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DISCUSSION

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Remittances from Overseas Filipinos in the Time of COVID-19: Spillovers and Policy Imperatives

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ABSTRACT

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This paper examines two policy questions. First, has the COVID-19 pandemic have had a significant impact on the remittances of overseas Filipino (OF) remittances? Second, what are the spillover effects of a shock in remittances on the monetary, financial, and labor markets? Using a reduced-form equation on the drivers of overseas remittances estimated by Generalized Method of Moments (GMM) and Impulse Response Functions from standard and Bavesian Vector Autoregressive (VAR) models from January 2009 to December 2021, our findings reveal that first, OFs' remittances are procyclical with the Gross Domestic Product (GDP) of the Philippines and with major host country groups. Second, the growth of personal remittances is driven by domestic inflation, interest rate differentials, the real effective exchange rate of trading partners, the business cycle of the United States, and the growth of domestic liquidity (which proxies for the degree of financial development). Third, the pandemic has a negative and significant impact on the growth of personal remittances. Fourth, labor force growth, minimum wage rate and employment growth, along with the growth of real GDP, inflation rate, interest rate differential, peso-dollar rate, growth of domestic liquidity respond to a one standard deviation shock on the growth in personal remittances. These results imply that remittance flows indeed represent an important and distinct channel of spillover effects from the global economy and must be considered when examining global transmission shocks.

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A. Introduction

In 2019, global remittances reached a record-high of \$550 billion, exceeding official development aid flows (World Bank, 2020a). Expectations of a sharp downfall in remittances due to the pandemic have been a major concern for policymakers in countries that rely substantially on this type of flows, given the macroeconomic implications, including on private consumption, the balance of payments and exchange rates.

While remittances are private funds, they confer macroeconomic benefits to the Philippine economy which has a large segment of its population residing and working overseas and sending money back home. Remittances augment foreign currency resources, alleviate pressures on the exchange rate and reduce the need for foreign borrowing. Moreover, since remittances are unrequited transfers, they do not create future obligations unlike foreign borrowings or investments. Remittances also help develop capital markets, enabling recipients to accumulate productive assets and invest in financial instruments as well as improve human capital resources. Furthermore, remittances have important social welfare implications, as these private transfers can take off some of the burden on the government's finances that need to be directed toward household welfare programs.²

In the Philippines, the share of remittances has been broadly stable since 2010, ranging from 9 to 10 percent.³ Remittances are a particularly attractive source of foreign exchange because they are a more stable, and therefore a more dependable, source of funding than private capital flows—of either debt or equity (both portfolio and direct investments). Table 1 shows that over the period 2010-2021, remittances have provided a significant source of foreign exchange in the Philippines, next to foreign borrowing. Moreover, remittances are less likely to suffer the sharp withdrawal or surges that characterize portfolio flows.

Stability tests indicate that remittances to the Philippines have been more stable than the other foreign exchange flows stemming from net exports, foreign direct investments, foreign portfolio investments and external borrowings. A substantial reduction in remittance flows would have important macroeconomic implications on the country's growth prospects.

² The adverse macroeconomic and microeconomic repercussions of remittances have also been widely examined, including its impact on reservation wages and labor supply as well as its contribution to the so-called Dutch disease, (Bayangos and Jansen 2011; Tullao et al. 2006; Puri and Ritzema 1999). Concerns have also been raised that remittances can promote a culture of dependence and policy complacency.

³ Personal remittances include cash and in-kind transfers. Appendix 1 presents a detailed discussion on the treatment of remittances in the balance-of-payments reporting framework.

Sources of FX Inflows	% to Nominal GDP	Std Deviation
(Net) Exports of Goods and Services	-1.8	0.7
External Borrowing	27.4	4.1
OF Remittances	2.4	0.1
Foreign Direct Investments	0.5	0.3
Foreign Portfolio investments	0.1	0.4

Table 1: Magnitude and Volatility of Selected Foreign Exchange Inflows2010-2021 Year-to-Date

Source of data: BSP Department of Economic Statistics; authors' calculations

A substantial fall in remittances due to the COVID-19 pandemic would have major consequences not only at the economy-wide level but also at the household level. The impact of lower remittances would fall most heavily on vulnerable remittance-receiving households, potentially reducing their access to education and health care, and more generally adversely affecting their quality of life. There could likely be differentiated impacts on local communities, with some communities that rely heavily on remittances facing elevated risks of economic disruptions. Based on the 2021 Fourth Quarter Consumer Expectations Survey (CES),⁴ more families of overseas Filipino workers (OFWs) have saved and invested less in the fourth quarter 2021. Specifically, the percentage of households using remittances to save declined slightly to 31.7% from the third quarter's 31.8%. Likewise, OFW families using remittances for investments dropped to 9.2% from 11%.

Globally, the World Bank projected that remittances would decline by 7% in 2020, larger than the 5% drop recorded during the global financial crisis in 2009. A similar decline is expected in 2021. There are a number of possible reasons for the projected decline in remittances due to the pandemic. One explanation rest on (temporary and/or permanent) migrants' loss of jobs or underemployment in host countries whose economies have contracted or have experienced significant growth slowdown. Many temporary/permanent migrants engage in vulnerable occupations (such as service and hospitality industries) that has been disproportionately affected by the pandemic. Other reasons involve the repatriation of overseas workers and migrants as well as the slowdown in the deployment of those seeking work or residence overseas.

Mobility restrictions could have also hampered access to some financial services, particularly those offered by bricks-and-mortar entities. The drop in oil prices in the first half of 2020 due to slower global economic growth could have also contributed to the decline in remittances.

This study traces the impact of the pandemic on overseas remittances and the spillover effects of a shock in remittances on the monetary, financial and labor markets. The study also looks into the role of the government in helping to

⁴ The Q4 CES covered 5,495 respondents, including 325 OFW households. It was conducted during the period 1-13 October 2021 when the National Capital Region (NCR) and adjacent provinces were placed under enhanced community quarantine anew due to the emergence of the more contagious Delta variant.

manage the impact of the pandemic on overseas workers and their beneficiaries. Policy imperatives and the prospects for overseas remittances are then examined. The study is guided by two research questions. First, has the impact of the pandemic on overseas remittances been significant? Second, what are the spillover effects of a shock in remittances on the monetary, financial and labor markets?

The paper is organized as follows: Section B briefly examines the relevant literature. Second C presents salient remittance trends. Section D empirically examines the determinants of remittances and its cyclicality as well as the impact of the pandemic on the macroeconomy and the spillover effects of a shock in remittances. Section E concludes by looking at future prospects and offering some policy implications.

B. Review of Related Literature

There are several reasons behind the decision to send remittances. These include altruism, consumption smoothing, investments in human, real, and financial capital, insurance or precautionary motivation. Simpson and Sparber (2019) note that the models of remittance behavior involve a utility-maximizing migrant or household that chooses to send remittances when the net benefits outweigh the costs or when doing so increases expected utility. They conclude that the underlying reason for migrating is to increase one's earnings abroad and to relax the budget constraint for the family members back home.

One of the most commonly cited reasons for sending funds is altruism, linked to the desire to maintain strong linkages with one's family in the origin (or home) country. Altruism is measured by estimating how remittances respond to the increases in income that occur due to migration (Stark, 1991). McCracken et al. (2017) develop a simple two-period model of remittance behavior and decompose movements of remittances into altruistic and self-interest components. Their theoretical model suggests that a higher level of income in the home or origin country is associated with a higher level of remittances. However, a lower level of income in the origin country has ambiguous effects on remittances and depends on whether the altruistic motive dominates. Lower income levels in the origin country will increase the need for more remittances if individuals are sufficiently altruistic but will decrease remittances if they are selfinterested.

Another major motivation for remittances is that people will migrate to smoothen household consumption and diversify income sources (Rosenzweig and Stark, 1989). As with the altruism model, consumption smoothing models suggest that more funds will be transferred when the economy worsens in the origin country. This complements the work by Mandelman and Zlate (2012) who find that remittance flows are responsive to business cycles in the source and destination countries. Beti et al. (2008) and Amuedo-Dorantes and Pozo (2011) investigate the use of remittances as a mechanism to cope with adverse economic shocks. Some households send migrants abroad to accumulate funds to help pay for specific investments or large purchases in the origin country, including education, medical care and real property. In addition, migrants may build precautionary savings through remittances. Amuedo-Dorantes and Pozo (2005, 2006) provide models of insurance and precautionary saving in this context. They predict that remittances will be larger for those facing greater uncertainty in the host country and for recent migrants. Remittances thus serve as a type of insurance in case the migration experience did not turn out as expected.

Remittance decisions are complicated by demographic, geographic, cultural, religious, and economic conditions that vary across host and source countries. Given the complexity of remittance motivations and the diversity of the countries relying upon remittances, the various motives for remitting are not mutually exclusive. A particular migrant will often have a combination of reasons to remit, and motives vary across migrants and over time.

A number of papers have empirically estimated the determinants of remittances, using household/migrant characteristics and macroeconomic indicators. Tests involve cross-sectional, time-series or panel data. These studies consider the complex, often varied motivations behind the factors influencing the remittance-sending behavior. Some studies use gravity models to estimate the microeconomic and macroeconomic determinants of remittances, involving push and pull factors as well as distance or proxies for the distance variables.

Income and wage differentials between migrant-hosting and migrantorigin countries are recurring determinants of remittances found in the empirical literature. An obvious benefit of migration, particularly from less to more developed countries, is the increase in a migrant worker's income and that of his or her family from remittance receipts Ratha et al. (2011). Adenutsi and Ahortor (2021), Bunduchi et al. (2019) and Yoshino et al. (2019) are some studies that have found that income and wage differentials have a positive relationship with remittances. Bunduchi et al. (2019) expand their analysis to include the fiscal burden on wages. They find that the tax rates on labor income have a negative impact on remittances as higher tax burdens imply lower disposable income to remit back home.

The cyclicality of remittances with respect to the economic cycles of both the origin and host countries has also been investigated in a number of research papers. Mandelman and Zlate (2012) find that remittance flows are responsive to business cycles in the source and host countries. Some studies have shown that remittances are countercyclical with respect to the economy of the origin/home country. Migrants tend to send more transfers to their families back home to help them cope with the economic contraction or slowdown. Remittances are thought of as providing an insurance against income shocks, with workers expected to send more to their families during economic downturns to help them during periods of unemployment or reduced income. There is cross-country evidence indicating a negative relationship between remittances and income for some countries, with remittances tempering the magnitude of the drop in GDP in times of severe economic crises and acting as a stabilizer to large fluctuations in output over the business cycle (Sayan 2006). Sayan (2006) notes that remittances also respond to the state of economic activity in the host countries. If the business cycles in the home and host countries move in tandem, it may be difficult for migrants in a crisis-struck economy to

assist family members facing similar conditions at home. He adds that, because of this, the remittance flows themselves in some cases can contribute to the transmission of the effects of a contraction in the host economy to the recipient country. Using the micro foundations approach and panel techniques, Chami et al. (2003) find that remittances move countercyclically, if all countries included in their study are taken collectively. Meanwhile, Barajas et al. (2012), using panel data, show that remittance flows increase the business cycle synchronization between remittance-receiving countries and the rest of the world. They find that a 1% decrease in a host country's output gap translates to a similar decline in the output gap of a recipient country when the latter's remittance receipts represent at least 10% of its annual GDP.

