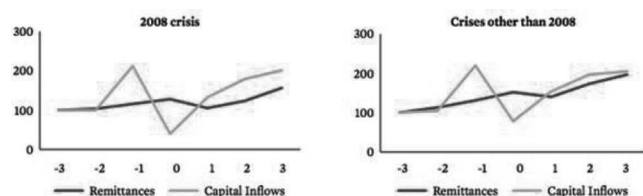


Figure 1. Remittances and Capital Inflows during Sudden Stops (Index numbers)

Source: Migration and Remittances for Development in Asia, ADB and World Bank (2018)

COVID-19 on Remittances. The World Bank (2020) reported that remittance flows to low and middle-income countries were projected to fall by 7.0% to \$508 billion in 2020 and decline further to 7.5% to \$470 billion in 2021. China and the Philippines are the top recipients in the East Asia and Pacific region, which was projected to fall by 11.0% to \$131.0 billion in 2020 due to the adverse impact of the pandemic. Murakami & Shimizutani (2020) explored the potential impacts of the COVID-19 pandemic on the welfare of remittance-dependent households in the Philippines with the prediction that that remittance inflow will decrease and household spending per capita will decline during the COVID-19 pandemic. As economies worldwide opened up once again by the 3rd quarter in 2020, OFW remittances was 7.6% higher to \$3.085 billion in July 2020

\$2.867 billion in the same month in the previous year. Remittances, however, declined once again in August due to the revert of the country to a stricter quarantine measure (MECQ), but once again bounced back by a 9.1% increase year-on-year to \$2.9 billion in September. Bayangos & Jansen (2010) said that when economic times in a household are hard, overseas workers are more likely to send money and then compensate when times are good. Personal remittances from Overseas Filipinos (OFs) fell by 0.3% year-on-year to \$3.205 billion in December 2020 from \$3.216 billion in December 2019. The 0.7% decline in remittances sent by land-based workers with work contracts of one year or more to \$2.494 billion-\$2.513 billion in December 2020 contributed to the decrease in personal remittances. For the full year 2020, personal remittances from OFs reached \$33.194 billion (0.8% lower than the \$33.467 billion recorded in 2019). Personal remittances in 2020 represented 9.2% of the country’s GDP and 8.5% of the country’s GNI, making it the major source of foreign exchange inflows.

Theoretical Framework

In order to attain the objectives of this paper, the authors revised the framework based on Chuc et al’s (2020) study on the necessity of financial inclusion for enhancing the economic impacts of remittances. In their study, the authors used GDP as the measure of economic growth, while the explanatory variables are remittances, financial inclusion index, the interaction between the two, and control variables such as inflation, electricity, trade, human capital, government expenditure, and institutional quality. In this research, the structural exponential generalized autoregressive conditional heteroskedastic (EGARCH), by Nelson & Cao (1991), was used to determine and explain the relationship between remittances and macroeconomic variables such as: final household consumption expenditure (HFCE), final government expenditures (GFCE), and the gross capital formation (GKF) using the country’s GDP per quarter from 2000 to 2020 as the dependent variable. The exponential generalized autoregressive conditional heteroskedastic (EGARCH) model was chosen by the authors in order to

measure the effect of remittances on the volatility, as well as the capacity of remittances to be used as a leverage on the dependent variables, namely, GDP, GDP growth, household consumption and national savings. A positive relationship for leverage on the dependent variable would denote that a positive return on investments can be obtained if the Philippine economy would have a constant flow of remittances. This result goes hand in hand with a negative effect of volatility. Negative volatility has a double significance: that remittances are counter-cyclical and that volatility clustering happens when remittances form part of the country's income stream. For the second objective, descriptive data from the Bangko Sentral ng Pilipinas shall be used to examine consumption behavior, with the use of expected consumption indicators.

Conceptual Framework

Figure 2 below shows the conceptual framework of the researchers. The authors derived the framework of the study from modifying Benhamou and Cassin's (2020) model on the empirical impact of remittances on domestic savings, Privara et al's (2020) framework assessing the impact of remittances to household savings in the Baltics, and Chuc et al's (2020) model on the growth boosting effect of remittances to GDP.

