

# The COVID-19 Pandemic, Remittances and Financial Inclusion in the Philippines

by

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**August 2020**

## **Abstract**

Recent literature has revealed that financial inclusion enhances economic opportunities and security in developing countries. Moreover, a greater inflow of remittances can promote inclusiveness. In this paper, we explore the potential impacts of the COVID-19 outbreak on financial inclusion by focusing on its detrimental effect on remittance flows to developing countries. Using a household-level dataset collected in remittance-dependent regions of the Philippines prior to the outbreak, we confirm that remittances are associated with financial inclusion, particularly for women. We then utilize the 2020 GDP forecasts made by the IMF and the World Bank before and after the COVID-19 crisis to gauge the potential impacts of the pandemic on financial inclusion through the change in flow of remittances. Our projection shows that a substantial decline in remittances caused by the COVID-19 crisis may have an adverse effect on financial inclusion in the Philippines, which is more serious for women.

Key words: financial inclusion; SDGs; COVID-19; remittance; migration; Philippines.

JEL Classification Codes: F22, F24, F36, G21, O16

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## **Acknowledgements**

This study was conducted as part of the project “Study on Remittances and Household Finances in the Philippines and Tajikistan” carried out by JICA Ogata Sadako Research Institute for Peace and Development. We would like to thank the institute for providing us with the dataset as well as Alvin Ang, Jeremaiah Opiniano, and Akira Murata for their data collection efforts. Our thanks also go to Yasuyuki Sawada, Aiko Kikkawa Takenaka, Daiju Aiba, Etsuko Masuko, Megumi Muto, and Shimpei Taguchi for their constructive comments and suggestions. Special thanks go to Pragya Gupta for her excellent research assistance. The views expressed in this paper are our own and do not represent the official positions of either the institute or JICA.

## 1. Introduction

Financial inclusion that promotes access to and use of the formal financial services that are available to any individual is an essential element in improving economic opportunity and security, which is particularly beneficial to women and impoverished adults (Demirgüç-Kunt et al. 2017). This issue has gained importance particularly in developing countries and is well acknowledged by both academics and policy makers. In fact, the Sustainable Development Goals (SDGs) aim to “[s]trengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all.”<sup>1</sup> However, the current state of access to financial services remains disappointing. While on average financial inclusion progressed from 51% to 69% between 2011 and 2017 in terms of the proportion of the “banked” who hold an account at a financial institution or with a mobile money provider, approximately 1.7 million adults worldwide remained “unbanked” (Global Findex Report 2017).<sup>2</sup> In 2017, the proportion of the “unbanked” was disproportionately higher at 63% in low- and middle- income countries with a wide variation across countries and individuals. This is in contrast to the virtually universal possession in high income countries (94%).

Financial inclusion promotes the availability of a variety of financial products such as payment services, savings accounts, loans, and insurance for individuals, and benefits them by mitigating poverty through consumption smoothing, productive investment and financial risk management (Karlan et al. 2016; Demirgüç-Kunt et al. 2017). In order to expand financial inclusion, governments can take initiatives in developing financial markets, specifically by switching from cash to digital payments for wages and pensions. Furthermore, recent literature has underscored the role of remittances in promoting financial inclusion; remittances may have a positive impact on financial inclusion by increasing the demand for saving instruments as a means of storing excess cash or they may make loan conditions more relaxed by serving as collateral. Moreover, those transactions may further mitigate asymmetry in the information available to financial institutions and enhance financial knowledge within households (Anzoategui et al.; 2014; Aga and Martínez Pería 2014). The movement in this direction is also reinforced by the fact that remittance inflow to low- and middle- income countries has been growing steadily over three decades to reach an estimated 714 trillion US dollars in 2019, which surpassed both official development assistance (ODA) and foreign direct investment (FDI) (World Bank 2020b).

The outbreak of the COVID-19 pandemic is a serious concern due to the negative impact it will have on financial inclusion by reversing the expanding trend of remittance inflows. As 80% of the world’s total remittances flowed to low- and middle- income countries in 2019, the pandemic is expected to substantially reduce the amount of remittances that migrants from developing countries can send home (World Bank 2020b). The World Bank reports that remittances

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<sup>1</sup> The target is stated in Target 8.10. The United Nations Capital Development Fund (UNCDF) states that financial inclusion also supports eight out of the seventeen Sustainable Development Goals (<https://www.uncdf.org/financial-inclusion-and-the-sdgs>). Also see Klapper et.al (2016).

<sup>2</sup> <https://globalfindex.worldbank.org/basic-page-overview>. Accessed on July 3rd, 2020.

to low- and middle-income countries are likely to fall by 19.7% in 2020 (a 13% decline in East Asia and the Pacific region), which would be the sharpest global decline in recent history.<sup>3</sup> According to the central bank of the Philippines, the inflow of remittances sent by overseas Filipino's started to decline from March 2020.<sup>4</sup> In response, the Philippine Government began to release 200 US dollars as cash relief to distressed overseas Filipino workers (OFW).<sup>5</sup> Indeed, severe economic downturns in destination countries under lockdown or due to oil price crashes are reducing job opportunities and lowering wages for migrants (IOM 2020). Even if migrants retain jobs in their host countries, they may find it difficult to send their remittances back home where there are severe restrictions on movement and tight regulations on money transfer services (World Bank 2020a). Moreover, many migrants who had prepared themselves for impending migration were forced to stay in their home countries, with some discouraged from migrating entirely and forced to change their livelihood.

This paper explores the potential impacts of the COVID-19 pandemic on household financial inclusion in the Philippines – a country that is heavily dependent on remittances. The Philippines is one of the largest source countries for migrants and the one of the most remittance-dependent countries in the world (Yang 2011). The number of overseas Filipino workers was estimated at 2.2 million in 2016 and the remittance inflow to the Philippines was 35,167 million US dollars in 2019, which ranked the country fourth in the world for remittance inflow (World Bank 2020).<sup>6</sup> The proportion of remittances relative to the GDP of the Philippines was high at 9.9%. Moreover, some of the destination countries accepting Filipino migrants are those most seriously damaged by lockdowns and oil price crashes during the COVID-19 pandemic. In 2016, the top destinations for Filipino migrant workers included Saudi Arabia, the United Arab Emirates, Kuwait, Qatar, Hong Kong and Singapore, which combined accounted for two-thirds of the total destinations (Philippine Statistics Authority 2017).<sup>7</sup> Furthermore, the Philippines holds a unique position in the trend of financial inclusion in terms of gender inequality; the proportion of the “unbanked” is smaller for women than men by more than 10 percentage points (Global Findex Report 2017). During the COVID-19 pandemic, this advantage women have in relation to financial inclusion may be more seriously affected by the reduction in remittances than that of men.

In this paper, we utilize a household-level dataset which was collected in remittance-dependent rural municipalities in the Philippines before the COVID-19 outbreak. One of the advantages of using household-level data is that it addresses heterogeneity in household characteristics and in the impact of COVID-19 that stems from the

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<sup>3</sup> <https://www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history>. Accessed on July 3<sup>rd</sup>, 2020.

<sup>4</sup> Statistics - IIP - Bangko Sentral ng Pilipinas ([http://www.bsp.gov.ph/statistics/efs\\_ext3.asp](http://www.bsp.gov.ph/statistics/efs_ext3.asp)). Accessed on July 3<sup>rd</sup>, 2020.

<sup>5</sup> Cash relief is delivered to the affected migrants and their families in Davao del Sur under the initiative of Overseas Workers Welfare Administration (OWWA).

<sup>6</sup> The amount of remittance inflow in 2019 was the largest in India (83,131 million US dollars, 2.8% of GDP), followed by China (68,398 million US dollars, 0.5% of GDP) and Mexico (38,520 million US dollars, 3.0% of GDP).