Other studies that have examined the correlation between remittances and GDP however have obtained the opposite result. Lueth and Ruiz-Arranz (2007) find that Sri Lankan remittances drop when the investment and political climate worsens. They conclude that remittances provide little insurance against a balance-of-payments (BOP) crisis. Sayan (2006) confirms cross-country differences in the cyclicality of remittances. He examines the behavior of workers' remittances to 12 developing countries and finds that countercyclicality of receipts is not commonly observed across these countries. His results show that remittances move procyclically or acyclically with output for some countries within the group. Giuliano and Ruiz-Arranz (2005) find procyclicality in two-thirds of the 100 developing countries that they examined.

Lucas and Stark (1985) as well as De et al. (2016) observe that the cyclicality of remittances is contingent on the motives of those sending the remittances remittances driven by altruism, or transfers sent to relatives without expectations of personal gain, tend to run counter to the business cycle of the home economy; while remittances motivated by self-interest as well as those that are intended for investment in the home country are likely to be procyclical with respect to the business cycle of the home economy. Ruiz and Vargas-Silva (2014) recognize that migrant workers from the same home country may have different reasons for sending remittances and that one individual may have multiple motives for remitting. Other studies argue that the remittances-growth effect is country specific, where institutional and development factors and cultural idiosyncrasies have a profound role in determining the outcome of remittances (Kadozi 2019; Piteli et al. 2019).

More recently, Sayeh and Chami (2020) also examine the motivations behind remittance flows, with their definition of remittances—private income transfers that flow from migrants to their home economies when their home country experiences macroeconomic shocks—assuming the altruistic view. According to them, remittances sync the business cycles of migrant-hosting and remittance-receiving countries. Their definition of remittances is particularly relevant in the context of the global economic crisis induced by the COVID-19 pandemic. On the one hand, during economic upswings, migrant workers furnish labor to host economies and provide income to their home economies. On the other hand, shocks to the host economy, such as those being induced by the pandemic, can be transmitted to remittance-receiving economies, which, in the current context, are likewise experiencing similar shocks at the same time.

De et al. (2016) point out that empirical literature on cyclicality has been largely inconclusive. In their study of 109 countries, they find that remittances do not systematically move with or against business cycles. Ruiz and Vargas-Silva (2014) likewise note that the findings of empirical literature dedicated to the subject have been country-specific and that the cyclicality of remittances must be studied using a more dynamic framework. For their part, Ruiz and Vargas-Silva (2014) find, using data from Mexico, that the cyclicality of remittances with respect to the business cycle of the home economy is unstable and changes over time-that is, they are countercyclical during some periods and procyclical at others. Their empirical results show that remittances are more likely to react positively after negative shocks to the Mexican GDP (implying that remittances sent during such periods are altruistically motivated) in cases where the United States' economy⁵ remain stable. They also find that during times of global economic sluggishness, as in the 2008 global financial crisis, migrants are also experiencing economic distress and face challenges in compensating their households for the difficult economic conditions in the home economy.

Cooray and Mallick (2013) conclude that macroeconomic factors present in both migrant-host and -home countries matter for understanding remittance flows. Using panel data for 116 countries, they find that remittances decline under increasing economic uncertainty in home countries (seemingly consistent with the investment-motive theory of remittance flows) but increase under growing uncertainty in host economies. Their finding however applies only to middleincome countries, as other groupings show acyclicality. The authors attribute the latter result to the less-explored insurance motive of remittances (Amuedo-Dorantes and Pozo, 2006), which has to do with the risk aversion of migrant workers, that is, when migrants are faced with greater income uncertainty in the host country, they tend to send more money back home. They acknowledge that the motives to remit are complex, as these are affected by the individual migrant characteristics, as well as host and home country-specific factors.

The discussions in this study reveal that the remittance decision is quite complex, as the various motivations are not mutually exclusive and could differ across time and circumstances. The methodology in this study consists of two parts. To shed light on the first policy question, a reduced-form model is estimated to capture the factors driving the growth of overseas remittances. The study estimates the determinants of the year-on-year (YoY) growth of personal overseas remittances from January 2009 to December 2021 using the Generalized Method of Moments (GMM). The issue of endogeneity needs to be considered when studying the impact of migration and remittances as remittances are considered part of the home country's GDP. Most studies use the two-stage least squares (instrument variable). In the model, we use the GMM to address the issue of endogeneity.

Growth of personal remittances is used since it is conceptually broader than cash remittances. The model is then estimated to determine the impact of the pandemic on the determinants of YoY growth of remittances from January 2009 to December 2019 (pre-pandemic period) and from January 2009 to December 2021 (with pandemic period) using a dummy variable for Covid-19 pandemic. To answer the second policy question, the Impulse Response Function

⁵ The authors noted that the great majority of remittances to Mexico originates from the United States.

(IRF) of a Vector Autoregressive (VAR) model from January 2009 to December 2021 is used to analyze the spillover effects of a shock in the growth of personal remittances. The IRF is also used to see the impact of the cumulative number of new confirmed COVID-19 cases in the Philippines on the growth of overseas remittances.

C. What Do the Statistics Tell Us?

C.1 Recent Developments

In 2020, the World Bank recorded the flow of remittances worldwide at \$646.2 billion, only about 1.2% lower than the previous year (Table 2), and much smaller than its forecasted decline of 7% (World Bank, 2021). The decline in transfers was notably smaller than the decline recorded during the Global Financial Crisis, where world-wide, remittances fell by 4.8 percent in 2009 compared to 2008. On a regional basis, the contraction in 2020 of personal remittances to Asia-Pacific economies was considerably lower (at -1.9%) compared to the declines recorded in the other regional groupings of Europe/Central Asia (at -6.5%), North America (at -10.4%), and Sub-Saharan Africa (at -14.3 percent) (Table 3).⁶

Year	East Asia & Pacific	Europe & Central Asia	Latin America & Caribbean	Middle East & North Africa	North America	South Asia	Sub- Saharan Africa	World
2010	68.8	134.1	56.9	38.2	8.4	82.0	31.7	420.1
2011	76.7	150.4	60.6	40.2	8.5	96.4	37.1	469.8
2012	81.9	149.8	60.9	47.4	8.7	108.0	37.2	494.1
2013	88.4	167.6	62.3	49.0	9.2	110.8	37.6	524.7
2014	106.2	170.8	65.2	54.9	9.2	115.8	39.7	561.8
2015	111.5	154.2	69.1	51.5	9.3	117.6	42.2	555.5
2016	108.1	155.3	74.1	50.9	9.1	110.7	38.6	546.8
2017	114.1	169.4	82.3	53.9	9.1	117.3	42.3	588.4
2018	115.6	183.5	90.3	54.9	9.4	131.8	48.8	634.3
2019	113.2	188.0	97.7	56.7	9.6	139.8	48.8	653.9
2020	111.1	175.8	103.7	58.1	8.6	147.1	41.8	646.2

Table 2 : Personal Remittance by Region, 2010 to 2020 (US\$ billion)

Source: World Bank

⁶ By contrast, personal remittances rose in 2020 compared to 2019 to Latin America and Caribbean (at 6.1%), Middle East and North Africa (2.5%), and South Asia (at 5.2%).

Year	East Asia & Pacific	Europe & Central Asia	Latin America & Caribbean	Middle East & North Africa	North America	South Asia	Sub- Saharan Africa	World
2010	17.0	4.5	2.6	19.1	1.3	9.5	11.4	8.7
2011	11.5	12.2	6.5	5.1	1.4	17.6	17.1	11.8
2012	6.8	(0.3)	0.5	18.1	2.8	12.0	0.5	5.2
2013	7.8	11.9	2.2	3.2	4.9	2.6	0.9	6.2
2014	20.2	1.9	4.8	12.2	0.2	4.5	5.7	7.1
2015	5.0	(9.7)	6.0	(6.2)	1.2	1.6	6.3	(1.1)
2016	(3.1)	0.7	7.2	(1.1)	(2.5)	(5.9)	(8.5)	(1.6)
2017	5.5	9.1	11.0	5.8	0.6	6.0	9.6	7.6
2018	1.4	8.3	9.7	2.0	3.0	12.3	15.3	7.8
2019	(2.1)	2.5	8.3	3.3	2.0	6.1	(0.1)	3.1
2020	(1.9)	(6.5)	6.1	2.5	(10.4)	5.2	(14.3)	(1.2)

Table 3 : Growth Rates of Personal Remittance by Region, 2010 to 2020 (in %)

Source: World Bank

Figure 1: Overseas Filipinos' (OF) Remittances In Billion US\$, 2010-2021



Defying expectations of a sharp reduction in remittance flows in the wake of the pandemic, remittances to the Philippines remained broadly stable in 2020. **Remittances** dropped by only 0.8% (for both personal and cash remittances) in 2020 compared to 2019 (Figure 1).7 Personal remittances dropped

only slightly to \$33.2 billion in 2020, from \$33.5 billion in 2019, while cash remittances slid to \$29.9 billion from \$30.1 billion. The trend of slightly lower inflows is observed for both land-based and sea-based workers. In 2021, both personal and cash remittances largely from land-based workers grew by 5.1% to reach \$34.9 billion and \$31.4 billion, respectively (Figure 2).

⁷ Cash remittances move closely in tandem with personal remittances. Cash remittances are **remittances that are sent through the local banking system.** Cash remittances are a subset of personal remittances. **Meanwhile,** the BSP started to release data on personal remittances in June 2012. The Balance of Payments Manual, 6th Edition (BPM6) defines personal remittances as current and capital transfers in cash or in kind between resident households and non-resident households, including compensation of employees, less taxes and social contributions paid by nonresident workers in the economy of employment, less transport and travel expenditures related to working abroad. It thus includes all household-to-household transfers as well as the net earnings of non-resident workers (Appendix A).



Figure 2: Overseas Filipinos' (OF) Remittances by Type of Sender In Billion US\$, 2010-2021

By comparison, at the height of the global financial crisis, the level of (cash) remittances rose by 5.6% in 2009 relative to the previous year (Figure 3), although its growth slowed down. During the Gulf War in the early 1990s, remittances were remarkably strong, with cash remittances growing in the double-digits (Figure 4).⁸ Policymakers have noted the resiliency of remittances as a major force that has helped propped up the Philippine economy amid global economic shocks.