The derived framework incorporates factors and the variables from the studies addresses the objectives of study with the integration of EGARCH. The first objective is represented by the relationship between

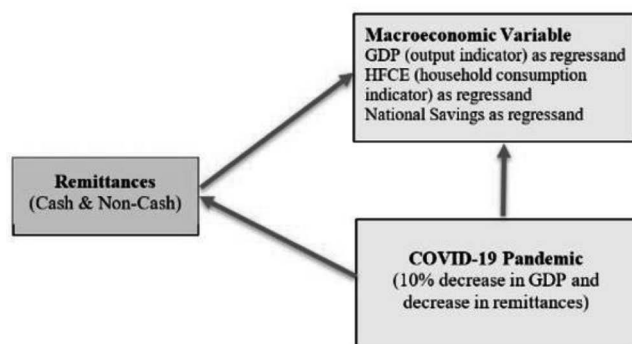


Figure 2. Conceptual Framework)

Source: Authors' Theoretical Framework

remittances and macroeconomic variables such as GDP, HFCE, and National Savings as dependent variables. The second objective, on the other hand, is represented by the effects of remittances on COVID-19 GDP and household consumption.

Empirical Methodology

Quarterly data from 2000 to 2021 shall be used for the estimation procedure. The estimator for output is the country's GDP with explanatory variables such as remittances (cash and non-cash), household final consumption expenditure (HFCE), government final consumption expenditure (GFCE), and gross capital formation (GKF). The explanatory variables are expected to have a positive effect to GDP and GDP growth. Due to the assumption that remittances are used to smoothen consumption, the authors will apply the regression procedure across the entire time period, 2000Q1 to 2021Q4. Table 1 shows the definitions of the variables that the researchers used. As mentioned above, the authors modified Chuc, et al's literature model to fit our objective to determine the relationship between remittances and other macroeconomic variables as well

Table 1. Variable Definitions

Variable	Definition
Dependent Variables	
Gross Domestic Product (GDP)	Total market value of goods and services produced by a country's economy during a specific period. GDP shall be used as a dependent variable to be explained by HFCE, GFCE, GKF and Cash and Non-Cash Remittances.
Household Final Consumption Expenditures (HFCE)	Consists of the value of expenditure on goods and services by resident households for direct consumption.
National Savings (NATSAV)	The total domestic savings by household and companies, as well as government savings.
Explanatory Variables	
Remittances	Money sent to another party from the host country to the home country.
Cash Remittances	Money coursed through banks. These are immediately captured in the country's earnings since they enter banks.
Non-cash Remittances	These include items such as food items, clothing, electronic gadgets, and other household consumables. ³ In the Philippines, these are usually in the form of balikbayan boxes. These can also be money or remittances coursed through other forms of institutions such as <i>pera padala</i> , etc.
SQRT(GARCH)	Uses the square root of the trendline to explain the relationship of household consumption and cash remittances and non-cash remittances. Also acts as <i>risk premium</i> .
Government Final Consumption Expenditures (GFCE)	Includes all government current expenditures for purchases of goods and services.
Gross Capital Formation (GKF)	Consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.
Human Development Index (HDI)	A summary measure of average achievement in key dimensions of human development (healthy life, decent standard of living, etc).

Empirical Models:

- $GDP = \delta_0 + \delta_1 CASHREMIT + \delta_2 HFCE + \delta_3 GFCE + \delta_4 GKF + \epsilon$
- $HFCE = \delta_0 + \delta_1 SQRT(GARCH) + \delta_2 CASHREMITTANCES \text{ (or NON-CASH REMITTANCES)} + \epsilon$
- $NATSAV = \delta_0 + \delta_1 * LOG(REMIT(-4)) + \delta_3 * HDIPH + \delta_4 * GKF + \delta_5 * GKF * HDIPH + \epsilon$

as the effect of remittances on the consumption of households.

Objective 1: The relationship between remittances and macroeconomic variables

This objective will be tested with the following hypothesis: Remittances smoothen consumption. Due to the expected counter-cyclical of remittances to macroeconomic variables, the authors expect the volatility variable in the variance equation to be negative. The variance equation, however, is expected to have a negative coefficient for volatility, partly explained by counter-cyclical, and, a positive leverage due to the presence of volatility clustering in GDP, with the introduction of cash and non-cash remittances as explanatory variables. Volatility clustering is partly explained by its positive effect on leverage, as long term trends in GDP become dependent on past volatilities. Remittances, used to smoothen consumption, is also used as a leverage for durable goods expenditures, investments in housing and other financial assets. Once households are able to accumulate enough savings from remittances, they are able to siphon these funds to investments.