<sup>7</sup> The Stock Estimate of Overseas Filipinos (Commission on Filipinos Overseas 2013) shows that the top five destination countries were the U.S., followed by Saudi Arabia, the UAE, Malaysia and Canada.

diversity of migrant destinations among Filipino migrants and their households. In order to explore the potential impact of the pandemic on household financial inclusion, we first pin down the empirical relationship between remittance income and financial inclusion by two-stage least squares (2SLS) instrumenting remittance income by macroeconomic variables exogenous to households. We then impute financial inclusion under the hypothetical remittances using the revision of the 2020 GDP forecasts by the International Monetary Fund (IMF) and the World Bank, which were made before and after the outbreak of the COVID-19 pandemic; these organizations were chosen as they had both revised their forecasts to take into account the economic implications of the COVID-19 pandemic. We take the difference between the predicted outcomes by imputing the 2020 GDP projection before and after the COVID-19 outbreak and obtain the potential shocks on remittances and financial inclusion. Our projection shows that a substantial decline in remittances due to the COVID-19 crisis may have an adverse effect on financial inclusion in the Philippines, which would be more serious for women.

This paper proceeds as follows: Section 2 provides a brief survey on the literature on remittances and financial inclusion. Section 3 then describes the dataset used in this study. Section 4 investigates the relationship between remittance income and financial inclusion through macroeconomic variables prior to the COVID-19 outbreak. Section 5 performs several projections to gauge the impact of the pandemic on household financial inclusion and Section 6 presents the conclusions.

## **2. Previous literature**

There has been a large volume of literature on remittances and their impact on development (Neceur et al.2020).<sup>8</sup> In this section, we confine the literature survey to remittances and financial inclusion using household-level data, while we acknowledge that the relationship between remittances and financial inclusion has also been extensively examined using cross-country data.<sup>9</sup>

To our knowledge, the literature on remittances and financial inclusion using household-level data is relatively new. One of the early papers is Anzoategui et al. (2014) which examined the relationship between remittances and financial inclusion using household-level data in El Salvador. Employing instrumental variable estimation, they found that remittances have a positive impact on financial inclusion in terms of the use of deposit accounts but do not have a significant effect on demand or use of formal credits. They discussed the fact that the obscure impact on credits is attributed to two opposite forces; remittance serves as collateral for financial institutions to provide credit while

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<sup>8</sup> There is a large body of literature on the impact that remittances have on development, which covers economic growth, poverty, education, labor supply, health and entrepreneurship. There is also a large volume of work on remittances and financial development (financial depth), which is different but close to financial inclusion, that uses macro-level data to shows that remittances are likely to encourage financial development (Demirguc-Kunt et al. 2016).

<sup>9</sup> Empirical papers using cross-country data include Aggarwal et al. (2011), Inoue and Hamori (2016), Tu et al. (2019), and Neceur et al. (2020).

remittances relax the credit constraints on households.<sup>10</sup> Aga and Martínez Pería (2014) also found that remittances enhance the probability of a household opening up a bank account in five Sub-Saharan African countries, which is confirmed by employing a two-stage least squares (2SLS) estimation using the macroeconomic performance of the destination countries as an instrumental variable. Moreover, Ambrosius and Cuecuecha (2016) examined the effect of remittances on the use of financial services both formal and informal and found that remittances have a positive impact on the ownership of savings accounts; this has been repeatedly confirmed in subsequent papers.<sup>11</sup> The authors also found that remittances do not facilitate the taking on of loans from formal financial institutions but rather from informal sources, implying that remittances are not necessarily a substitute for but rather a complement to lending by means of undeveloped bank loans.

Overall, there is a consensus among the various papers on financial inclusion using household-level data that remittances have a positive impact on the propensity of individuals to hold a savings account, while empirical results are mixed on the impact of remittances on credits/loans.<sup>12</sup>

### 3. Data description

The dataset used in this study is the “Survey on Remittances and Household Finances in the Philippines,”<sup>13</sup> conducted by the Japan International Cooperation Agency (JICA) in two remittance-dependent municipalities in the country: Dingras, Ilocos Norte located in the Northern Luzon Island, and Bansalan, Davao del Sur located in the southern island of Mindanao.<sup>14</sup> The sample size at the first-round was 200 overseas migrant households and 200 non-overseas migrant households in each municipality, which were randomly selected in each area. In the survey, a migrant household is defined as a household that has at least one member who permanently resides at the house but was working or living overseas at the time of data collection. Migrant households were oversampled to make up 50% of the total sample, although the stock of overseas Filipino workers was one-tenth of the total population (Commission on Filipinos Overseas 2013). The barangays served as strata for stratified random sampling in each municipality and the sample households were randomly selected within each barangay.<sup>15</sup> The sample of 200 overseas migrant

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<sup>10</sup> Substitution between remittances and receiving credit is further examined by Ambrosius and Cuecuecha (2013) who claimed that remittances are financing household emergencies and are less dependent on debt financing in response to negative health events.

<sup>11</sup> An exception is Brown et. al. (2013) which showed that remittances have either a negative or little effect on the propensity of individuals to have a bank account in Azerbaijan and a positive but small effect in Kyrgyzstan.

<sup>12</sup> Not using household-data but municipality-level data, Demirgüç-Kunt et al. (2011) showed that remittances are associated with the breadth and depth of the banking sector, i.e., an increase in the number of branches and accounts per capita and the deposits to GDP.

<sup>13</sup> The description of the dataset depends on Murakami et al. (2020). The field survey was conducted by Orient Integrated Development Consultants Incorporated (OIDCI). Yamada et al. (2019) used the data to analyze the gender gap in financial inclusion in the Philippines and Murakami et al. (2020) used the data to analyze the effects of the Covid-19 pandemic on household welfare.

<sup>14</sup> These municipalities were selected in order to oversample households with overseas migrants. The listing required cooperation from local administrative authorities and public service providers, who keep information on who in the barangay currently resides overseas.

<sup>15</sup> The barangay is an administrative unit and a subdivision of a city or municipality in the Philippines.

households was proportionately distributed among the barangays. Once the number of overseas migrant households in a barangay was determined, an equal number of non-overseas migrant households was randomly selected within each barangay. The sample is statistically representative of each municipality.

The questionnaire covered information on household roster, household spending/budgets/assets, remittance-receiving behaviors, and financial inclusion, such as the type of financial accounts that are held by the household members and the methods of financial transactions used, as well as household savings and loans. The eligible respondents were the primary financial decision-makers in each household. The first-round survey was conducted in August and September 2016 in 31 barangays in Dingras and 25 in Bansalan. The sample size for the first round was 834. The second-round survey was implemented in June- August 2017. The sample size in the second round was 668. The attrition rate was 19.9% (16.6% in Bansalan and 23.2% in Dingras).

Figure 1 illustrates household financial inclusion in the survey. We compare financial inclusion between households receiving remittances and those not receiving remittances. Panel (1) measures financial inclusion in terms of proportion of households where at least one member holds or uses any or each of the types of financial accounts (bank, cooperative or microfinance) and has availed themselves of loans (formal, family or informal). Formal loans include loans from banks, cooperatives and microfinance loans, as well as state-owned insurance/loan services such as the Government Service Insurance System (GSIS), the Social Security System (SSS), and the Pag-IBIG Fund (Home Development Mutual Fund).<sup>16</sup> Family loans refer to those from family members and relatives, and informal loans include those from local pawnshops, the “5-6” lending scheme<sup>17</sup> and the Paluwagan (group saving) scheme. We call this measure “household financial inclusion.” The proportion of households with any form of financial accounts is 67% for households with remittances, which is higher than those without remittances (54%). This is also the case for actively using any financial accounts, which sits at 65% for households that receive remittances and 53% for households that do not receive remittances. Taking a closer look, the proportion of households having/using an account differs between the types of financial institution. Households with remittances represent a larger proportion of those who have/use a bank account than households that do not receive remittances. The proportion of households that have/use a bank account is 28% (27% for using it) for remittance-receiving households, which is three times higher than that for non-remittance-receiving households; this is likely because the commission fee that must be paid when receiving remittances is typically lower when the remittance is received through a bank account.<sup>18</sup> In contrast, the proportion of households that hold/use a cooperative account is higher for households without remittances. The proportion of households that hold/use a microfinance account is higher for households with remittances, which is the

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<sup>16</sup> The beneficiaries of GSIS are the government employees. SSS is the state-owned insurance system for general citizens. The Pag-IBIG Fund provides short-term loans and housing programs run by the government.