Figure 3: Remittances During the Global Financial Crisis

⁸ It could well be, however, that the rise in recorded remittances during the early 1990s could be partly due to better data capture.



Figure 4: Remittances During the Gulf War

Data on remittance flows by source country are quite revealing.⁹ Transfers from the U.S., Singapore and South Korea have continued to increase in 2020¹⁰, partially offsetting the declines recorded in the United Kingdom, United Arab Emirates, Saudi Arabia and Japan. In 2021, except for transfers from Hong Kong which dropped by 12.0%, overseas remittances from major source countries have recovered (Figure 5, Table 4).



Figure 5: Remittances from Top 10 Source Countries in Million US\$

⁹ There are some limitations on remittances data by source. A common practice of remittance centers based overseas is to course these transfers through correspondent banks, most of which are based in the United States. Moreover, the data on remittances coursed through money couriers cannot be disaggregated by actual country source and are lodged under the country where the main offices are located, which, in many cases, are also based in the United States. These factors could partly explain the sizable magnitude of remittances coming from the USA.

¹⁰ Year-to-date 2021.

	Le	vel (US\$ millio	on)	Growth rate (%)		
Country	FY 2019	FY 2020	FY 2021	FY 2019-2020	FY 2020-2021	
United States	11,318	11,936	12,736	5.5	6.7	
Singapore	1,906	2,148	2,201	12.7	2.4	
Saudi Arabia	2,098	1,812	1,835	(13.7)	1.3	
Japan	1,795	1,577	1,611	(12.2)	2.2	
United	1,567	1,371	1,483	(12.5)		
Kingdom					8.1	
United Arab	1,592	1,287	1,320	(19.2)	2.6	
Emirates						
Canada	1,016	1,029	1,148	1.3	11.6	
Hong Kong	802	821	722	2.4	(12.0)	
Qatar	758	820	829	8.2	1.1	
South Korea	683	708	788	3.6	11.4	
Total (Top 10)	23,537	23,509	23,058	(0.1)	4.9	
Total (all	30,133	29,903	31,418	(0.8)	5.1	
countries)						

Table 4: OF Cash Remittances from Top 10 Source Countries, 2019 to 2021

Source: BSP

Note: Top 10 source countries ranked for full year (FY) 2020.

In 2021, there was an increase in remittances of more than 5% relative to the levels recorded in 2020. This was true for transfers coming from Canada, South Korea and the United States, which grew by 11.6%, 11.4%, and 6.7%, respectively (Table 4). This would further suggest that remittances are indeed a highly resilient source of foreign exchange resources.

There are limitations on remittances data compiled and published by the BSP and the PSA. In the SOF of the PSA, Overseas Filipinos include, among others, overseas contract workers, Filipino immigrants and residents in other countries, and Filipinos abroad with non-immigrant visas (tourist/visitor, student, medical treatment, and others). The BSP published data on personal remittances also include remittances from OF workers with work contracts of less than one year and one year or more, as well as transfers between Filipinos who have migrated abroad and their families in the Philippines. These data sources on overseas remittances, however, do not provide disaggregated data by residency of the sender. Moreover, there is currently no data on how much of remittances are being used for specific purposes. The BSP's CES provides information on the share of OFW households which use remittances for various purposes such as food and other household needs, education, medical purposes, savings, and investments, among others. While the CES shows how remittances are being used by OFW households, it does not provide data on the actual amount of remittances according to use.

There are a number of possible explanations for the observed strength of remittance flows to the Philippines during the pandemic. First, overseas Filipinos are a heterogeneous group, and their motivations, willingness and capability to send remittances are varied. Overseas Filipinos who have steadier sources of income as their usual work arrangements have not been disrupted significantly by the pandemic are likely to have continued to send money as they have before. This is most likely the case for those OFs who work in essential occupations such

as medical care and some personal services. Meanwhile, remittances have declined from OFs who are more vulnerable to the economic downturn. Based on Philippine Statistics Authority (PSA)'s Survey on Overseas Filipinos (SOF)¹¹, these groups include managers, professionals, clerical support workers, service and sales workers, craft and related trade workers, and plant and machine operators and assemblers.

Second, there is anecdotal evidence that overseas Filipinos' risk-taking behavior is such that they find ways to augment their incomes by finding second jobs, working longer hours or switching occupations where employment is less uncertain. The income support from targeted fiscal stimulus measures that have been adopted in some countries could have also contributed to the steadier remittance flows, particularly from the advanced economies. Studies find that the size of the fiscal stimulus in host countries is positively associated with remittances as the fiscal response have cushioned the economic impact of the pandemic (Kpodar et al. 2021). Using the change in the government spending ratio to GDP in 2020 relative to pre-COVID level, Kpodar et al. (2021) argue that in countries with larger fiscal responses to avert the health and economic fallout of the pandemic, migrants are able to send more money to their families back home. Statistics show that remittances from the United States have held up quite well in 2020 (rising by 5.5%) and January to July 2021 (rising by 6.7%).¹² This was also observed in remittances emanating from South Korea, Singapore and Taiwan.

Third, overseas Filipinos, in times of difficulties, could have dipped into their savings to continue to support their household members back home. Mindful of the sharp contraction in real economic activity in the Philippines as it grapples with the COVID-19 pandemic, overseas Filipinos could have been prompted to send more or the same amount of remittances to help their households during times of economic hardships. The altruism motivation is very much in evidence. The projected two-speed recovery of the global economy would likely see this factor explaining the future trends in remittances to the Philippines. Overseas Filipinos, seeing that the Philippines is being hit especially hard, could prop up the income support that they provide to their households so that they can have enough funds to ride out the doldrums. This is the countercyclical nature of remittances relative to the origin country.

Fourth, stable remittance flows could be due to the diversion of remittances from informal to formal modes due to mobility restrictions that could have hampered access to some physical remittance centers. The shift in flows from cash to digital means, and the better capture of these digital transactions coursed through the formal channels could also have supported remittance numbers. Official data on this are however sketchy. There are recent pronouncements on initiatives in digital banking services. For instance, UniTeller Philippines announced in December 2021 that their partnership with Universal Storefront Services Corporation (USSC), being one of the largest one-stop digital shops in the Philippines, plan to increase customers' accessibility in redeeming their

¹¹ The PSA-SOF estimates cover remittances during six months prior to survey of overseas Filipinos whose departure occurred within the last five years and who are working or had worked abroad during the past six months (April to September) of the survey period. The latest survey results are for 2020.

¹² Please refer to Table 4: OF Cash Remittances from top 10 source countries, 2019 to 2021.

remittances.¹³ Another is Digital Wallet Group (DWG), a Japan-based global IT and fintech company, has introduced Smiles Mobile Remittance (Smiles) in February 2022, the group's international money transfer app, in the Canadian market. Smiles will be managed and introduced to the market in Canada by DWG's Canadian subsidiary, Digital Wallet Canada Limited (DWCL), serving the country's largest demographic: Filipinos. With Smiles, DWG will be able to expand its Smiles service from Asia Pacific to the western hemisphere. DWG acquired Speed Money Transfer Philippines, Inc., to operate in the Philippines.

Nonetheless, data show that transfers to banks have been on a trend rise while transfers using other modes have been on a trend decline (Table 5).

Year	Banks	Agency/ Local office	Friends/ Co- workers	Door- to-door	Money Transfer	Others	Total
2010	77.3	3.2	0.9	8.4	_*	15.1	104.9
2011	82.0	5.3	0.6	7.1	-*	19.1	114.1
2012	85.1	3.0	0.5	4.4	_*	27.1	120.1
2013	79.7	3.6	0.6	2.7	_*	31.6	118.1
2014	82.2	5.9	0.2	2.0	-*	36.4	126.8
2015	84.3	5.4	0.2	3.2	_*	42.6	135.6
2016	88.1	3.5	0.4	1.8	-*	52.3	146.0
2017	92.2	4.6	0.2	1.2	-*	48.6	146.8
2018	89.4	3.3	0.2	0.1	76.3	0.1	169.4
2019	91.5	1.0	0.4	0.6	64.3	0.1	157.9
2020	57.7	2.5	0.2	0.2	51.9	0.5	113.1

Table 5 : Cash remittances by mode of transfer, 2010 to 2020 (PhP billion)

Source: PSA SOF; Note from PSA SOF: The estimates cover remittances during six months prior to survey of overseas Filipinos whose departure occurred within the last five years and who are working or had worked abroad during the past six months (April to September) of the survey period Notes: *Money transfer as a mode of transfer/remittance was only included starting in 2018.

Fifth, repatriation, perhaps temporarily or, for some, on a more permanent basis, could be another explanation. This last reason deserves careful examination. The number of repatriated workers has risen considerably. According to the International Organization for Migration (IOM) report dated May 2021 on "COVID-19 Impact Assessment on Returned Overseas Filipino Workers" there was a record number of repatriated overseas Filipinos, numbering 791,623 in 2020, about 60.8 % (or 481,305 OFs) are land based while 38.9% (or 308,332 OFs) are sea based.¹⁴ Of the total repatriated overseas Filipinos, 327,511 were repatriated by the DFA (Table 6).

¹³ The 1,491 USSC pickup locations will expand UniTeller's touch points to about 20,000 across the Philippines. USSC's e-wallet app will also allow clients to manage their transactions, conveniently send or receive their remittances.

¹⁴ The remaining 0.2 % (or 1,986 OFs) are transferees from Sabah.

Type of worker	Number	Region	Number
Land-based	231,537	Middle East	228,893
Sea-based	95,974	Asia and the Pacific	36,868
		Americas	30,971
		Europe	28,909
		Africa	1,870
Total	327,511	Total	327,511

Table 6: Number of Filipinos Repatriated by the Department of Foreign Affairs (DFA) in 2020

Source: IOM

Meanwhile, the Overseas Workers Welfare Administration also estimated that for the period March 2020 to September 21, 2021, they expedited the return of 693,395 OFWs. The Department of Labor and Employment estimates that OFW displacement could reach 1 million by December 2021, as migrant populations struggle with job losses and indefinite furloughs/leaves. These numbers are significantly higher than the repatriation that was recorded during the GFC period. Some of the reasons cited by repatriated Filipinos include the expiration and non-renewal of work contracts because of the pandemic. OFs who have come back whether on a temporary or on a more permanent basis could have sent their savings and other accumulated capital (recorded in the BOP as migrant transfers) to the Philippines for their financial needs, including while planning for their next actions or deployment. It could well be argued that the numbers of those repatriating could even be higher if not for the travel restrictions globally.