Objective 2: Effect of COVID-19 on Remittances

For the 2nd objective, however, the authors hypothesized that the COVID-19 will have a negative effect on remittances, due to the economic downturn of economies all over the world.

Results

The graph of remittances with current Gross Domestic Product (GDP) shows a strong positive correlation between GDP and remittances. (see Figure 3) In fact, from 2000 to 2021, even if remittance flows declined in some quarters, overseas Filipino workers (OFWs) were able to send more remittances in the succeeding quarters, enabling their families to cope with unforeseen expenses during the pandemic.

A. Hypothesis 1: Remittances smoothen macroeconomic volatilities.

Nominal Gross Domestic Product (GDP). Table 2 shows the variance equation of GDP with and without the presence of remittances. With only household final

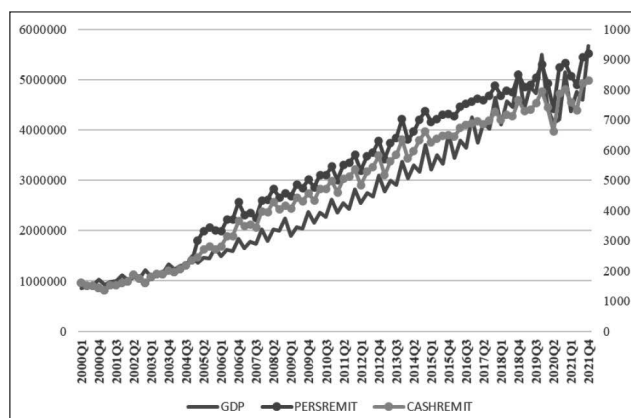


Figure 3. GDP and Remittances (2000-2021)

Source: Philippine Statistics Authority and Bangko Sentral ng Pilipinas
 Note: Personal Remittances (PERSREMIT) = Cash and non-cash remittances

Table 2. GDP with and without Remittances

Dependent Variable: Gross Domestic Product			
Method: ML ARCH - Generalized error distribution (GED)			
Variable	No Remit ¹	Cash ¹	Non-Cash ¹
C	55138.56 ^a	61934.87 ^a	274387.40 ^a
CASH/NON-CASH REMITTANCES		75.82 ^a	-294.31 ^a
Household Fixed Consumption Expenditure	1.19 ^a	0.93 ^a	1.06 ^a
Government Fixed Consumption Expenditure	0.25 ^a	0.53 ^a	0.59 ^a
Gross Capital Formation	0.39 ^a	0.50 ^a	0.58 ^a
Variance Equation			
Autoregression	22.13 ^{ns}	21.87 ^b	22.61 ^a
Volatility	0.004 ^{ns}	0.12 ^{ns}	-1.85 ^a
Leverage	0.06 ^{ns}	1.06 ^b	1.61 ^a
Conditional Variance	0.01 ^{ns}	0.00 ^{ns}	0.01 ^{ns}
GED PARAMETER	0.78 ^a	0.81 ^a	1.36 ^a
R-squared	0.9979	0.9980	0.9968
Adjusted R-squared	0.9979	0.9977	0.9966
Start of Period	2000Q1	2000Q1	2005Q1
End of Period	2021Q4	2021Q4	2021Q4
No. Observations	88	88	68
Source of Basic Data: Bangko Sentral ng Pilipinas			
Note ¹ : p-values refer to a ≤ 0.01, 0.01 < b ≤ 0.05, 0.05 < c ≤ 0.1, ns - not significant			

consumption expenditure (HFCE), government final expenditure (GFCE), and gross capital formation (GKF) as explanatory variables, volatility and leverage are not significant. When remittances are included as a regressor, volatility clustering is captured. Volatility is negative for non-cash remittances signifying that remittances stabilize the inherent volatility of GDP (Chami, et al 2012). Recipients of cash and non-cash remittances seem to use remittances as a leverage, from the result of a significant positive coefficient for the cash and non-cash equations. This happens given a certain level of GDP, and cash remittances are transferred through non-bank modes.