<sup>17</sup> The “5-6” lending scheme is a popular informal finance scheme typically exercised by Indian lenders in the Philippines. It is called 5-6 because they are said to charge 20% interest per month.

<sup>18</sup> <https://remittanceprices.worldbank.org>. Accessed on July 3rd, 2020.

same situation as with bank accounts but the gap is smaller. The gap in the proportion of households availing themselves of loans is smaller than that of financial accounts. The proportion of households using formal or family loans is slightly higher for households with remittances but the proportion of households availing themselves of informal loans is slightly higher for households without remittances.

Panel (2) illustrates the same proportion of households where at least one of the women holds or uses a financial account and/or has taken out a loan. This definition is called “women’s financial inclusion.” Here we see the same pattern as observed in Panel (1). The proportion of having/using any financial accounts is higher for households with remittances, which is also the case for bank or microfinance accounts; however, the proportion is lower for cooperative accounts. The gap in the proportion of households availing themselves of loans is small. This gap is with slightly higher in relation to formal and family loans and is slightly lower in relation to informal loans for households with remittances.

In sum, a simple comparison of averages shows that (with the exception of cooperative accounts) remittance-receiving households are more financially included than households who do not receive remittances households. When looking at having/using a bank account where the commission fee for receiving remittances is low, the difference is pronounced. However, we cannot immediately conclude that remittances promote financial inclusion as we must first address any endogeneity issues, such as reverse causality and any third factors affecting both remittances and financial inclusion. Therefore, we must first perform estimation correcting endogeneity in order to explore whether remittances indeed promote financial inclusion or not.

Table 1 shows the summary statistics of the variables used in the estimation.<sup>19</sup> Here we use the data from the households that were surveyed during both the first and second rounds. In the case of household financial inclusion, the average number of households having or actively using any financial accounts is more than 50%. By type of financial institution, the average proportion is higher for a microfinance account at close to 30%, followed by a cooperative account and having or using a bank account is smaller at close to 20%. With regard to women’s financial inclusion, the average number of women who hold or use any financial accounts is close to 20%. By type of financial institutions, we note that the highest proportion is found in a cooperative account and the proportion is on par with that of bank accounts and microfinance accounts. The proportion of households using loans is the highest in formal loans and that to use family loans or informal loans is small. This pattern is also observed in relation to women’s financial inclusion. As will be explained in the next section, “Destination per capita GDP (*ECON*)” refers to the weighted average of per capita GDP for all destination countries and for the Philippines. The remaining variables are related to remittances and household characteristics. Half of all households receive remittances, which stems from our

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<sup>19</sup> At first around survey, we see that per capita expenditure is systematically larger and the ages of the heads of household are higher for the attrition households. Thus, households in the sample cover the lower side of income distribution in the two village economies.



sampling design, and the average monthly amount of remittances per capita is 30.1 pesos.<sup>20</sup> Turning to household characteristics, the average age of the head of households is 52 years old and the household size including overseas members is close to 5 people. More than half of all heads of households had attained secondary education or higher. The share of non-agricultural occupation is less than 20%.<sup>21</sup> The remaining variables capture any adverse shocks to households.<sup>22</sup> Approximately, 18% of all households experienced unemployment or business failure and 16% of households suffered as a result of illness, accidents or disasters. More than 20% of all households suffered from crop failure and 10% experienced family separation.

#### 4. Empirical analysis

Using the data explained in the previous section, we empirically examine the impact of overseas remittances on household financial inclusion. We start with the following specification:

$$FL_{it} = \beta_0 + \beta(REMITTANCE_{it}) + \gamma X_{it} + \text{barangay}_i + \lambda_t + \epsilon_{it} \quad (1)$$

where  $i$  indexes households and  $t$  refers to the survey round with 0 indicating 2016 and 1 indicating 2017. The dependent variables  $FL_{it}$  consist of three groups. The first group considers household financial inclusion and consists of the binary variables of having or using any financial accounts and having or using each type of financial account (bank, cooperative or microfinance). The second group contains the same indicators for women's financial inclusion. The third group has binary variables to indicate households with at least one member who uses loans according to type (formal, family or informal) and those variables for households with at least one female member who avails herself of loans.

The main explanatory variable “ $REMITTANCE_{it}$ ” takes two forms: an indicator for households who receive remittances or do not, and the log of average monthly income from overseas remittance per capita. Both variables are computed using information on the average monthly income either over the past 12 months for the first round or for the period since the first round visit in the case of the second round.<sup>23</sup>  $X$  is a vector of household characteristics that includes the age of the household head, household size, the educational attainment level of the household head, their occupation and a variety of adverse shocks to the household; these figures are shown in Table 1. We also include barangay fixed effect ( $\text{barangay}_i$ ) and survey round fixed effect ( $\lambda_t$ ). Lastly,  $\epsilon_{it}$  is a well-behaved error term.

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<sup>20</sup> The mean covers all sample households including non-receiving ones.

<sup>21</sup> Seamen occupy a large part of the migrant job market in the Philippines but our sample contains very few of those migrants.

<sup>22</sup> These reported shocks happened in the year prior to the 1st round survey and after the 1st round survey for the 2nd round.

<sup>23</sup> Since the interval between the two round surveys is less than one year, we use the value of the monthly average since the first-round visit. The qualitative results are not changed if we use the average over the past 12 months for the second round.

In order to correct the endogeneity of remittances in relation to financial inclusion, we employ a two-stage least squares (2SLS) estimation using an index of the macroeconomic performance of the destination countries and the Philippines as an instrumental variable (IV) for remittances. We assume that the macroeconomic conditions affect remittances but do not directly affect the financial inclusion of households in the Philippines. We construct the “economic performance (*ECON*)” variable, the index of the macroeconomic performance in the destination and home countries, by taking the weighted average per capita GDP of the country of residence of each household member including overseas migrants. More specifically, the “*ECON*” variable is defined as:

$$ECON_{it} = \ln \frac{\sum_{k \in \mathcal{K}(i)} g_{kt} \times n_{kit}}{\sum_{k \in \mathcal{K}(i)} n_{kit}}$$

Here,  $\mathcal{K}(i)$  refers to the set of countries where the adult members of a household  $i$  live,  $g_{kt}$  is the log GDP per capita in country  $k$  in  $t$  (2016 or 2017), and  $n_{kit}$  is the number of household  $i$ 's adult members who live in country  $k$ . Thus, by construction, we use per capita GDP in the Philippines for households without migrants. Of course, there are threats to exclusion restrictions for this instrument. For example, we acknowledge a possibility that high endowment migrants are also likely to choose a high income destination country. Even though with such threats, we pick this specification because per capita GDPs are widely available statistics across countries both for the past (2016 and 2017) years as well as for the projection of the year 2020.

In the estimation, we pool the observations for all households (two observations for each household). While the dataset is longitudinal, the interval is short (less than one year) and we see little change in the amount of remittances during the survey period. Thus, we use a level specification by pooling the observations at the first and second rounds, rather than a difference specification where it is difficult to obtain stable estimation results.