At the same time, there has been a marked reduction in the number of contracts processed, and more significantly, in the number of deployed OF workers (both new hires and rehires). There is also a significant slowdown in the visa processing for those seeking permanent residence overseas.¹⁵ Total OFW deployment dropped from 2.157 million in 2019 to 549,800 in 2020, contracting by 74.5%. By contrast, from 2010-2019, average annual deployment was at 1.878 million for an average annual deployment growth rate of 4.4%. Of the total deployment in 2020, land-based workers accounted for 60.5% while 39.5% were sea-based. This compares to 76.5% and 23.5% respectively in 2019. The numbers of both new hires and rehires dropped considerably as well. For 2021, the total number of deployed workers have recovered, rising by 35.1% from the total in 2020. The rise in the number of deployed workers is seen largely in sea-based workers, posting an annual increase of 59.4% from 2020. Land-based workers also rose by 19.2% and mostly are new hires.

			Land-based		500-	Percent of total	
Year	Total	Total	New hires	Rehires	based	Land- based	Sea- based
2010	1471	1124	342	782	347	76.4	23.6
2011	1688	1319	438	881	369	78.1	21.9
2012	1802	1435	459	977	367	79.6	20.4

Table 7: Deployment of OFWs in thousands 2006 to 2021

¹⁵ Based on POEA issuances. On 28 September 2020, the POEA issued a rejoinder stating that the slowdown in deployment of OFWs was attributed to some countries which are still not accepting foreign nationals, restrictions on travel, temporary disruption of government office operations due to community quarantine, and closing of licensed recruitment and manning agencies.

			Land-based	ł	500	Percent of total	
Year	Total	Total	New hires	Rehires	based	Land- based	Sea- based
2013	1836	1469	465	1004	367	80.0	20.0
2014	1833	1431	487	944	402	78.1	21.9
2015	1844	1438	515	923	407	78.0	22.0
2016	2112	1670	583	1087	443	79.0	21.0
2017	2045	1595	459	1136	449	78.0	22.0
2018	1989	1507	421	1086	482	75.7	24.3
2019	2157	1649	486	1163	508	76.5	23.5
2020	550	333	100	232	217	60.5	39.5
2021	743	397	268	129	346	53.5	46.5

Source: POEA

Note: Data for 2018 to 2021 are preliminary.

Based on the 2021 Senate Economic Planning Office (SEPO) report, the decrease in the number of deployed workers in 2020 was mainly attributed to the travel restrictions imposed to address the rising transmission rate of COVID-19, including the ban (deployment cap) on the deployment of healthcare workers. The government placed a deployment cap of 5,000 healthcare workers (per annum), much lower than the annual average of 16,651 nurses deployed from 2016 to 2019. This has since been lifted last December 2020. While OFWs are now permitted to enter some countries subject to flight availability, visa regulations and medical protocols, other countries still restrict the entry of Filipinos.¹⁶ Constraints on travel/flights locally as well as to and from some of the host countries for OFs/OFWs are expected to affect the numbers in 2021 and 2022.

Aggravating the decline in the number of deployed workers was the rise in the COVID-19 cases among OFWs. As of 11 April 2021, the Philippine Overseas Labor Office (POLO) recorded a total of 17,721 confirmed cases of infection among OFWs. More than half have already recovered, while 6,560 (37%) are still recuperating, and 943 have succumbed to the virus (SEPO 2021).

C.2 Cyclicality of Remittances

The timing of remittances flows is important because remittances can amplify or moderate income volatility, depending on their cyclical behavior. The issue of income volatility, in turn, is important because macroeconomic stability is a desired characteristic for sustained and balanced economic growth.

Procyclicality in remittances has the potential to exert a destabilizing force. It could magnify output fluctuations, leading to serious macroeconomic effects, including deepening crises even further. Procyclicality in remittances could also reduce the creditworthiness or external liquidity of countries at a time when they are most in need of external financing. Knowing the cyclicality of

¹⁶ There is also a deployment ban not related to Covid-19 restrictions. Based on POEA, deployment ban on household service workers (HSWs) and construction workers to Saudi Arabia will remain until it has complied with the demand of the Philippine government for the fair treatment and protection of Filipino workers and the settlement of P4.5 billion in back wages and benefits of some 10,000 Filipinos. Source: POEA pronouncement on 10 February 2022.

remittances is therefore important so that policymakers are appropriately forewarned about the need to formulate appropriate policies that would minimize income volatility.

The review of the literature shows that cyclicality is largely dependent on the motivation behind or the nature of the transfers. If remittances are altruistically motivated, then one would expect countercyclicality. If remittances are motivated by portfolio investment, self-interest or insurance considerations, then one would expect procyclicality as remittances behave like other investment-related capital flows. More typically, remittances are likely to be motivated by varied considerations across time and across individuals. In this case, remittances could exhibit an acyclical behavior as the net effect would depend on which flow (altruistically or investment motivated) is of greater magnitude. It could also depend on migrant characteristics, with the expectation that remitters from low-income households would be remitting more for altruistic reasons while remitters from more affluent households would be remitting more for investment and insurance considerations.

Following the methodology used by Frankel (2009),¹⁷ the bilateral/pairwise coefficient of correlation is estimated between overseas Filipinos' (OFs') personal and cash remittances and real Gross Domestic Product (GDP) of major sources of overseas remittances to the Philippines from March 2009 to December 2021. We also include the pairwise correlation between OFs' personal and cash remittances and the Philippine real GDP and Philippine real consumption spending. OFs' cash and personal remittances are detrended using two-sided HP filter. All real GDP of source countries are scaled by their own trend real GDP using the two-sided HP filter to see the relative difference between actual real GDP and the trend.

Table 8 shows the following results: OFs' cash remittances are procyclical with the incomes (real GDP) of the host country groups – Asia & the Pacific, the Americas, Europe, and the Gulf countries. OFs' personal and cash remittances from South Korea, Greece, Spain, and Taiwan are not significant at the 5% and 10% levels of significance.

Variable	Cash remittances (Actual/HP Trend) Mar 2009-Dec 2021	Personal remittances (Actual/HP Trend) Mar 2009-Dec 2021
Real GDP level (In Mil US\$)		
Actual/HP Trend		
Mar 2009-Mar 2021		
Philippines	Procyclical *	Procyclical *
Real consumption spending (Actual/HP	Countercyclical*	Countercyclical*
trend)		
Americas	Procyclical *	Procyclical *
Asia	Procyclical *	Procyclical *

Table 8: Cyclicality of Overseas Filipinos' Cash and Personal Remittances

¹⁷ Frankel, J. (2009). Are Bilateral Remittances Countercyclical? Open Economies Review. October 2009.

Variable	Cash remittances (Actual/HP Trend) Mar 2009-Dec 2021	Personal remittances (Actual/HP Trend) Mar 2009-Dec 2021
Europe	Procyclical *	Procyclical *
Gulf	Procyclical **	Procyclical **
Americas		
United States	Procyclical *	Procyclical *
Canada	Procyclical *	Procyclical *
Asia & the Pacific		
Of which:		
Hong Kong SAR	Procyclical *	Procyclical *
Japan	Procyclical *	Procyclical *
South Korea	Procyclical **	Procyclical **
Singapore	Procyclical *	Procyclical *
Taiwan	Procyclical **	Procyclical **
Australia	Procyclical *	Procyclical *
Europe		
Of which:		
Cyprus	Procyclical *	Procyclical *
Germany	Procyclical *	Procyclical *
Greece	Procyclical **	Procyclical **
Italy	Procyclical *	Procyclical *
Spain	Procyclical **	Procyclical **
The Netherlands	Procyclical *	Procyclical *
United Kingdom		
Gulf countries	Procyclical *	Procyclical *
Of which:		
Bahrain	Procyclical *	Procyclical *
Kuwait	Procyclical *	Procyclical *
Saudi Arabia	Procyclical *	Procyclical *

Source: Authors.

Note: * Significant at 5% and 10% levels of significance

** Not significant at 5% and 10% levels of significance

The finding of procyclicality in both the origin and host countries could explain why remittances are expected to go down in the COVID-19 period, as all economies have been suffering setbacks in a scale that are greater than those seen in previous episodes when remittances have also been affected (Gulf crisis period in 1990 to 1991 and the Global Financial Crisis period in 2008 to 2009). Procyclicality of remittances with respect to the economic cycles in host countries imply that remittances are a significant channel for the transmission of global shocks. This is an often underappreciated spillover impact in contrast to global investment and trade flows.

Procyclicality of remittances with respect to the Philippines' economic cycle mean that the stabilizing impact of remittances can be less than is often assumed. This finding also suggests that remittances are also motivated by portfolio investment or insurance considerations. However, Table 8 also shows that Philippine cash and personal remittances are countercyclical with Philippine real consumption spending, an indication of the presence of altruism as another motivation in sending remittances to OFs' beneficiaries in the Philippines. This means that remittances are also meant to help smoothen spending pattern of OFs' beneficiaries. These findings must be recognized by policymakers when considering dependence on remittances for much-needed policy space.

The correlation tests conducted here deal only with bivariate relationships. In fact, the relationships are much more complex. The impact of remittances on the real exchange rate, wages, and labor productivity are part of a complex set of interactions in the economy. Moreover, it is equally important to consider that when studying the impact of remittances, the issue of endogeneity need to be considered as remittances form part of GDP. Most studies use the two-stage least squares (instrument variable) and the GMM approach. This study uses the GMM in addressing the issue of endogeneity.

D. Empirical Methodology and Results

D.1 Determinants of Remittances

Empirical strategy. A reduced-form model that identifies the drivers of growth of overseas remittances (R_t) with lags t-j is used to investigate the impact of the pandemic by estimating the macroeconomic determinants of the YoY growth of overseas remittances to the Philippines from January 2009 to December 2021. These factors are the origin/home country's growth, inflation rate, interest rate differential, exchange rate, host country's economic growth, and level of financial development. As in other studies, the drivers of growth of overseas remittances are assumed to behave with lags. To the best of the authors' knowledge, this is the first time that this approach has been used in studies on the impact of the pandemic on overseas remittances to the Philippines. Some recent studies focus on the regional impact of the pandemic on overseas remittances.¹⁸

$$R_{t} = a_{t} + \beta_{1}Yd_{t-j} + \beta_{2}r_{t-j} + \beta_{3}REER_{t-j} + \beta_{4}Yf_{t-j} + \beta_{5}M_{t-j} + u_{t-j}$$
(1)

Table 9: A Priori Relationships of Selected Factors Driving Growthof Overseas Remittances

No.	Indicator	Parameter in Equation 1	Expected relationship with overseas remittances	Studies
1	Home country's real	Yd	Positive	Cazachevici et al.
	GDP growth			(2020); Olayungbo
or				and Quadri (2019);
				Yoshino et al. (2019);
				Borja (2013)

¹⁸ These studies include Kikkawa et al. (2021), an ADB study that analyzes the impact of the pandemic on labor mobility and remittances in the Asia and the Pacific region.