GDP Growth. The effect of dampening volatility is also observed when GDP growth is regressed with the above mentioned explanatory variables. This regression shows the volatility dampening effect of remittances on GDP. The presence of cash remittances increases the liquidity of households, especially in times of economic crises. This can be observed from the significantly smaller coefficient of household consumption and gross capital formation when cash and non-cash remittances are introduced. The variance equation also shows that households are able to cope with the vulnerability of the

Table 3. GDP Growth with & without Remittances

Dependent Variable: Gross Domestic Product Growth Rate Method: ML ARCH - Generalized error distribution (GED)			
Variable	No Remit ¹	Cash ¹	Non-Cash ¹
CASH/NON-CASH REMIT		0.0013 ^a	0.0018 ^{ns}
Household Fixed Consumption Expenditure	4.90E-07 ^{ns}	4.46E-06 ^a	-7.83E-07 ^{ns}
Government Fixed Consumption Expenditure	-1.98E-05 ^a	-4.13E-05 ^a	-1.72E-05 ^a
Gross Capital Formation	1.87E-05 ^a	9.88E-06 ^a	1.99E-05 ^a
Variance Equation			
Autoregression	5.555 ^a	5.347 ^a	6.195 ^a
Volatility	-1.321 ^b	-1.715 ^a	-2.264 ^a
Leverage	0.861 ^a	2.035 ^a	0.951 ^a
Conditional Variance	0.009 ^{ns}	0.054 ^{ns}	0.065 ^a
Start of Period	2000Q2	2000Q2	2005Q1
End of Period	2021Q4	2021Q4	2021Q4
No. Observations	87	87	68
Source of Basic Data: Bangko Sentral ng Pilipinas			
Note ¹ : p-values refer to a ≤ 0.01, 0.01 < b ≤ 0.05, 0.05 < c ≤ 0.1, ns - not significant			

economy to external shocks such as oil price hikes and exchange rate movements. OFW family members seem to remit more cash when they expect economic downturns, thus allowing their family members in the Philippines to cope with an impending economic crisis. The counter-cyclicality of remittances to GDP growth can be observed from the regression result due to negative and significant volatility and positive leverage.

Remittances on Household Final Consumption Expenditures (HFCE). Table 4 shows the effects of remittances on household final consumption expenditure (HFCE) as the dependent variable. Based on the results, OFWs send their remittance early on. Similarly, non-cash remittances both current and two periods back also have positive effects on household final consumption expenditure. Both cash, sent during the 4th quarter, and non-cash remittances significantly contribute to household consumption. Volatility is insignificant for cash remittances but is positively moderately significant for non-cash remittances signifying that remittances are

Table 4. Household Final Consumption Expenditure with or without Remittances

Dependent Variable: Household Fixed Consumption Expenditure Method: ML ARCH - Generalized error distribution (GED)		
Variable	Cash ¹	Non-Cash ¹
C	-252938 ^a	-132721 ^{ns}
CASH REMITTANCES (-4)	483.7 ^a	
NON-CASH REMITTANCES		3261.48 ^a
NON-CASH REMITTANCES (-2)		796.09 ^{ns}
Variance Equation		
Autoregression	27.47 ^a	1.63 ^{ns}
Volatility	-0.98 ^a	0.34 ^{ns}
Leverage	0.44 ^{ns}	0.20 ^c
Conditional Variance	-0.08 ^{ns}	0.92 ^a
GED PARAMETER	7.50 ^c	1.74 ^a
R-squared	0.94	0.86
Adjusted R-squared	0.94	0.86
Start of Period	2001Q1	2005Q3
End of Period	2021Q4	2020Q4
No. Observations	84	66
Source of Basic Data: Bangko Sentral ng Pilipinas		
Note ¹ : p-values refer to a ≤ 0.01, 0.01 < b ≤ 0.05, 0.05 < c ≤ 0.1,		

more likely to be transacted through non-bank sources during economic downturns. Recipients of non-cash remittances seem to use it as a leverage, ie. asking their OFW family members to delay sending when the exchange rate is not favorable, or, to use non-bank agencies, which charge a lower transaction fee.