At the first stage, we regress an indicator to receive any remittances or a logarithm of the amount of remittances on the logarithm of the “*ECON*” variable and other covariates.<sup>24</sup>

$$REMITTANCE_{it} = \beta_0 + \beta(ECON_{it}) + \gamma X_{it} + barangay_i + \lambda_t + \epsilon_{it} \quad (2)$$

where the notations are the same as in equation (1) except for the main explanatory variable *ECON* explained above. Column (1) of Table 2 shows that the coefficient on “*ECON*” is positive and significant at the first stage regression when the dependent variable is a dummy for households to receive any remittances indicating that the variable serves as a valid instrument. Next, at the second stage regression, we use the estimated dependent variable from the first

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<sup>24</sup> Yang (2008) used the appreciation of the Philippine peso during the 1997 Asian financial crisis as an exogenous shock to international remittances.

stage as the main independent variable.

$$FL_{it} = \beta_0 + \beta(\overline{REMITTANCE}_{it}) + \gamma X_{it} + barangay_i + \lambda_t + \epsilon_{it} \quad (3)$$

The dependent variables  $FL_{it}$  are the same as those in specification (1) with the exception of the main independent variable, which is now the estimated value obtained from the first-stage regression (2).

The remaining columns of Table 2 (1) report the coefficients at the second stage regression for household financial inclusion. The coefficients on remittances are positive but not statistically significant in Column (1) and (2) but they are positive and significant for having/using a bank account, showing that households receiving remittances are 20% more likely to have or use a bank account than households that do not receive remittances. Those coefficients are not significant for having/using a cooperative account (Columns (5) and (6)) nor for having/using a microfinance account (Columns (7) and (8)). Table 4 (2) shows the results for women's financial inclusion. The positive and significant coefficients on remittance in Column (1) and (2) implies that households with remittances are more likely to have or use any financial accounts than households without remittances. The coefficients on remittances are positive and significant for having/using a bank account or a microfinance account, which applies to both household financial inclusion and women's financial inclusion. Table 2 (3) reports that the coefficients in the case of loans are not significant in all columns.

Table 3 illustrates the results when the dependent variable is a logarithm of the amount of remittances. The coefficient on "ECON" is positive and significant and indicates that the instrumental variable is valid. The remaining columns show the coefficients at the second stage for household financial inclusion. The pattern of the coefficients is similar to those in Table 2. The coefficients are not significant in relation to having/using any financial accounts, a cooperative account or a microfinance account; however, they are positive and significant for having/using a bank account. The coefficients imply that a one percent increase in the amount of remittance enhances the propensity of a household to have or use a bank account by 0.02-0.03%. Table 3 (2) shows the results for women's financial inclusion. The coefficient of remittance is 0.014 in Column (1) and (2) implying that a one percent increase in the amount of remittances increases the probability of having or using a financial account by 0.01%. The coefficients pertaining to remittances are positive and significant for having/using a bank account or a microfinance account, and the size of the coefficients are comparable with those in Column (1) and (2). Table 3 (3) shows that in the case of loans and the amount of remittances, the coefficients are not significant in all columns.

In summary, remittances are positively associated with promotion of financial inclusion controlling after endogeneity using 2SLS with an instrumental variable and this is especially the case for women. The variables related to remittances are positive and significant in respect of having/using a bank account for household financial inclusion, whereas they are positive and significant for any financial accounts, a bank account or a microfinance account in

relation to women’s financial inclusion. For both forms of financial inclusion, loans are not significantly related to remittances. Thus, a substantial decline in remittances caused by the COVID-19 pandemic may discourage financial inclusion, in particular obtaining and using a bank account, for both men and women, and may discourage women from obtaining a microfinance account.<sup>25</sup>

## 5. Projection

We use the coefficients obtained in the 2SLS estimation in Table 3 to gauge the potential impact of the COVID-19 pandemic on financial inclusion in the Philippines. To do so, we use the per capita GDP predictions available for each country in 2020 from two economic outlooks – the International Monetary Fund (IMF)’s “World Economic Outlook” published in October 2019 and June 2020 and the World Bank (WB)’s “Global Economic Prospects” published in January and June 2020.<sup>26</sup> The outlooks published prior to the outbreak in October 2019 and in January 2020 serve as a “no-COVID” forecast. These forecasts helped us to construct the hypothetical “*ECON*” variable in the case where a global COVID-19 pandemic had not taken place. Conversely, the revised outlooks that were published in June 2020 after the outbreak of COVID-19, are used to construct the “with-COVID” economic scenarios. The “with-COVID” projections contain two cases in the “World Economic Outlook” and three cases in the “Global Economic Prospects”. Details of the scenarios are given in Table 4.

We compute the predicted values by plugging the hypothetical *ECON* variables constructed using each of the different GDP per capita forecasts (three projections in the “World Economic Outlook” and four projections in the “Global Economic Prospects” both of which include the “no-COVID” projection) for remittance-receiving households into our 2SLS estimates. We then compare the mean predicted values for the various outcome variables in each projection scenario. The difference between the “with-COVID” and the “no-COVID” scenario captures the potential impact of the COVID economic shock on financial inclusion. Our prediction depends on several assumptions. First, we assume that the change in the prediction of GDP in 2020 at the two different dates is entirely attributed to the pandemic, though some countries might have had a downward revision of the GDP prediction for 2020 without the COVID-19 outbreak. Second, we assume that the adverse effects caused by the COVID-19 pandemic including restricting migration through bans on international movement, limiting remittance transactions, and a stagnant economy in the host countries, is summarized in a negative change in per capita GDP and reflected in the *ECON* variable at the first stage regression.

Table 4 shows the predicted potential impacts of the COVID-19 pandemic on financial inclusion for remittance-receiving households. The impacts are measured in percentage changes in the proportions of a variety of indicators of

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<sup>25</sup> As a robustness check, we ran the regression separately for each round observations and obtained qualitatively the same results.

<sup>26</sup> The initial projection by the IMF after the pandemic was released in April 2020 and updated in June 2020.

financial inclusion out of those proportions in 2017. We will focus on the projections related to financial inclusion where coefficients were positive and statistically significant in Table 3. First, looking at household financial inclusion, we observed that the COVID-19 pandemic reduces the proportion of households who have/use a bank account by ranging from 2.8% (“With-COVID 2” in IMF or “With-COVID 3” in WB) to 4.0% (“With-COVID 2” in WB). Those projections imply that a substantial reduction in remittance inflows caused by the pandemic may have adverse effects on household financial inclusion, even if faster growth recoveries are projected. Second, we see that the negative effect is more serious for women’s financial inclusion. The negative effect would be a reduction of 1.9% (“With-COVID 3” in WB) to 2.8% (“With-COVID 2” in WB) for the proportion of having any financial accounts, a reduction of 3.1% to 4.5% for a bank account or a microfinance account.

Within those scenarios that predict a substantial decline in remittance inflow to the Philippines, we see that financial inclusion is negatively affected, which is more serious for women than for households. By type of financial institution, the COVID-19 pandemic may slow down the propensity of households to have a bank account and a microfinance account. In other words, the COVID-19 pandemic may deprive the country of a driving force to advance financial inclusion in those financial institutions. The adverse effects may be large for those banks in the country that charge maintenance costs to account holders, such as minimum balance requirements and dormancy fees. These can penalize small-amount savers and non-active users of bank accounts. For account owners with large savings, reduced income from remittances would not affect the probability of them keeping the account as they are still able to stay above the threshold below which the bank account becomes too costly to hold. However, for marginal account holders with small amounts of savings, the shock may push their balance below the threshold. Therefore, the true effects of reduced remittances on formal financial inclusion can be non-linear stemming from the costs of holding an account and we can speculate that the negative impact of COVID-19 on people’s financial inclusion may be disproportionately harder for the poorer segment of account holders. At the same time, there has been a growth in new and inexpensive financial services that utilize Fintech to save, borrow, and remit money; these new financial services are a substitute for a bank account. The new financial services include mobile money and online money transfer services where the transaction costs are lower than those of banks.<sup>27</sup> Therefore, while the COVID-19 pandemic may weaken the forces for promoting formal financial inclusion through traditional financial services, this negative effect can be partially offset by new financial services that use Fintech.