No.	Indicator	Parameter in Equation 1	Expected relationship with overseas remittances	Studies
2	Inflation	11	Positive	Rivera and Tullao (2020)
3	Interest rate differential	r	Positive	Olayungbo and Quadri (2019)
4	Exchange rate (nominal and real effective exchange rate ² of advanced trading partners)	REER	Positive	Yoshino et al. (2019); Lin (2011)
5	Host country's real GDP growth	Yf	Positive	Yoshino et al. (2019); Borja (2013)
6	Growth of domestic liquidity in home country	М	Positive	Cazachevici et al. (2020): Olayungbo and Quadri (2019)

Source: Authors

Notes: ¹In the empirical estimation, multicollinearity is seen when both Yd and *II* are in the equation. ² The real effective exchange rate is calculated as REER= $e(Pd/P^*)$, where *e* is the nominal effective exchange rate, *Pd* is price of domestic good, *P*^{*} is the price of foreign good.

Specifically, the growth of remittances is expected to be positively related to the origin/home country's (in this case the Philippines) real GDP (G)., reflecting the dominance of the self-insurance/investment motives over the altruism motive, and as borne out in the cyclicality tests.¹⁹ Inflation is also considered separately as an indicator of macroeconomic prospects, with inflation readings possibly motivating overseas Filipinos to send more. Specifically, Rivera and Tullao (2020) find that increases in Philippine inflation can prompt the sending of more remittances at least in the short run.

The interest rate differential between local and international rates (r) determines whether investment considerations are at play. Equation 1 uses the difference between the monthly overnight BSP policy rate and the Federal (Fed) funds rate. Movements in the peso-dollar rate (fr) estimate the impact of exchange rates on growth of overseas remittances. Specifically, the real effective exchange rate is posited as being positively associated with remittance inflows. The cyclicality of remittances from the host countries ($\forall f$) will show if remittances vary with the business cycles of host countries such that in good times, better employment opportunities and higher wages allow overseas Filipinos to transfer more. The impact of remittances is associated with an increase in domestic liquidity (M3), which can indicate a higher level of financial development or efficiency of banking services in the home country.

¹⁹ In the estimation, growth of real consumption spending was initially included. However, the regression yielded insignificant coefficient. This was removed from the final regression.

No.	Variable	Description	Source
1	DRGDP	YoY growth of Philippines' Real Gross Domestic Product	National Income Accounts, BSP
2	INF	YoY growth of consumer price index (2012 as base year)	Domestic consumer prices, BSP
3	LINT	Log of interest rate differential: BSP overnight policy rate less Fed funds rate	Selected interest rates, BSP
4	LM3	YoY growth of domestic liquidity (M3)	Deposit corporations survey, BSP
5	DREER	YoY growth of real effective exchange rate (advanced economies)	Exchange rate, BSP; Trend based on HP filter
6	USLGDP	Actual US real GDP/HP trend of US real GDP	CEIC Database. Trend based on HP filter
7	DCOV	Dummy for Covid-19 pandemic	Value of 1 from March 2020 to May 2021; 0 otherwise

Table 10: Data and Description

Source: Authors

Estimation method. In analyzing the drivers of overseas remittance flows, many studies use instrumental variables in Two-Stage Least Squares and GMM as well as IRFs in Vector AutoRegression (VAR) with a variable ordering assumption. Other studies use the Autoregressive Distributed Lag Model (ARDL) to identify the presence of a long-run equilibrium relationship. The results are sensitive to the details of model specification. In this study, the parameters in the models are estimated using the GMM. This study considers this to be a more appropriate empirical methodology to address the endogeneity among the factors driving the growth of personal remittances. The GMM controls for endogeneity by including instrument variables that are lagged values of the explanatory variables and previous annual growth of personal remittances as an explanatory variable in the model. The GMM model ultimately addresses the three major sources of endogeneity, namely (a) omitted variable,²⁰ (b) simultaneity,²¹ and (c) measurement errors.²²

Robustness checks. Descriptive diagnostics tests are used to check the stability of indicators used in the study. A critical assumption for the validity of GMM estimates is that instrument variables are exogenous. The findings from GMM will not be valid if the instruments are endogenously determined. The Durbin-Wu-Hausman test is used to determine whether the regression model is valid or not, and whether the instruments are correctly specified or not. The null hypothesis of the test is that the regressors used are exogenous. If the null hypothesis is rejected, the instruments used in the estimation need to be reconsidered. The

²⁰ Omitting a relevant variable from the right-hand side of the regression, which is correlated with at least one of the included independent variables, causes endogeneity (i.e., the included variable becomes correlated to the error term).

²¹ This source of endogeneity occurs when both the dependent variable and independent variable affect each other simultaneously.

²² Failing to measure a relevant and included explanatory variable appropriately causes a portion of the variable's effect to be embodied into the error term.

standard error of regression is also used to see if the residuals of the model are stable and to check the overall fit of the model. The 1%, 5%, and 10% levels of significance are looked into.

Results. Following the diagnostics and robustness checks, the estimates from January 2009 to December 2021 reveal important findings. Model 1 in Table 11 is the baseline model. Model 2 includes all the variables used in Model 1 and a dummy variable for Covid-19 pandemic. Model 3 re-estimates Model 1 from January 2009 to December 2019 only or the pre-pandemic period. The results of Model 1, Model 2 and Model 3 are examined to determine the impact of the pandemic on the growth of overseas remittances.

In Model 1, the results show that the YoY growth of personal remittances are positively and significantly related with the lag of inflation. In the initial estimation, real GDP growth (DRGDP) of the Philippines is used to see if remittances tend to stabilize real GDP. However, the estimation yielded insignificant coefficients. The interest rate differential (INT) is positive which indicates that investment or insurance considerations drive the growth of personal remittances. The growth of the real effective exchange rate of trading partners (advanced economies) (DREER) positively affects the growth of personal remittances. In addition, the growth of personal remittances varies with the business cycles of the US economy (USGDP). This means that in good times, better employment opportunities and higher wages in the United States allow overseas Filipinos to transfer more to their beneficiaries in the Philippines. Finally, Model 1 shows that financial market development as indicated by the accelerated growth of domestic liquidity attracts overseas Filipinos to send more remittances. This is consistent with Olayungbo and Quadri (2019) who find that in the case of Sub-Saharan Africa (SSA) improved banking services and investment opportunities in the home countries attract higher remittances.

Table 11: Year-on-Year Growth of Personal Remittances (DPERM), Jan 2009-Dec 2021							
	Model 1 (Baseline) DPERM		Model 2 DPERM		Model 3 DPERM		
Independent variables	(Year-on-Year growth of personal remittances) Jan 2009-Dec 2021		(Year-on-Year growth of personal remittances) Jan 2009-Dec 2021		(Year-on-Year growth of personal remittances) Jan 2009-Dec 2019		
	Coefficient	Standard	Coefficient	Standard	Coefficient	Standard	
		error		error		error	
Constant	-0.558	0.288**	-0.266	0.353	0.033	0.165	
INF (-1)	0.593	(0.247)***	0.662	(0.346)**	0.423	(0.291)**	
LINT (-1)	0.031	(0.010)***	0.007	0.014	0.027	(0.008)***	
DM3 (-1)	0.181	(0.041)***	0.171	(0.048)***	0.215	(0.031)**	
DREER(-1)	0.092	(0.060)*	0.170	(0.069)*	0.177	(0.043)**	
USGDP(-1)	0.679	(0.299)***	(0.039)	0.365	0.089	(0.162)***	
DPERM (-1)	0.032	0.091	-0.040	0.107	-0.192	(0.065)*	

	Model 1 (Baseline)		Model 2		Model 3		
	DPERM		DPE	DPERM		DPERM	
	(Year-on-Y	ear growth	(Year-on-Y	ear growth	(Year-on-Year growth		
Independent	of per	rsonal	of per	rsonal	of personal		
variables	remitt	ances)	remitt	ances)	remittances)		
	Jan 2009	-Dec 2021	Jan 2009	Jan 2009-Dec 2021		Jan 2009-Dec 2019	
	Coefficient	Standard	Coefficient	Standard	Coefficient	Standard	
		error		error		error	
DCOV							
(Dummy							
variable for							
pandemic)			-0.060	(0.028)**			
Instrument variables are all lagg		ed depender	nt and indep	endent varia	bles		
	Diagnostics						
Adjusted R ²	0.14	•0	0.12	9	0.14	¥5	
Sample period	2009M1-2	2021M12	2009M1-2	021M12	2009M1-2	2019M12	
Durbin-Wu-	0.12	20	0.201		0.199		
Hausman Test							
1							
Standard error 0.014		0.054		0.0	45		
of regression ²							
Notes: Robust standard errors are reported in brackets. The symbols *, **, and *** represent significance levels of 10%,							
5% and 1% respectively. 'Reports p-values for the null hypothesis that the regressors used are exogeneous. ² Reports							

p-values for the null hypothesis that the residuals or errors in the regressions are stable.

Source: Authors

Given the results in Model 1, the impact of the pandemic on growth of personal remittances is expected to be significant. In Model 2, a dummy variable (DCOV) 1 from March 2020 to December 2021 (O from January 2009 to February 2020) is included to control for the impact of COVID-19 pandemic on the growth of personal remittances. Table 11 shows that DCOV has a negative and significant impact on the growth of personal remittances. This finding is consistent when we use the monthly growth of the cumulative number of confirmed new COVID-19 cases from the Department of Health (CUMCOV) from January 2020 to December 2021. These findings imply that these mobility restrictions in host economies and the Philippines explain the fall in remittance flows, and that once lifted, the recent slowdown in remittances can be expected to be temporary.

Model 1 is then re-estimated (as Model 3) using data from January 2009 to December 2019 (pre-pandemic period). There are two observations on the factors driving personal remittances in Model 3 when compared to results in Model 1 (with pandemic period or from January 2009 to December 2021) and in Model 2. First, the positive trajectory in Model 3 (constant at 0.033) turns negative in Model 1 (constant at -0.558). This further substantiates that personal remittances have been affected by the pandemic. Second, comparing Model 2 and Model 3, the coefficients of interest rate differential and US real GDP gap have become insignificant and negative in US real GDP gap in Model 2. This finding indicates that both investment and growth opportunities in the host countries and the Philippines have declined following the outbreak of the pandemic.