Remittances on National Savings. Table 5 shows the estimation output of the impact of cash remittances to National Savings. The results show the negative relationship of cash remittances to national savings. Intuitively, households have greater liquidity when they receive cash remittances. But households in an emerging economy like the Philippines do not have enough cash to allocate into savings. Most households allocate 96% to 97% of their remittances to food and essential household needs.

B. Hypothesis 2: Covid-19 has a negative impact on remittances

With the Covid-19 pandemic, it is expected that remittances will decline from 2020 onwards. This will

Table 5. National Savings with or without Remittances

Dependent Variable: National Saving			
Method: ML ARCH - Generalized error distribution (GED)			
Variable	No Remit ¹	Cash ¹	Non-Cash ¹
C	-18297569 ^a	1317605 ^a	-25659563 ^a
LOG (CASH REMIT (-4))/LOG (NON-CASH REMIT (-4))		-133284 ^b	530921.6 ^a
PH Human Development Index (HDIPH)	30592447 ^a	30148852 ^a	36524234 ^a
Gross Capital Formation (GFK)	-24.259 ^a	-26.121 ^a	-16.221 ^a
GKF*HDIPH	35.415 ^a	38.268 ^a	23.761 ^a
Variance Equation			
Autoregression	24.088 ^{ns}	8.574 ^b	8.729 ^{ns}
Volatility	0.010 ^{ns}	1.272 ^a	1.889 ^a
Leverage	0.010 ^{ns}	-0.173 ^{ns}	-0.297 ^{ns}
Conditional Variance	0.010 ^{ns}	0.598 ^a	0.563 ^b
GED PARAMETER	2.000 ^{ns}	1.916 ^a	3.793 ^c
R-squared	0.9848	0.9842	0.9764
Adjusted R-squared	0.9843	0.9833	0.9747
Start of Period	2000Q1	2001Q1	2006Q1
End of Period	2020Q4	2020Q4	2020Q4
No. Observations	84	80	60
Source of Basic Data: Bangko Sentral ng Pilipinas			
Note ¹ : p-values refer to a ≤ 0.01, 0.01 < b ≤ 0.05, 0.05 < c ≤ 0.1, ns - not significant			

have a negative impact on the economy. The authors looked into the quarterly Consumer Expectations Survey (CES), which is a household-based survey on consumers' assessment of their family income, financial situation, and the economic condition of the country conducted by The Philippine Statistics Authority (PSA) in collaboration with the Bangko Sentral ng Pilipinas (BSP), who analyses the results. The authors limited the analysis on every 4th quarter for the past 5 years to see how many OFW households respondents would allocate their remittances towards the latter part of the year as the holiday season approaches. For the past five 4th quarters, the CES results show that Food and Other Household Needs dominates the motivation of OFW household consumption, followed by education, medical expenses, and savings. Respondents on Consumption of food and other household needs have constantly increased from Q4-2015 (95.9%) to Q4-2018 (98.5%) and decreased slightly to 97.3% in Q4-2019.

Those who allocated their remittances on Education, on the other hand, have been fluctuating for the past 5 years, with the highest spending of 70.0% in Q4-2016, and the lowest in Q4-2017 at 62.6%. OFW households allocated less on Medical Expenses for the past 5 4th quarters starting at 59.7% in Q4-2015 and dropping to 44.6% in Q4-2019. Remittances for Savings peaked in Q4-2016 by 46.8%, and has decreased to 42.3% in

Table 6. Remittances Utilization of OFW Households Prior to COVID-19

Utilization of Remittances	Q4-2015	Q4-2016	Q4-2017	Q4-2018	Q4-2019
Food and Other Household Needs	95.9%	96.4%	97.2%	98.5%	97.3%
Education	69.5%	70.0%	62.6%	67.0%	64.5%
Medical Expenses	59.7%	55.2%	54.1%	52.6%	44.6%
Savings	41.4%	46.8%	42.3%	35.5%	38.5%
Debt Payments	42.7%	42.8%	42.0%	21.9%	20.1%
Purchase of Appliances/ Consumer Durables	21.8%	22.2%	23.4%	18.7%	20.7%
Purchase of House	11.9%	13.0%	14.2%	10.4%	9.3%
Investments	6.6%	10.0%	5.9%	5.1%	5.1%
Purchase of Car/Motor Vehicle	6.4%	8.8%	8.5%	6.4%	9.3%
Others	4.0%	2.8%	3.0%	0.4%	5.1%
Number of Household Respondents	531	523	491	483	488
Source: Consumer Expectations Survey, Bangko Sentral ng Pilipinas (BSP)					