The potential adverse impacts that we have presented must be understood in conjunction with several reservations. Our projection depends on the relationship between remittances and per capita GDP in the destination countries, which served as an instrumental variable. In order to gauge the impact of the COVID-19 pandemic on financial inclusion, we summarized all of the serial and complex decision-making process around migration into the

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<sup>27</sup> The World Bank “Remittance Prices Worldwide” [https://remittanceprices.worldbank.org/sites/default/files/rpw\\_report\\_march\\_2020.pdf](https://remittanceprices.worldbank.org/sites/default/files/rpw_report_march_2020.pdf). Accessed on July 3rd, 2020.

receipt of remittances and all aspects of the virus outbreak in relation to international remittances within a change in per capita GDP; this may call for a more nuanced approach to international restrictions on travels and remittance transactions. Disentangling the effect of the COVID-19 pandemic on these different steps in the migration process and the effect of the COVID-19 on each process is no doubt an important agenda for future research. Moreover, we use household data from remittance-dependent regions in the Philippines prior to the outbreak, which does not represent the national average. While our sample is representative in respect of the particular municipalities, it should be noted that our sample is taken from remittance-dependent areas. Nonetheless, we find that respondents in our sample are comparable to the 2018 National Migration Survey (NMS) of the Philippines (PSA and UPPI 2019) and that the individuals in our sample are slightly older and the proportion of college attendees or graduates is higher.

## **6. Conclusion**

This paper explored the potential impacts of the COVID-19 outbreak on financial inclusion. The pandemic is detrimental to remittance flow to developing countries, which is considered as a driving force in the promotion of financial inclusion. We confirm that remittances are associated with financial inclusion, especially for women. Our study shows that a substantial decline in remittances as a result of the COVID-19 pandemic will have adverse effects on financial inclusion in the Philippines and in particular for women.

To our knowledge, there has been little research utilizing microdata to determine how the COVID-19 pandemic will affect household financial inclusion. Future research should use the actual data in migrant-sending countries after the COVID-19 outbreak to quantify the adverse effects on household financial inclusion. The literature on remittances and financial inclusion using household data is not vast. While it is not easy to conduct a survey during the pandemic, together with our projection, this line of research will be very informative for future policy responses.

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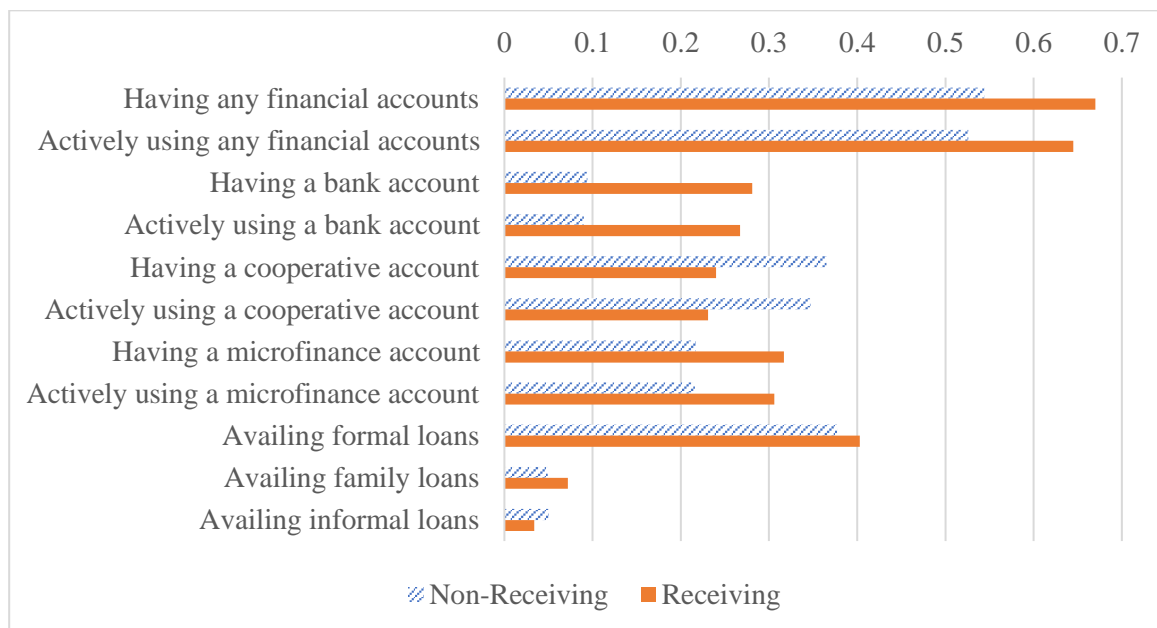
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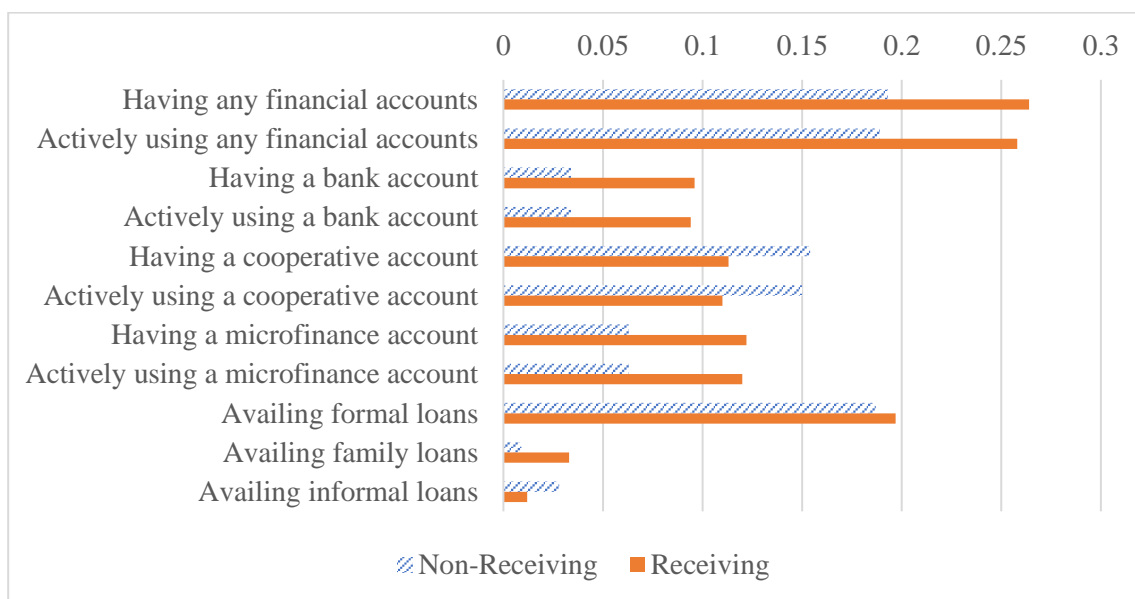


**Figure 1 Financial inclusion in households with and without remittances**

(1) Household financial inclusion



(2) Women’s financial inclusion



(Note) Authors’ calculation. Panel (1) shows proportions of households where at least one member holds or uses any or each of financial account types (bank, cooperative or microfinance) and which avails itself of loans (formal, family and informal). Panel (2) shows the same proportions of households whose at least one female member holds or uses any or each of financial account and which avails loans.