D.2. The Macroeconomic Effects of a Shock in Philippine Overseas Remittances

Empirical method. Section C highlights the sizable remittance inflows the Philippines has been receiving since the 1990s, indicating that the Philippines is more connected and vulnerable to external shocks than what traditional measures would suggest. Remittance flows represent an important and distinct channel of spillover effects from the global economy. The IRF from a VAR exercise is used to see the impact of a shock on overseas remittances on the macroeconomy from January 2009 to December 2021. A VAR expresses a variable as a function of its lag values and the lag values of other variables in the model. An IRF traces the impact of a one-time shock to the current and future values of a variable. To get a first insight into the relationships between the variables, we run Granger causality tests from January 2009 to December 2021 on the following indicators: YoY growth of overseas Filipino personal remittances (DPERM), interest rate differential (INT), labor force (LF), a proxy for wages, minimum wage rate (MINR), nominal peso-dollar exchange rate (FXR), growth of real effective exchange rate of major advanced trading partners (DREER), growth of domestic liquidity (DM3), real GDP growth (DRGDP) and inflation rate (INF).

In including labor market indicators such as the minimum wage rate, labor force, and employment, Bayangos and Jansen (2011) find that when looking at the impact of migration and workers' remittances on the competitiveness of the home economy, it is significant to consider not just the exchange rate effects but also the labor market effects.

No.	Significant One- Way Causality (From DPERM to Variables)	Significant One- Way Causality (From Variables to DPERM)	Significant Bi- Direction Causality (DPERM and Variables) */	No Significant Causality
1	Average nominal	Philippine real	YoY growth of labor	YoY growth
	peso-dollar rate	GDP gap (gap	force	of domestic
		from Hp trend)		liquidity (M3
2	YoY growth of	Labor force gap	YoY growth of	Minimum
	nominal peso-dollar	(gap from HP	employment	wage rate
	rate	trend)		
3		Employment gap	YoY growth of real	Inflation
			GDP	rate
			Interest rate	
			differential	

Table 12:	Granger	Causality	Test Results,	January	2009-Decembe	r 2021 ^{1/}
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Source: Authors

^{1/}At 1%, 5% and 10% levels of significance.

 $^{\prime\prime}$ In this exercise, the US real GDP gap (gap relative to its HP trend) causes growth of personal remittances.

The results of Granger Causality test in Table 12 show that (Granger) causation runs from YoY growth of personal remittances to growth of real effective exchange rate and minimum wage rate. Table 12 also shows that there is bi-directional causality between the growth of personal remittances, interest rate differential, average nominal peso-dollar rate, labor force (YoY growth and

gap from HP trend), employment (YoY growth and gap from HP trend) and inflation. These results imply that personal remittances are indeed an important economic source of income in the Philippines, having important impacts on exchange rates, labor force, and employment. Notably, it is well recognized that these Granger tests deal only with bivariate relationships while, in fact, the impact of overseas remittances on the real exchange rates, wages, labor force and employment are part of a complex set of interactions in the economy.

The IRF from the VAR exercise is used to see the impact of a shock on overseas remittances on the macroeconomy from January 2009 to December 2021 using the baseline ordering *DPERM DRGDP INF INT DM3 DFXR MINR DFOR*²³. Table 13 describes these variables.

No.	Variable	Description	Source
1	DPERM	YoY growth of personal remittances	Overseas Remittances, BSP
2	DRGDP	YoY growth of Real Gross Domestic Product	National Income Accounts, BSP
3	INF	YoY growth of consumer prices (2012=100)	Consumer prices, BSP
4	INT	Log of interest rate differential: BSP overnight policy rate minus Fed funds rate	Selected interest rates, BSP
5	DM3	YoY growth of domestic liquidity	Deposit corporations survey, BSP
6	DFXR	YoY growth of nominal peso-dollar rate	Exchange rate, BSP; Trend based on HP filter
7	MINR	Minimum wage rate	PSA, Labor sector
8	DFOR	YoY growth of labor force	CEIC Database. Labor force refers to the population 15 years old and over who contribute to the production of goods and services in the Philippines
9	FORCE_POT	Trend labor force relative to actual labor force	Trend labor force based on HP filter/actual labor force
10	DEMP	Actual employment/HP trend of employment	Number of employed persons

Table 13: Data and Description

Source: Authors

The innovation of the baseline ordering is the explicit introduction of labor supply and personal remittances as endogenous variables. It is assumed that the specification is largely demand driven. Aggregate demand translates into demand for labor. This demand is linked with supply to determine unemployment and wage pressures. It is further assumed that output gap then

²³ The US real GDP of the United States relative to its HP trend is treated as an exogenous variable.

feeds into interest rate differential to growth of domestic liquidity to YoY growth of nominal peso-dollar rate. Changes in monetary policy and domestic liquidity affect the labor market indicators: growth of labor force, minimum wage rate and growth of employment. These relationships are expected to strengthen the link between overseas remittances and inflation.

Robustness checks. Diagnostics tests are used to check the VAR lag length order using Akaike Information Criterion (AIC) and stability of indicators using the AR roots. Using the AIC, the appropriate lag length is eight (8) months while the AR roots are stable. Another type of VAR called Bayesian VAR and three alternative ordering are used to check the robustness of our results. Specifically, Bayesian vector autoregression (BVAR) uses Bayesian methods to estimate a VAR model. BVAR differs from standard VAR models in that the model parameters are treated as random variables, with prior probabilities, rather than fixed values. Vector autoregressions are flexible statistical models that typically include many free parameters. Given the limited length of standard macroeconomic datasets relative to the vast number of parameters available, Bayesian methods have become an increasingly popular way of dealing with the problem of overparameterization. As the ratio of variables to observations increases, the role of prior probabilities becomes increasingly important. The general idea is to use informative priors to shrink the unrestricted model towards a parsimonious naïve benchmark, thereby reducing parameter uncertainty and improving forecast accuracy.

Specifically, the three-alternative ordering in Table 14 include:

VAR Ordering	Variables		
Baseline Ordering	DPERM DRGDP INF INT DM3 DFXR MINR DFOR		
Alternative Ordering 1	DPERM DRGDP INF INT DM3 DFXR MINR DEMP		
Alternative Ordering 2	DPERM DRGDP INF INT DM3 DREER MINR DEMP		
Alternative Ordering 3	DPERM DRGDP INF INT DM3 DREER MINR FORCE POT		

Table 14: Summary of VAR Ordering: Baseline and AlternativeOrdering

Source: Authors.

Results. Following diagnostic checks and alternative ordering, Figure 6 (baseline ordering) shows that a one-standard deviation shock on growth of personal remittances significantly affects real GDP growth, inflation, interest rate differential, nominal peso-dollar growth, domestic liquidity growth.²⁴ Figure 7 also reveals that a one-standard deviation shock in the YoY growth of personal remittances leads to significant changes in growth of real GDP and growth of nominal peso-dollar rate.²⁵ Figure 8 and Figure 9 show that real GDP growth, interest rate differential and growth of the real effective exchange rate of trading partners and minimum wage rate (only in Figure 8) respond significantly to a one-standard deviation shock in the YoY growth of personal remittances. In all the IRFs, the responses of real GDP growth and interest rate differential are consistently significant. However, the response of the growth of the labor force is

²⁴ Changes in minimum wage rate and growth of labor force are not significant.

²⁵ Changes in inflation rate, interest rate differential, domestic liquidity growth, minimum wage rate, and labor force growth are not significant.

not significant. This finding may be due to the impact of the various measures introduced and adopted by the government to cushion the effect of the pandemic on the overseas Filipino workers and their beneficiaries. Appendix B outlines these measures.



Source: Authors









.003 .002 .001 .000 -.001 -.002 з 4 5 6 8 9 10 nse of DFXR to DPERM Innovation .012 .008 .004 .000

Response of INF to DPERM Innovation



Figure 8: Impulse Response Functions – Alternative Ordering 2

Figure 9: Impulse Response Functions – Alternative Ordering 3

Response to Cholesky One S.D. (d.f. adjusted) Innovations \pm 2 analytic asymptotic S.E.s



Meanwhile, the results using the standard VAR exercise are generally consistent with findings using Bayesian VAR in Figures 10 to 12 in Appendix C. The growth of personal remittances responds to the monthly growth of the cumulative number of confirmed new COVID-19 cases from the Department of Health from January 2020 to December 2021 (CUMCOV) (Figure 10). Moreover, Figure 11 shows that real GDP growth, interest rate differential, domestic liquidity growth, peso-dollar rate growth, minimum wage rate, and growth of labor force respond to a one-standard deviation shock on growth of personal remittances. Figure 12 also reveals that a one-standard deviation shock in the YoY growth of personal remittances leads to changes in growth of employment and labor force Notably, the IRFs from the Bayesian VAR find significant gap (Figure 13). responses of labor market indicators such as labor force growth, employment growth, and minimum wage rate. These findings imply that shocks to overseas remittances have significant spillover effects on the monetary, financial, and the labor sectors.

E. Conclusion

Remittances have been an important source of financial resources to the Philippines, providing much needed foreign exchange and fiscal space. This paper addresses two important policy questions. First, has the impact of the pandemic on overseas Filipino (OF) remittances been significant? Second, what are the spillover effects of a shock in remittances on monetary, financial and labor markets? Using a reduced-form equation estimated by GMM and Impulse Response Functions from standard and Bayesian VAR models from January 2009 to December 2021, the findings reveal that overseas Filipinos' cash and personal remittances are procyclical with the incomes of the Philippines and with major host country groups. Second, the growth of personal remittances is driven by domestic inflation, interest rate differential, growth of real effective exchange rate of trading partners, the business cycle of the United States and growth of domestic liquidity. Third, the pandemic has a negative and significant impact on the growth of personal remittances. Fourth, the labor force growth, minimum wage rate and employment growth, along with the growth of real GDP, inflation rate, interest rate differential, peso-dollar rate, growth of domestic liquidity respond to a one-standard deviation shock on the growth in personal remittances. These results imply that remittance flows represent an important and specific channel of spillover effects from the global economy.

Indeed, remittances will continue to be a significant force in the Philippine economy over the medium term. For one, rising incomes in host countries will continue to serve as a magnet to those whose skills are in demand overseas. For another, the migration network (chain migration) continues to be a powerful force. Remittance inflows to Asia and the Pacific are also expected to recover strongly over the near term (Kikkawa et al. 2021). In the Philippines, the BSP expects the OFs' remittances to rise by 4.0% in 2022 following the sustained recovery of OFWs' remittances in 2021 and the observed increased global demand for foreign workers as host economies start rebooting their economies as mobility restrictions are lowered, including because of the roll-out of COVID-19 vaccines. There are, however, potential uncertainties surrounding the impact of the Russia-Ukraine War on remittance flows. There will be a two-fold impact on remittance flows to the Philippines. A weakening of economic activities in the Russia, Belarus and Ukraine would dampen the employment and incomes of overseas Filipinos and their ability to send remittances. The second channel of impact would be through a weakening of the domestic currencies in Russia, Belarus and Ukraine against the US dollar, which would reduce the nominal US dollar value of remittances sent in these currencies. Importantly, the sanctions on the Russian banking system in the form of exclusion from the SWIFT network for fund transfers is likely to directly disrupt remittances through formal channels, which could lead to a partial shift to indirect and informal channels. Also, the sanctions can affect remittance flows indirectly if they lower employment and incomes for Filipino migrant workers in the Russian Federation.