Q4-2017 and 35.5% in Q4-2018; but rising to 38.5% in Q4-2019. Investments seem to be the last priority of OFW households when it comes to spending. Purchase of Car/Motor Vehicle surpassed it from Q4-2017 to Q4-2019. Investment allocation peaked in Q4-2016 at 10.0%, and drastically declined to 5.9% in Q4-2017 and 5.1% in Q4-2018 and Q4-2019.

The same trend was observed during the onset of the pandemic and the succeeding quarters. In terms of allocation for Food and Other Household Needs, the survey revealed that food and other household expense still dominates the motivation of OFW household consumption (which peaked in Q3-2020 at 97.2% albeit slowing down to 96.0% in Q4-2021). Allocation on education, medical expenses, and savings maintained their pre-pandemic ranking spot. It is noticeable that the allocation for these items was higher during the first year of the pandemic, confirming the findings of the previous studies that during crisis, overseas workers tend to send more to help their family members and relatives cope up with situation. Specifically, the allocation for medical

expense posted its highest in Q4-2020 since 2018, which can be attributed to higher allocation of remittances to health-related spending to combat the COVID-19 virus. In 2021, a general decline in allocation was observed but more especially on the purchases of house and car/motor vehicle declined towards the end of 2021. Allocation on investment remained low, recording its Q1-2021 at 8.2% and gradually declined in the last quarter of 2021 to 5.2%. (See Table 7)

The previous observation points out that economic fluctuations impact how households allocate the remittances received. It was generally observed that households spend more during good times and spend less on bad times to prioritize spending on essential needs. Privara et al. (2021) said that during economic distress (whether perceived or real), households tend to save more in order to cope. The regression result showed earlier on the effect of economic downturns on household spending also points out that economic distresses will necessarily result in household spending adjustment.

Table 7. Remittances Utilization of OFW Households During the COVID-19 Pandemic

	Q1-2020	Q2-2020 (no data)	Q3-2020	Q4-2020	Q1-2021	Q2-2021	Q3-2021	Q4-2021
Food and Other Household Needs	93.9%		97.2%	96.6%	96.4%	96.2%	96.5%	96.0%
Education	66.8%		60.1%	60.1%	58.4%	52.2%	56.9%	50.5%
Medical Expenses	51.0%		49.4%	53.8%	50.2%	44.6%	48.7%	45.8%
Savings	44.7%		31.6%	33.4%	33.1%	33.0%	31.8%	31.7%
Debt Payments	17.2%		18.4%	15.9%	16.7%	16.5%	14.5%	11.1%
Purchase of Appliances/ Consumer Durables	23.3%		16.9%	19.3%	14.3%	13.0%	15.1%	12.9%
Purchase of House	13.6%		7.1%	4.8%	7.3%	6.4%	11.0%	9.2%
Investments	6.1%		6.4%	6.2%	8.2%	6.1%	6.3%	5.2%
Purchase of Car/Motor Vehicle	5.9%		2.8%	6.2%	5.5%	5.8%	5.7%	2.2%
Others	5.7%		6.6%	7.4%	7.3%	4.6%	7.5%	5.8%