**Table 1 Summary statistics**

VARIABLES	(1) N	(2) mean	(3) S.D	(4) min	(5) max
<b>Household financial inclusion</b>					
Having any financial accounts	1,440	0.565	0.496	0	1
Actively using financial accounts	1,440	0.543	0.498	0	1
Having a bank account	1,440	0.206	0.404	0	1
Actively using a bank account	1,440	0.193	0.395	0	1
Having a cooperative account	1,440	0.248	0.432	0	1
Actively using a cooperative account	1,440	0.228	0.420	0	1
Having a microfinance account	1,440	0.283	0.450	0	1
Actively using a microfinance account	1,440	0.278	0.448	0	1
<b>Financial inclusion of Women</b>					
Having any financial accounts	1,440	0.205	0.404	0	1
Actively using any financial account	1,440	0.198	0.399	0	1
Having a bank account	1,440	0.0861	0.281	0	1
Actively using a bank account	1,440	0.0840	0.278	0	1
Having a cooperative account	1,440	0.103	0.304	0	1
Actively using a cooperative account	1,440	0.0951	0.294	0	1
Having a microfinance account	1,440	0.0840	0.278	0	1
Actively using a microfinance account	1,440	0.0833	0.276	0	1
<b>Household loans</b>					
Formal loans	1,440	0.331	0.471	0	1
Family loans	1,440	0.0708	0.257	0	1
Informal loans	1,440	0.0361	0.187	0	1
<b>Loans to women</b>					
Formal loans	1,440	0.140	0.347	0	1
Family loans	1,440	0.0229	0.150	0	1
Informal loans	1,440	0.0104	0.102	0	1
Destination per capita GDP (*)	1,544	8.637	0.777	7.979	10.62
Receive Remittances (dummy)	1,544	0.491	0.500	0	1
Remittance Income (log)	1,544	3.404	3.596	0	10.82
Head's age	1,420	51.95	13.90	20	95
Square of head's age	1,420	2,892	1,481	400	9,025
HH size including overseas members	1,420	4.938	2.138	1	15
Secondary or above education	1,544	0.548	0.498	0	1
Non-agricultural Occupation	1,544	0.176	0.381	0	1
Unemployment and business failure	1,544	0.179	0.383	0	1
Illness, accident, and disasters	1,544	0.159	0.366	0	1
Crop failure	1,544	0.213	0.410	0	1
Family Separation	1,544	0.116	0.320	0	1

(Note) Authors' calculation. (\*) refers to a weighted average of all destinations including the Philippines in logarithm.

**Table 2 Estimation results (2SLS; Dummy for remittances)**

(1) Household financial inclusion

VARIABLES	First Stage	Second Stage							
	Receive remittances (dummy)	(1) Having any financial accounts	(2) Using any financial accounts	(3) Having a bank account	(4) Using a bank account	(5) Having a cooperative account	(6) Using a cooperative account	(7) Having a microfinance account	(8) Using a microfinance account
Destination per capita GDP	0.482*** (0.0191)								
Receive remittances (dummy)		0.0697 (0.0584)	0.0449 (0.0568)	0.213*** (0.0507)	0.207*** (0.0495)	0.0329 (0.0394)	0.0109 (0.0364)	-0.0387 (0.0549)	-0.0398 (0.0547)
Head's age	-0.0162** (0.00647)	0.0281* (0.0171)	0.0276* (0.0164)	0.00301 (0.00883)	0.00393 (0.00861)	0.0298* (0.0173)	0.0272 (0.0170)	0.0133 (0.00978)	0.0143 (0.00953)
Square of head's age	0.000178*** (6.04e-05)	-0.000318** (0.000161)	-0.000295* (0.000153)	-2.60e-05 (8.15e-05)	-3.31e-05 (7.90e-05)	-0.000318** (0.000162)	-0.000277* (0.000157)	-0.000138 (8.80e-05)	-0.000145* (8.60e-05)
HH size including overseas members	0.00978 (0.00691)	-0.000218 (0.0157)	0.0100 (0.0154)	-0.00946 (0.00997)	-0.00931 (0.00968)	-0.00425 (0.0140)	0.00558 (0.0136)	0.0179 (0.0127)	0.0178 (0.0126)
Secondary or above education	0.0568* (0.0321)	0.0868 (0.0592)	0.104* (0.0581)	0.142*** (0.0404)	0.148*** (0.0401)	-0.0236 (0.0505)	-0.0139 (0.0487)	-0.0605 (0.0745)	-0.0578 (0.0742)
Non-agricultural Occupation	0.0105 (0.0417)	0.128* (0.0682)	0.141** (0.0685)	0.138** (0.0593)	0.134** (0.0586)	0.0497 (0.0700)	0.0562 (0.0700)	0.0754 (0.0839)	0.0770 (0.0837)
Unemployment and business failure	-0.0285 (0.0314)	-0.180*** (0.0688)	-0.195*** (0.0700)	-0.0963* (0.0497)	-0.0843* (0.0487)	-0.127* (0.0748)	-0.145* (0.0766)	0.0100 (0.0527)	0.0138 (0.0518)
Illness, accidents, and disasters	0.0677 (0.0560)	0.00767 (0.0673)	0.0216 (0.0712)	-0.0925** (0.0427)	-0.0920** (0.0424)	-0.0364 (0.0751)	-0.0254 (0.0781)	0.0903 (0.0732)	0.0941 (0.0726)
Crop failure	-0.000394 (0.0215)	0.112* (0.0609)	0.104* (0.0623)	-0.0308 (0.0552)	-0.0267 (0.0554)	0.0630 (0.0636)	0.0556 (0.0652)	0.0303 (0.0830)	0.0322 (0.0825)
Family separation	-0.0230 (0.0360)	0.187** (0.0738)	0.138* (0.0812)	-0.0109 (0.0397)	-0.0132 (0.0392)	0.174** (0.0767)	0.123 (0.0860)	-0.00715 (0.0596)	-0.00542 (0.0594)
Constant	-3.352*** (0.263)	-0.288 (0.426)	-0.371 (0.412)	0.0820 (0.254)	0.0481 (0.250)	-0.628 (0.417)	-0.646 (0.414)	-0.0311 (0.255)	-0.0623 (0.248)
Observations	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420
R-squared	0.501	0.312	0.304	0.175	0.169	0.394	0.380	0.235	0.238

(Note) Cluster-robust standard errors at the household level in parentheses.\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. F-test statistic for weak IV is 732.11 with p-value of 0.00.

## (2) Women's financial inclusion

VARIABLES	Second Stage							
	(1) Having any financial accounts	(2) Using any financial accounts	(3) Having a bank account	(4) Using a bank account	(5) Having a cooperative account	(6) Using a cooperative account	(7) Having a microfinance account	(8) Using a microfinance account
Receive remittances (dummy)	0.106** (0.0458)	0.106** (0.0457)	0.0777** (0.0319)	0.0755** (0.0317)	0.000147 (0.0224)	-0.00333 (0.0219)	0.0885** (0.0370)	0.0890** (0.0370)
Head's age	-0.00197 (0.0131)	-0.00298 (0.0130)	-0.000563 (0.00451)	0.000155 (0.00430)	0.000961 (0.0126)	-0.000743 (0.0125)	0.00392 (0.00580)	0.00355 (0.00580)
Square of head's age	3.67e-05 (0.000121)	4.58e-05 (0.000119)	1.40e-05 (4.39e-05)	6.34e-06 (4.16e-05)	-3.14e-06 (0.000114)	1.41e-05 (0.000114)	-3.37e-05 (5.57e-05)	-3.05e-05 (5.57e-05)
HH size including overseas members	0.0170 (0.0109)	0.0185* (0.0108)	0.00530 (0.00610)	0.00466 (0.00605)	0.0137* (0.00819)	0.0153* (0.00813)	0.00596 (0.00809)	0.00648 (0.00807)
Secondary or above education	0.0492 (0.0496)	0.0429 (0.0492)	0.0636** (0.0277)	0.0648** (0.0277)	0.0133 (0.0439)	0.00884 (0.0434)	-0.0591 (0.0427)	-0.0607 (0.0428)
Non-agricultural Occupation	0.237*** (0.0919)	0.240*** (0.0916)	0.0600 (0.0495)	0.0601 (0.0495)	0.212*** (0.0799)	0.218*** (0.0797)	0.102 (0.0816)	0.101 (0.0817)
Unemployment and business failure	-0.0773 (0.0612)	-0.0764 (0.0613)	0.0186 (0.0219)	0.0195 (0.0219)	-0.148*** (0.0554)	-0.144*** (0.0556)	0.0184 (0.0431)	0.0158 (0.0431)
Illness, accidents, and disasters	-0.0903 (0.0633)	-0.0820 (0.0629)	-0.0106 (0.0165)	-0.00935 (0.0165)	-0.149** (0.0611)	-0.139** (0.0613)	0.0368 (0.0444)	0.0369 (0.0446)
Crop failure	0.0873 (0.0712)	0.0915 (0.0705)	0.0445 (0.0410)	0.0456 (0.0410)	0.0197 (0.0636)	0.0231 (0.0631)	0.0101 (0.0642)	0.0109 (0.0643)
Family separation	0.112 (0.0874)	0.117 (0.0866)	-0.0175 (0.0261)	-0.0178 (0.0261)	0.123 (0.0824)	0.129 (0.0817)	-0.0664 (0.0453)	-0.0658 (0.0454)
Constant	0.0157 (0.362)	0.0357 (0.360)	0.0832 (0.173)	0.0716 (0.171)	-0.189 (0.335)	-0.159 (0.334)	-0.0175 (0.179)	-0.00813 (0.179)
Observations	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420
R-squared	0.260	0.267	0.119	0.119	0.328	0.340	0.136	0.134