These potential impacts are dependent on the scale of the military conflict in the Russian Federation, Ukraine, and Belarus and the effectiveness of the sanctions on outward payments from Russian Federation. To date, the magnitude and share of the combined cash remittances from Belarus, Russian Federation and Ukraine was minimal at US\$ 2.4 million, around 0.01% of the total cash remittances for 2021.²⁶ This indicates that the impact of the War on cash remittances may not be that significant.

More employment opportunities could bode well for OFW job prospects and remittances, helping support the country's economic recovery. This could also take off some of the burden on public finances, especially at a time when fiscal revenues have declined due to the slowdown in economic activity. It is notable that in the aftermath of the Gulf war and the GFC, a trend rise in overseas Filipino workers' deployment was seen. In fact, there has been a strong demand for medical workers. However, the impact on service industries could be longer term because of possible job destruction in some of the occupations where OFWs in particular could be concentrated. Empirical evidence from the past crises has shown that labor mobility picks up as economies recover, with migrant workers playing an essential role in post-crisis recovery in host and origin countries (Kikkawa et al, 2021).

The findings in this study indicate that OF remittances are a crucial source of funding for the requirements of the economy. There are a number of reasons why dependence on remittances as development flows is not healthy especially at the household level. The most widely cited concern has been that remittances may breed dependency by discouraging receiving household members from working. Indeed, remittances may ease budget constraints, raise minimum wages, and through an income effect, reduce the employment likelihood and hours worked by individuals receiving remittances. However, remittances may also be accompanied by a substitution effect if household members have an incentive to cut back on their labor supply in order to continue to receive remittances, which is a distortion of household labor supply decisions. However, it cannot be denied that remittances have provided the much-needed foreign exchange and policy space to undertake the necessary macroeconomic policy adjustments and institute structural reforms.

²⁶ Based on the BSP data on Overseas Cash Remittances, By Source Country.

How can the Philippines leverage or optimize the use of remittances? Some policy measures include the following: First, declare the provision of remittances as an essential financial service to facilitate the flow of remittances; this will help ensure the mobility of remittance service providers. Second, support the development and scaling up of digital remittance channels for migrants and families through fintech and digital technology modes; a number of remittance centers have improved upon their digital services, providing better services at lower costs, thus stimulating remittance inflows. Third, continue efforts to reduce remittance costs. Average remittance costs of sending remittances to the Philippines (In percent of US\$200) based on the World Bank database²⁷ have gone down considerably from 6.2% in 2011 to 5.7% in 2016 to 4.6% in 2020. Fourth, continue efforts to improve the remittance environment by enhancing transparency and promoting competition in the remittance market; enhancing the payment and settlement system as well as improving the access to financial services by promoting the use of the internet and mobile phones for financial transactions; and cultivating financial education among OFWs and their beneficiaries with a view to leveraging remittances flows for economic development by encouraging them to increase their savings and investments.

For its part, the BSP has for some time now, strongly advocated and promoted learning programs for the OFs and their beneficiaries. These programs include enhancing transparency and promoting competition in the remittance market. The BSP issued Circular No. 534 dated 26 June 2006, requiring banks and non-bank financial institutions to post remittance charges, classification of costs, and other relevant information for the benefit of remitters and beneficiaries. To facilitate access to bank websites, the BSP will serve as a portal to all relevant pages of the banks on remittance services and products, locations of branches/centers, as well as their corresponding service fees. The BSP has also encouraged OFs and their families to increase savings and investment through its financial learning campaigns (FLCs) that aim to promote a culture of savings among OFs and their families and encourage the channeling of these savings into productive investments in financial instruments and business ventures.²⁸. In addition to the financial learning activities. OFs and their families can make use of the Financial Planner developed by the International Organization for Migration (IOM) and ATIKHA (a development-oriented Philippine NGO) to guide them in managing their finances.²⁹ In 2019, the BSP, together with the Overseas Welfare Administration (OWWA) and Banco De Oro (BDO) Foundation forged a partnership to improve the financial literacy of OFWs and their families through the PiTaKa or Pinansyal na Talino at Kaalaman, program which aims to equip OFWs with the ability to better manage their remittances, get out of debt, set

²⁷ From the World Bank Remittance Prices Worldwide database: Average transaction cost of sending remittance to a specific country is the average of the total transaction cost in percentage of the amount sent for sending USD 200 charged by each single remittance service provider (RSP) included in the Remittance Prices Worldwide (RPW) database to a specific country.

²⁸ The FLCs are conducted using lectures and multimedia presentations focusing on topics such as the importance of remittances, financial planning, rewards and risks associated with various financial instruments, and ways to protect remittances and savings.

²⁹ The financial planner provides a simple and practical guide for migrant workers and their families to manage their budget and remittances within a framework of wise-spending, savings and investment. It includes tools on the budgeting process, planning for retirement, savings and entrepreneurial undertakings, cash flows monitoring, property acquisition, investment portfolios, and overall financial standing.

aside savings or make prudent investments in preparation for a better life when they return home to the Philippines.

References

- Adenutsi, D. E., and Ahortor, C. R. (2021). Macroeconomic Determinants of Remittance Flows to Sub-Saharan Africa. Working Papers 415, African Economic Research Consortium, Research Department. Retrieved from https://ideas.repec.org/p/aer/wpaper/415.html
- Amuedo-Dorantes, C., and Pozo, S. (2006). Remittances as insurance: Evidence from Mexian immigrants. Journal of Population Economics, 19(2), 227-254. doi:10.1007/s00148-006-0079-6
- Aydas, O.T., Metin-Ozcan, K. and Neyapti, B. (2005). Determinants of Workers' Remittances: The Case of Turkey. Emerging Markets Finance and Trade 41(3):53-69.
- Barajas, A., Chami, R., Ebeke, C., and Tapsoba, S. J. (2012). Workers' Remittances: An Overlooked Channel of International Business Cycle Transmission? IMF Working Paper WP/12/251, International Monetary Fund. Retrieved from https://www.imf.org/external/pubs/ft/wp/2012/wp12251.pdf
- Bayangos, V. and Jansen, K. (2011). "Remittances and Competitiveness: The Case of the Philippines," *World Development*, Elsevier, vol. 39(10), pages 1834-1846.
- Borja, K. (2013). Home and Host Country Business Cycles and Remittances: The Case Of El Salvador And the Dominican Republic. Applied Econometrics and International Development. Euro-American Association of Economic Development, vol. 13(2), pages 101-118.
- Bunduchi, E., Vasile, V., Comes, C.-A., and Stefan, D. (2019). Macroeconomic determinants of remittances: Evidence from Romania. *Applied Economics*, 51(35), 3876-3889. doi:10.1080/00036846.2019.1584386.
- Cazachevici, A., Hayranek, T., and Horvath, R. (2020). Remittances and Economic Growth: A Meta-Analysis. World Development 134(8). October 2020.
- Chami, R., Fullenkamp, C., and Jahjah, S. (2003). Are Immigrant Remittance Flows a Source for Capital Development? IMF Working Paper WP/03/189, International Monetary Fund. Retrieved from https://www.imf.org/ external/pubs/ft/wp/2003/wp03189.pdf.
- De, S., Islamaj, E., Kose, M., and Yousefi, S. (2016). Remittances Over the Business Cycle: Theory and Evidence. KNOMAD Working Paper 11, World Bank, Global Knowledge Partnership on Migration and Development. Retrieved from https://www.knomad.org/sites/default/files/2017-07/KNOMAD% 20WP%2011%20Remittances%20over%20the%20Business%20Cycle.pdf.

- Giuliano, P., and Ruiz-Arranz, M. (2005). Remittances, Financial Development, and Growth. IMF Working Paper WP/05/234, International Monetary Fund. Retrieved from https://www.imf.org/external/pubs/ft/wp/2005/wp05234.pdf
- International Organization for Migration. (2021). COVID-19 Impact Assessment on Returned Overseas Filipino Workers. Retrieved from https://reliefweb.int/report/philippines/covid-19-impact-assessmentreturned-overseas-filipino-workers.
- Kadozi, E. (2019). Remittance Inflows and Economic Growth in Rwanda. Research in Globalization, 1, 100005. Retrieved from DOI: 10.1016/j.resglo.2019.100005.
- Kikkawa, A., Sugiyarto, G., Villafuerte, J., Kim, K., Narayanan, B., Gaspar, R. (2021). Labor mobility and remittances in Asia and the Pacific during and after the COVID-19 pandemic. ADB Briefs No. 204. Asian Development Bank. December 2021.
- Kpodar, K., Mlachila, M., Quayyum, S. and Gammadigbe, V. (2021). Defying the Odds: Remittances During the COVID-19 Pandemic. IMF Working Paper Series WP/21/186. International Monetary Fund.
- Lin, H. (2011). Determinants of Remittances: Evidence from Tonga. IMF Working Papers (2011/018). International Monetary Fund.
- Lucas, R. E., and Stark, O. (1985). Motivations to Remit: Evidence from Botswana. Journal of Political Economy, 93(5), 901-918. Retrieved from https://www.jstor.org/stable/1833062.
- Lueth, E., and Ruiz-Arranz, M. (2007). Are Workers' Remittances a Hedge Against Macroeconomic Shocks? The Case of Sri Lanka. IMF Working Paper WP/07/22, International Monetary Fund. doi:10.2139/ssrn.961752.
- Mallick, D., and Cooray, A. (2013). International Business Cycles and Remittance Flows. The B. E. Journal of Macroeconomics, 13(1), 515-547. doi:10.1515/bejm-2013-0030.
- Mandelman, F., and Zlate, A. (2012). Immigration, Remittances, and Business Cycles. FRB Atlanta Working Paper No. 2008-25b, Federal Reserve Bank of Atlanta. doi:10.2139/ssrn.2482341.
- McCracken, S., Ramlogan-Dobson, C., and Stack, M. M. (2017). A Gravity Model of Remittance Determinants: Evidence from Latin America and the Caribbean. *Regional Studies*, **51(5)**, **737–749**.
- Olayungbo, D.O. and Quadri, A. (2019). Remittances, Financial Development and Economic Growth in Sub-Saharan African Countries: Evidence from a PMG-ARDL Approach. *Financial Innovation* (2019) 5:9.