Source: Consumer Expectations Survey. BSP

C. Summary of Findings

Objectives	Hypotheses	Methodology	General Findings
1. To determine the relationship between remittances and macroeconomic variables such as GDP, household final consumption expenditure (HFCE), and national savings	Remittances smoothen macroeconomic fluctuations as well as household spending	EGARCH (a) GDP, (b) HFCE, and (c) National Savings as dependent variables (regressand) to determine whether remittances help smoothen macroeconomic fluctuations and household spending (especially during hard times).	(a) Based on the results, when the authors added remittances as an explanatory variable (with GDP as the regressand), the model improved as shown by the statistical tests (three information criteria) and the Durbin-watson statistic. With that said, we can say that remittances help reduce volatilities in the economy. (b) Taking HFCE as the regressand, on the other hand, cash remittances are able to smoothen household consumption, while non-cash remittances are able to stimulate savings. Moreover, based on the CES results, households adjust their consumption based on the economic situation. This complements the fact that households react to information given to them. (c) Finally, taking national savings as the regressand, cash remittances and non-cash remittances take different effects. Cash remittances seem to dampen national savings given its negative output while non-cash remittances seem to stimulate national savings.
2. To determine the effect of COVID-19 on remittances, the economy, and the household	The COVID-19 pandemic will decrease remittances and therefore negatively affect the GDP and consumption of households.	Data Analysis using the previous regression result and the Consumer Expectations Survey (CES)	The Covid-19 pandemic indeed caused a decline in the remittances sent by the OFWs, especially during the onset of the pandemic. This is expected to have a negative spill-over effects on the economy and households' income and spending possibilities. Nonetheless, data showed that there was a gradual improvement in the growth of remittance over time. Based on the CES results, majority of the respondents utilized the remittance received for food and other household needs. It was also noteworthy that allocation for the purchase of house and cars declined on some quarters but budget for medical expense increased, pointing to the reallocation of budget on the more important items, especially during times of crisis.

Meanwhile, non-cash remittances or goods such as money sent through *pera padala* or in-kind goods through balikbayan boxes help them save money. This behavior gives us a qualitative explanation of the counter-cyclicality of remittances. This means that OFWs send more remittances, in cash or in kind, during economic downturns.

Conclusion

Gross Domestic Product (GDP) is heteroskedastic as its variance takes on different behaviors. The authors found this fact inevitable because the variance of GDP changes according to economic situations, which have

the tendency to not be captured by the equation. With the use of EGARCH, the authors were able to simulate an equation for the variance to aid the problem of heteroskedasticity. Remittances have indeed proven that it cushions GDP, household spending, and national savings during economic downturns. Cash remittances lessen volatility in GDP, while non-cash remittances have a negative effect on GDP not necessarily because they lower the GDP, but rather because they do not get captured in the national income accounts right away as they enter the country apart from banks. They tend to go straight to households, through *pera padala* (which can now be received through GCash free of charge) or

through in-kind remittances such as goods from *balik-bayan* boxes. In effect, money sent through *pera padala* that can be received through GCash saves time for the households because they no longer need to line up in branches especially in times like the pandemic where it is risky to go to public places.

In addition, the money they receive through online wallet GCash need not be withdrawn and can be used to directly pay for whatever they need. In line with the results earlier, non-cash remittances is one of the avenues that help households save money. Cash remittances, on the other, hand, help smoothen household consumption.

On the National Savings side, it is seen that, ironically, cash remittances have a negative impact on savings. This is brought about by the fact that the Philippines is an emerging economy. Households tend to utilize money in the bank for necessities and hence the negative relationship. Contrary to this, it is shown that non-cash remittances do have a positive relationship with savings. This is because non-cash remittances act supplementary to households' necessities. Households would not have to spend incrementally for food, clothing, or electronic devices if non-cash remittances go by that form and consequently leaves their bank savings untouched. Moreover, if non-cash remittances are sent in the form of spare cash through expresses or through services such as electronic funds transfer, households still tend to utilize their money in the bank leaving these non-cash remittances untouched and, in effect, growth in savings.

Despite the challenges brought about by the pandemic, remittances remained resilient. Based on the results from the model simulated for our first objective, it showed that remittances actually cushion GDP, consumption, and national savings in hard times. Literature also showed how Filipinos send more money in times of distress to help households cope. With the closure of economies last year, many OFWs got laid off, if not, were not able to go to work and earn money to send to their families in the Philippines. Surprisingly, in July 2020, when economies started to open up once again, remittances sent to the Philippines even surpassed the remittances sent during the same period in 2019. This

just proves how selfless Overseas Filipino Workers are especially in times of distress as they would send more money to their families. This altruism also empirically proves countercyclicality because an adverse shock (such as the pandemic) in the recipient country gets compensated by remittances.

Recommendations for Future Research

This study can be extended by using other explanatory variables (i.e., financial inclusion index (FII), human development index (HDI) and doing a cross-sectional analysis, subject to data availability. A follow-up study assessing the spending behavior of the family members of OFWs can help further substantiate the result of this study. Other researchers can also do a comparative analysis on the efficiency of non-cash remittances vs. cash remittances and their economic implications.

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