(Note) Cluster-robust standard errors at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## (3) Loans

VARIABLES	Second Stage					
	(1)	(2)	(3)	(4)	(5)	(6)
	Availing family loans	Availing formal loans	Availing informal loans	Availing family loans (female)	Availing formal loans (female)	Availing informal loans (female)
Receive remittances (dummy)	-0.0531 (0.0519)	-0.0145 (0.0291)	0.00112 (0.0222)	0.00211 (0.0383)	-0.00612 (0.0173)	-0.0114 (0.00942)
Head's age	0.0262* (0.0148)	0.00636 (0.00659)	0.000772 (0.00262)	0.00973 (0.0125)	-0.00210 (0.00185)	-0.00140 (0.00104)
Square of head's age	-0.000306** (0.000139)	-6.57e-05 (6.57e-05)	-2.53e-06 (2.90e-05)	-8.21e-05 (0.000115)	2.42e-05 (1.95e-05)	1.81e-05 (1.24e-05)
HH size including overseas members	0.0152 (0.0141)	-0.00747 (0.00473)	-0.000373 (0.00306)	0.0260** (0.0126)	-0.000998 (0.00174)	0.000900 (0.00106)
Secondary or above education	0.0273 (0.0523)	0.00511 (0.0214)	-0.00510 (0.0199)	0.0623 (0.0465)	-0.00105 (0.00727)	0.00287 (0.00558)
Non-agricultural Occupation	0.110 (0.0884)	-0.0442 (0.0427)	-0.0137 (0.0112)	0.190** (0.0950)	0.00337 (0.00578)	0.0118 (0.00726)
Unemployment and business failure	-0.0232 (0.0703)	0.0151 (0.0186)	0.00714 (0.0167)	-0.0467 (0.0598)	0.00742 (0.0143)	0.00103 (0.00819)
Illness, accidents, and disasters	-0.0306 (0.0861)	0.00815 (0.0232)	0.0109 (0.0182)	-0.0983 (0.0652)	0.00250 (0.0104)	-0.00269 (0.00287)
Crop failure	0.217*** (0.0765)	0.0491 (0.0318)	0.00752 (0.0140)	0.0992 (0.0641)	0.0177 (0.0161)	-0.000585 (0.00597)
Family separation	-0.00775 (0.122)	-0.00553 (0.0348)	0.00280 (0.0209)	0.0922 (0.0939)	0.0265 (0.0175)	0.00672 (0.00419)
Constant	-0.403 (0.394)	0.101 (0.158)	-0.0149 (0.0585)	-0.424 (0.349)	0.141 (0.0936)	0.0158 (0.0193)
Observations	1,420	1,420	1,420	1,420	1,420	1,420
R-squared	0.234	0.153	0.454	0.273	0.118	0.796

(Note) Cluster-robust standard errors at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table 3 Estimation results (2SLS; Amounts for remittances)**

## (1) Household financial inclusion

VARIABLES	First Stage	Second Stage							
	Remittance income (log)	(1) Having any financial accounts	(2) Using any financial accounts	(3) Having a bank account	(4) Using a bank account	(5) Having a cooperative account	(6) Using a cooperative account	(7) Having a microfinance account	(8) Using a microfinance account
Destination per capita GDP	3.367*** (0.112)								
Remittance income (log)		0.00743 (0.00762)	0.00399 (0.00741)	0.0256*** (0.00631)	0.0246*** (0.00615)	0.00398 (0.00507)	0.00109 (0.00468)	-0.00476 (0.00707)	-0.00486 (0.00703)
Head's age	-0.0490 (0.0318)	0.0273 (0.0171)	0.0270* (0.0164)	0.000869 (0.00913)	0.00183 (0.00891)	0.0295* (0.0173)	0.0271 (0.0170)	0.0137 (0.00970)	0.0146 (0.00946)
Square of head's age	0.000650** (0.000309)	-0.000310* (0.000162)	-0.000289* (0.000153)	-4.92e-06 (8.38e-05)	-1.23e-05 (8.14e-05)	-0.000315* (0.000162)	-0.000275* (0.000157)	-0.000142 (8.72e-05)	-0.000149* (8.53e-05)
HH size including overseas members	0.0394 (0.0384)	0.000122 (0.0158)	0.0103 (0.0155)	-0.00867 (0.0103)	-0.00853 (0.01000)	-0.00413 (0.0140)	0.00564 (0.0136)	0.0177 (0.0126)	0.0177 (0.0126)
Secondary or above education	0.315 (0.195)	0.0888 (0.0594)	0.105* (0.0583)	0.147*** (0.0409)	0.152*** (0.0406)	-0.0229 (0.0505)	-0.0135 (0.0487)	-0.0613 (0.0744)	-0.0586 (0.0741)
Non-agricultural Occupation	-0.140 (0.162)	0.130* (0.0686)	0.142** (0.0689)	0.144** (0.0610)	0.140** (0.0604)	0.0505 (0.0699)	0.0565 (0.0700)	0.0744 (0.0842)	0.0759 (0.0840)
Unemployment and business failure	-0.0987 (0.188)	-0.181*** (0.0689)	-0.196*** (0.0701)	-0.0995** (0.0494)	-0.0876* (0.0485)	-0.127* (0.0748)	-0.145* (0.0766)	0.0106 (0.0525)	0.0144 (0.0517)
Illness, accidents, and disasters	0.332 (0.251)	0.00982 (0.0677)	0.0232 (0.0716)	-0.0868** (0.0412)	-0.0864** (0.0411)	-0.0355 (0.0755)	-0.0251 (0.0783)	0.0893 (0.0733)	0.0931 (0.0727)
Crop failure	-0.0720 (0.126)	0.112* (0.0610)	0.104* (0.0624)	-0.0291 (0.0549)	-0.0250 (0.0551)	0.0633 (0.0637)	0.0556 (0.0653)	0.0299 (0.0829)	0.0318 (0.0825)
Family separation	-0.0307 (0.178)	0.186** (0.0739)	0.137* (0.0812)	-0.0153 (0.0401)	-0.0175 (0.0396)	0.174** (0.0766)	0.123 (0.0859)	-0.00635 (0.0596)	-0.00459 (0.0594)
Constant	-24.15*** (1.609)	-0.271 (0.429)	-0.356 (0.414)	0.118 (0.259)	0.0846 (0.256)	-0.623 (0.418)	-0.643 (0.415)	-0.0371 (0.254)	-0.0688 (0.247)
Observations	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420
R-squared	0.585	0.309	0.302	0.177	0.171	0.394	0.379	0.236	0.239

(Note) Cluster-robust standard errors at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. F-test statistic for weak IV is 898.607 with p-value of 0.00.