- Piteli, El., Buckley, P. and Kafouros, M. (2019). Do Remittances to Emerging Countries Improve their Economic Development? Understanding the Contingent Role of Culture. Journal of International Management 25(4). May 2019. Retrieved from DOI:10.1016/j.intman.2019.05.002.
- Ratha, D., Mohapatra, S., and Scheja, E. (2011). Impact of Migration on Economic and Social Development: A Review of Evidence and Emerging Issues. Policy Research Working Paper; No. WPS 5558, World Bank. Retrieved from http://hdl.handle.net/10986/3328.
- Rivera, J.P. and Tullao, T. (2020). Investigating the Link Between Remittances and Inflation: Evidence from the Philippines. *Southeast Asia Research* 28(5):1-26. August 2020. Retrieved from DOI:10.1080/0967828X.2020.1793685.
- Ruiz, I., and Vargas-Silva, C. (2014). Remittances and the Business Cycle: A Reliable Relationship? Journal of Ethnic and Migration Studies, 40(3), 456-474. doi:10.1080/1369183X.2013.787704
- Sayan, S. (2006). Business Cycles and Workers' Remittances: How do Migrant Workers Respond to Cyclical Movements of GDP at Home? IMF Working Paper WP/06/52, International Monetary Fund. doi:10.2139/ssrn.892943
- Sayeh, A., and Chami, R. (2020). Lifelines in Danger. Finance and Development(June 2020), 16-19. International Monetary Fund. Retrieved from https://www.imf.org/external/pubs/ft/fandd/2020/06/pdf/fd0620.pdf.
- Senate Economic Planning Office. (2021). Effect of COVID-19 Pandemic on OFW Deployment and Remittance. Senate of the Philippines. Retrieved from http://legacy.senate.gov.ph/publications/SEPO/AAG_Migration%20and%2 ORemittances%20%20amidst%20COVID%2019_final.pdf.
- Simpson, N. B., and Sparber, C. (2019). Estimating the Determinants of Remittances Originating from US Households using CPS Data (No. 12480). Institute of Labor Economics (IZA).
- Stark, O. (1991). The Probability of Return Migration, Migrants' Work Effort, and Migrants' Performance. Journal of Development Economics, 1991, 35, (2), 399-405.
- World Bank. (2020a). World Bank Predicts Sharpest Decline of Remittances in Recent History Press release by the World Bank on 22 April 2020. Retrieved from https://www.worldbank.org/en/news/press-release/2020/04/22/ world-bank-predicts-sharpest-decline-of-remittances-in-recent-history.
- World Bank. (2020b). COVID-19: Remittance Flows to Shrink 14% by 2021. Press release by the World Bank on 29 October 2020. Retrieved from https://www.worldbank.org/en/news/press-release/2020/10/29/covid-19remittance-flows-to-shrink-14-by-2021.

- World Bank. (2021). Defying Predictions, Remittance Flows Remain Strong During COVID-19 Crisis. Press release by the World Bank on 12 May 2021.
 Retrieved from https://www.worldbank.org/en/news/pressrelease/2021/05/12/ defying-predictions-remittance-flows-remain-strongduring-covid-19-crisis.
- Yoshino, N., Taghizadeh-Hesary, F., and Otsuka, M. (2017). International Remittances and Poverty Reduction: Evidence from Asian Developing Countries. ADBI Working Paper 759, Asian Development Bank Institute, Tokyo. Retrieved from https://www.adb.org/publications/internationalremittances-and-poverty-reduction.

Appendix 1: Treatment of remittances in the BOP (based on the Balance of Payments and International Investment Position Manual, 6th Edition)

As defined by the Commission on Filipino Overseas (CFO), overseas Filipinos (OFs) consist of: a) permanent residents or Filipino immigrants or legal permanent residents abroad whose stay do not depend on work contracts (including those who have acquired foreign citizenship); and b) overseas Filipino workers (OFWs). The latter refers to temporary workers, or those whose stay overseas is employment-related and who are expected to return at the end of their work contract.

The Department of Foreign Affairs (DFA) chapter data on undocumented (including irregular) workers to the CFO. The DFA obtains the data from the Philippine consulates and embassies in the workers' host countries. These data are complemented by information from the Overseas Workers Welfare Administration under the Department of Labor and Employment (DOLE).

Remittances are financial resource flows arising from the cross- border movement of nationals of a country. In this paper, remittances cover transfers sent by both Filipino migrants and overseas workers. In the Philippines, remittances data are sourced from the balance of payments (BOP) statistics under the following classifications:

Personal remittances are defined as current and capital transfers in cash or in kind between resident households and non-resident households, plus compensation of employees, less taxes and social contributions paid by nonresident workers in the economy of employment, less transport and travel expenditures related to working abroad. In short, this item includes all household-to-household transfers and the net earnings of non-resident workers.

Following the BPM framework, the country's data on personal remittances are computed as the sum of the following:

- Net compensation of employees (primary income account) refers to gross earnings of "resident" overseas Filipino (OF) workers, i.e., those with work contracts of less than one year, including all sea-based workers, less taxes, social contributions, and transportation and travel expenditures in their host countries;
- Personal transfers (secondary income account) refers to all current transfers in cash or in kind by "non-resident" OF workers, i.e., those with work contracts of one year or more, as well as other householdto-household transfers between Filipinos who have migrated abroad and their families in the Philippines; and
- Capital transfers between households (capital account) refers to the provision of resources for capital formation purposes, such as for construction of residential houses, between resident and nonresident households without anything of economic value being supplied in return.

Remittances in kind of non-resident OFs are included in the personal transfers in item 2. These are also reflected as part of imports in the trade in goods account.

Meanwhile, travel expenditures of resident and non-resident OFs are recorded as part of the trade in services account. Residents' expenditures in host countries are recorded under travel imports, while non-residents' expenditures in the Philippines while on vacation are recorded under travel exports.

Meanwhile, cash remittances refer to remittances that were coursed through the local banking system. Cash remittances are a subset of personal remittances.

Appendix B: Fiscal Measures for Overseas Filipino Workers (OFWs) Due to the COVID-19 Pandemic

- The Department of Labor and Employment (DOLE) Abot-Kamay ang Pagtulong (AKAP) program provides PHP10,000 or USD200 financial assistance to displaced OFWs. The amount of PHP5.487 billion has been distributed by the DOLE to 540,876 displaced OFWs as of December 2021. Funding for the DOLE-AKAP is covered by Republic Act No. 11469 or Bayanihan to Heal as One Act (Bayanihan 1) dated 24 March 2020 and Republic Act No. 11494 or Bayanihan to Recover as One Act (Bayanihan 2) dated 11 September 2020.
- From March 2020, the DOLE and Overseas Workers Welfare Administration (OWWA) have been assisting the repatriation of displaced or distressed OFWs through the use of the Emergency Repatriation Fund which is funded by:
 - Bayanihan 1: PHP15 million and additional PHP 1.75 billion for FY 2019, PHP130 million and additional PHP 3.25 billion for FY 2020.
 - Bayanihan 2: PHP500 million and additional PHP5 billion for FY 2020.
 - Regular Funds: additional funding of PHP3.3 billion and PHP216.45 million for FY 2021.
- The Bayanihan to Arise as One bill or Bayanihan 3 was approved by the House of Representatives on 1 June 2021 and has been passed to the Senate where deliberations are ongoing. Bayanihan 3 is PHP401 billion stimulus package which allocates PHP25 billion for displaced workers including OFWs and PHP500 million for testing of seafarers and OFWs.

Particulars	Purpose	Allotted amount (in PHP)
Bayanihan 1		
FY 2020 GAA		
Department of Labor and	Office of the Secretary For the	2,500,000,000
Employment -	implementation of the CAMP for the OFWs	
Department of Labor and	To augment the Emergency	3,250,535,000
Employment -	Repatriation Fund intended for	
Overseas Workers Welfare	displaced Overseas Filipino Worker	
Administration	returnees due to COVID-19	170 000 000
Department of Labor and	For the funding requirements for the	130,000,000
Employment -	Implementation of various services	
Administration	for the Repatriation Program.	
EV 2019 CONTINUING APPRO	PRIATIONS	
Department of Labor and	To augment the Emergency	1.749.465.000
Employment -	Repatriation Fund intended for	-,
Overseas Workers Welfare	displaced Overseas Filipino Worker	
Administration	returnees due to COVID-19.	
D Department of Labor and	For the implementation of the	15,000,000
Employment -	Emergency Repatriation Program.	
Overseas Workers Welfare		
Administration		
Bayanihan 2		
FY 2020 GAA		
Department of Labor and	To cover additional funding	4,995,519,486
Employment -	requirements for the	
Overseas workers weifare	Implementation of the Emergency	
Administration	the President (OP) Approval	
Dopartment of Labor and	To cover the funding requirements	500 000 000
Employment -	for the implementation of the	300,000,000
Overseas Workers Welfare	Emergency Repatriation Program	
Administration		
Regular Funds		
FY 2021 GAA		
Department of Labor and	To cover additional funding	3,305,397,960
Employment -	requirements for the	
Overseas Workers Welfare	implementation of the Emergency	
Administration	Repatriation Program per Office of	
	the President (OP) approval	
Department of Labor and	To cover additional funding	216,445,228
Employment -	requirements for the	
Overseas Workers Welfare	Implementation of the Emergency	
Administration	Repatriation Program per Office of the President (OP) approval	

Source: Department of Budget and Management

Other Sources:

- Department of Budget and Management. (2021). Status of COVID-19 Releases: COVID-19 Budget Utilization Reports as of September 30, 2021. https://www.dbm.gov.ph/index.PHP/programs-projects/status-of-covid-19-releases#summary-report
- Department of Labor and Employment. (2020). Department Order No. 212 series of 2020 – Prescribing Guidelines on the Provision of Financial Assistance for Displaced Land-based and Sea-based Filipino Workers Due to the Corona Virus (COVID-2019) "DOLE-AKAP for OFWs" dated 8 April 2020. https://www.dole.gov.ph/news/department-order-no-212-series-of-2020prescribing-guidelines-on-the-provision-of-financial-assistance-fordisplaced-landbased-and-seabased-filipino-workers-due-to-the-coronavirus-covid-2019-d/
- House OKs Bayanihan 3 bill on 3rd reading. (2021, June 1). CNN Philippines. https://www.cnnphilippines.com/news/2021/6/1/House-OKs-Bayanihan-3third-reading-.html
- Patinio, F. (2021, December 27).4.7M displaced workers benefit from aid
programs:DOLE.PhilippineNewsAgency.https://www.pna.gov.ph/articles/1163841

Appendix C: Impulse Response Functions Using Bayesian VAR

Figure 10: Impulse Response Function - Remittances and Number of Confirmed New COVID-19 Cases

Response of DPERM to CUMCOV Cholesky One S.D. (d.f. adjusted) Innovation





Figure 11: Impulse Response Functions – Baseline



Figure 12: Impulse Response Functions – Alternative Ordering 1

Figure 13: Impulse Response Functions – Alternative Ordering 2