## (2) Women's financial inclusion

VARIABLES	Second Stage							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Having any financial accounts	Using any financial accounts	Having a bank account	Using a bank account	Having a cooperative account	Using a cooperative account	Having a microfinance account	Using a microfinance account
Remittance income (log)	0.0128** (0.00579)	0.0127** (0.00579)	0.00940** (0.00401)	0.00908** (0.00399)	-0.000174 (0.00293)	-0.000574 (0.00287)	0.0114** (0.00470)	0.0114** (0.00470)
Head's age	-0.00303 (0.0131)	-0.00405 (0.0130)	-0.00134 (0.00449)	-0.000605 (0.00428)	0.000941 (0.0125)	-0.000726 (0.0125)	0.00310 (0.00577)	0.00272 (0.00577)
Square of head's age	4.71e-05 (0.000121)	5.63e-05 (0.000119)	2.17e-05 (4.35e-05)	1.38e-05 (4.12e-05)	-2.90e-06 (0.000114)	1.40e-05 (0.000113)	-2.58e-05 (5.53e-05)	-2.25e-05 (5.53e-05)
HH size including overseas members	0.0174 (0.0109)	0.0189* (0.0109)	0.00558 (0.00614)	0.00494 (0.00609)	0.0138* (0.00820)	0.0153* (0.00813)	0.00622 (0.00818)	0.00674 (0.00816)
Secondary or above education	0.0514 (0.0497)	0.0451 (0.0493)	0.0652** (0.0276)	0.0664** (0.0275)	0.0134 (0.0438)	0.00888 (0.0433)	-0.0576 (0.0430)	-0.0592 (0.0430)
Non-agricultural Occupation	0.240*** (0.0914)	0.243*** (0.0911)	0.0621 (0.0493)	0.0621 (0.0493)	0.212*** (0.0799)	0.218*** (0.0796)	0.105 (0.0814)	0.103 (0.0815)
Unemployment and business failure	-0.0789 (0.0613)	-0.0781 (0.0614)	0.0174 (0.0220)	0.0184 (0.0220)	-0.148*** (0.0553)	-0.144*** (0.0556)	0.0173 (0.0431)	0.0146 (0.0431)
Illness, accidents, and disasters	-0.0874 (0.0625)	-0.0792 (0.0621)	-0.00853 (0.0163)	-0.00732 (0.0163)	-0.149** (0.0611)	-0.139** (0.0614)	0.0390 (0.0441)	0.0391 (0.0443)
Crop failure	0.0882 (0.0714)	0.0924 (0.0707)	0.0452 (0.0410)	0.0462 (0.0410)	0.0196 (0.0637)	0.0230 (0.0632)	0.0109 (0.0643)	0.0118 (0.0645)
Family separation	0.109 (0.0871)	0.114 (0.0862)	-0.0191 (0.0261)	-0.0194 (0.0260)	0.123 (0.0825)	0.129 (0.0818)	-0.0682 (0.0453)	-0.0677 (0.0454)
Constant	0.0334 (0.363)	0.0536 (0.361)	0.0961 (0.173)	0.0844 (0.171)	-0.188 (0.336)	-0.158 (0.334)	-0.00616 (0.178)	0.00339 (0.178)
Observations	1,420	1,420	1,420	1,420	1,420	1,420	1,420	1,420
R-squared	0.261	0.268	0.121	0.121	0.328	0.340	0.135	0.133

(Note) Cluster-robust standard errors at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

(3) Loans

VARIABLES	Second Stage					
	(1)	(2)	(3)	(4)	(5)	(6)
	Availing family loans	Availing formal loans	Availing informal loans	Availing family loans (female)	Availing formal loans (female)	Availing informal loans (female)
Remittance income (log)	-0.00719 (0.00675)	-0.000758 (0.00376)	6.48e-05 (0.00281)	-0.000224 (0.00493)	-0.000604 (0.00220)	-0.00123 (0.00128)
Head's age	0.0266* (0.0147)	0.00659 (0.00655)	0.000755 (0.00255)	0.00967 (0.0124)	-0.00203 (0.00180)	-0.00128 (0.00102)
Square of head's age	-0.000310** (0.000138)	-6.83e-05 (6.52e-05)	-2.34e-06 (2.82e-05)	-8.14e-05 (0.000115)	2.34e-05 (1.89e-05)	1.68e-05 (1.21e-05)
HH size including overseas members	0.0151 (0.0141)	-0.00761 (0.00473)	-0.000363 (0.00306)	0.0261** (0.0126)	-0.00103 (0.00173)	0.000846 (0.00105)
Secondary or above education	0.0267 (0.0521)	0.00422 (0.0213)	-0.00503 (0.0197)	0.0626 (0.0464)	-0.00126 (0.00722)	0.00254 (0.00553)
Non-agricultural Occupation	0.108 (0.0885)	-0.0444 (0.0427)	-0.0136 (0.0112)	0.190** (0.0951)	0.00323 (0.00579)	0.0115 (0.00711)
Unemployment and business failure	-0.0226 (0.0700)	0.0156 (0.0186)	0.00710 (0.0167)	-0.0468 (0.0598)	0.00755 (0.0143)	0.00124 (0.00818)
Illness, accidents, and disasters	-0.0318 (0.0857)	0.00747 (0.0231)	0.0109 (0.0180)	-0.0981 (0.0652)	0.00229 (0.0103)	-0.00304 (0.00285)
Crop failure	0.216*** (0.0766)	0.0492 (0.0318)	0.00751 (0.0140)	0.0991 (0.0642)	0.0177 (0.0161)	-0.000647 (0.00601)
Family separation	-0.00663 (0.122)	-0.00525 (0.0349)	0.00278 (0.0210)	0.0922 (0.0939)	0.0266 (0.0175)	0.00695 (0.00429)
Constant	-0.408 (0.392)	0.0938 (0.158)	-0.0144 (0.0572)	-0.421 (0.349)	0.140 (0.0941)	0.0131 (0.0187)
Observations	1,420	1,420	1,420	1,420	1,420	1,420
R-squared	0.235	0.152	0.454	0.272	0.118	0.796

(Note) Cluster-robust standard errors at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



**Table 4 Impact of COVID-19 on financial inclusion of remittance-receiving household**

	Percent changes, IMF		Percent changes, World Bank		
	With-COVID 1	With-COVID 2	With-COVID 1	With-COVID 2	with-COVID 3
(1) Household financial inclusion					
Having a bank account	-3.04	-2.83	-3.13	-3.99	-2.77
Actively using a bank account	-3.04	-2.82	-3.13	-3.98	-2.77
(2) Women's financial inclusion					
Having any financial accounts	-2.12	-1.97	-2.18	-2.78	-1.93
Actively using any financial accounts	-2.16	-2.01	-2.22	-2.83	-1.97
Having a bank account	-3.44	-3.20	-3.54	-4.50	-3.14
Actively using a bank account	-3.44	-3.20	-3.54	-4.49	-3.14
Having a microfinance account	-3.44	-3.20	-3.54	-4.51	-3.13
Actively using a microfinance account	-3.45	-3.21	-3.56	-4.53	-3.14

Note: The predicted values of the dependent variable are adjusted to fall between 0 and 1.

IMF projections: Scenario “no-COVID” is based on the IMF's projection of GDP in 2020 as of October 2019.

Scenario “With-COVID 1” is based on the IMF updated projections for per-capita GDP growth for 2020 as of June 2020, assuming a gradual recovery after the second half of 2020 . Global growth declines by 4.9% in this scenario.

Scenario “With-COVID 2” is based on the IMF updated alternative projections for per-capita GDP growth for 2020 as of June 2020, assuming that the pandemic recovery is faster than the baseline projections of June 2020. Global growth declines by 4.4% in this scenario.

WB projections: Scenario “no-COVID” is based on the WB's projection of GDP in 2020 as of January 2020.

Scenario “With-COVID 1” is based on the baseline scenario in the WB’s June 2020 growth forecasts, assuming that the lockdown lasts until the end of the second quarter of 2020. The global output declines by 5.2% in this scenario.

Scenario “With-COVID 2” is based on the downside scenario, assuming that the lockdown lasts until the end of third quarter of 2020. The world GDP declines by 8% in this scenario.

Scenario “With-COVID 3” is based on the upside scenario, assuming prompt recovery after the second quarter of 2020. The world GDP declines by 4% in this scenario.