

Projecting Loan Demand from Small Farmers and Fishers in the Philippines

Geoffrey M. Ducanes



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Projecting Loan Demand from Small Farmers and Fishers
in the Philippines

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December 2020

Abstract

Increasing productivity among small farmers and fisherfolk (SFF) is important if the country is to further reduce poverty. In 2019, the AFF sector accounted for 9.2 percent of GDP and slightly less than a fourth of total employment, but still accounted for majority of the poor. The provision of financing SFF is one of the strategies highlighted in the Philippine Development Plan 2017-2022 to expand economic opportunities in agriculture, forestry, and fisheries (AFF).

This study develops and applies a method for estimating loan demand from small farmers and small fishers in the Philippines, and projects this demand into the future. The method uses a patchwork of data, but most importantly the Small Farmers and Fisherfolk Indebtedness Survey and the Registry System for Basic Sectors in Agriculture to estimate credit loan demand from SFF in 2017, and uses inflation and projected (or targeted) sectoral gross value-added growth to project SFF loan demand into the future. The loan demand for SFF is estimated to be from Php172 billion (low estimate) to Php367 billion (high estimate) in 2021. This is projected to grow to Php201 billion (low estimate) to Php431 billion (high estimate) in 2024.

Moving forward, the study suggests that the estimation of loan demand from SFF can be facilitated if the sampling design of the SFFIS can be revised so as to be made representative nationally (and possibly even by region) using the most recent Census of Agriculture and Fishers as the sampling frame.

To help small farmers and fisherfolk, the government should ensure there is adequate fund, whether from government or from formal private sources, to meet the loan demand of small farmers and fishers for purposes of production, while still maintaining prudence. Not only will this help small farmers and fishers keep their head above poverty, it would help boost food security in the country in the present time when there are continuing risks of supply chain disruptions.

Keywords: small farmers and fishers, credit demand estimation, credit demand projection, determinants of credit demand, logit regression, agricultural credit, COVID-19 impact on credit demand

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Projecting loan demand from small farmers and fishers in the Philippines

*Geoffrey M. Ducanes, PhD**

1. Introduction

The provision of financing to small farmers and fisherfolk (SFF) is one of the strategies highlighted in the Philippine Development Plan 2017-2022 to expand economic opportunities in agriculture, forestry, and fisheries (AFF). Increasing productivity among SFF is important if the country is to further reduce poverty. In 2019, the AFF sector accounted for 9.2 percent of GDP and slightly less than a fourth of total employment, but still accounted for majority of the poor¹.

In this report, we attempt to project the loan demand from small farmers and fishers (SFF) for the period 2020 to 2024. The main data we use to generate the projections is the Small Farmers and Fisherfolk Indebtedness Survey (SFFIS), mainly the 2017 round although we also reference the 2015 and 2006 rounds, as well as the Registry System for Basic Sectors in Agriculture.

We realize that the current economic crisis brought about by the COVID-19 pandemic is likely to impact loan demand from SFF immediately and possibly in succeeding years. We thus also explore what this impact might be, looking at other more recent data sources.

This study is part of the “Assessment of the Credit Demand of Small Farmer and Fisherfolk” project. The project aims to:

- i) Analyze the demand for agricultural credit of SFF, and determine the key factors that influence their demand for credit;
- ii) Develop a methodology for estimating and updating the credit demand of SFF, including validation of previously used techniques in credit demand gap estimation;
- iii) Estimate the annual demand for loans of SFF for the 5-year period (2018-2022) and for major commodities (such as rice, corn, high value commercial crops, livestock, and poultry); and
- iv) Recommend policy measures to enhance SFF’s demand for agricultural credit.

This is the quantitative part of the project. Thus, it addresses objectives ii) and iii). The report proceeds as follows. In the next section, we briefly review the literature on loan demand from SFF. Section 3 examines the correlates of borrowing using the 2017 SFFIS. Section 4 discusses the methodology for projecting loan demand from SFF. The fourth section goes through the different steps of the estimation process. The fifth section discusses the possible impact of the COVID-19 economic crisis on these estimates. And the sixth section concludes.

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¹ Based on the merged 2015-2016 Family Income and Expenditures Survey and Labor Force Survey, about 60 percent of all poor workers (or workers belonging to poor households) are workers in the AFF sector.

2. Review of Literature

Here we present the literature, as it pertains to the Philippines, on the estimation of overall credit demand among small farmers and fisherfolk in the country, the factors affecting credit demand, as well as the supply of credit for small farmers and fisherfolk.

Cuevas, *et al.* (2015) surveyed 646 small farmers and fishers between 2014 and 2015. The study found 80% experienced borrowing in the past 12 months both for agricultural purposes and personal use. More than 70% of borrowers reported borrowing from informal rather than formal sources. The average amount of loans obtained by small farmers was Php25,036, but was substantially higher for those sourcing their loans from formal sources compared to informal sources. They also found that the important factors that affect a small farmer's decision to borrow from formal sources include interest rate, type of crop, and other variables that affect transactions costs.

Much earlier, a similar study was undertaken by Nagarajan, *et al.* (2008), which used data collected by the International Rice Research Institute in the mid- to late-1980s from two villages in Nueva Ecija. The sample comprise of 127 farming households. Among their findings was that of the 127 households in the survey, 96% were borrowers in the 1989-1990 period. They found that informal lenders were responsible for the great bulk (92%) of the total credit, and that the average loan size per borrower household was Php17,550 per year (comprising of three planting seasons). They also found that loan demand is affected by interest rates, ownership of physical and human capital, as well as non-farm income, among other factors.

Briones (2007) surveyed small rice farmers covering bank borrowers and non-bank borrowing farmers for crop year 2000-2001 from the top six regions in the Philippines in terms of number of bank borrowers. He found a negative and significant effect of the effective lending rate on credit demand, and estimated an interest rate elasticity close to unity after attempting to control for selection bias.

In another study identifying the determinants of borrowing from the formal credit market, Garay (2006) surveyed 1,028 small farmer and fisherfolk in the Philippines. Among the study's findings are that interest rate, age of farmer/fisher, household income, household size, loan duration, loan processing, bank distance, loan size, and region of residence are among the factors influencing the probability to borrow from the formal credit market.

On the supply of credit to small farmers and fisherfolk, the PSA (2018) reported that in 2017 a total of Php619 billion in agricultural loans was granted to small farmers and fisherfolk, of which 56.6% were said to have been used for production. The document itself does not provide the definition of small farmers and fisherfolk it uses. Private banking institutions were the biggest source of the loans, accounting for 81 percent or Php285 billion, whereas government banks were responsible for most of the rest (Php18 billion or 12%).

3. Correlates of Borrowing

In this section, we examine the correlates of borrowing for small farmers and small fishers. Separately for small farmers and small fishers, we look at three models, the first where the dependent variable is borrowing from either formal or informal sources, the second where the dependent variable is borrowing from formal sources (those who borrowed only from informal sources are excluded in the estimation), and the third where the dependent variable is borrowing

from informal sources (those who borrowed only from formal sources are excluded in the estimation).²

Table 1 shows the results for small farmers. As the dependent variable is dichotomous in nature, the methodology used is logistic regression. The explanatory variables across the three models are the same, which are region of residence, age of the farmer, sex of the farmer, education of the farmer, household size, number of parcels farmed, total size of parcels, ownership of land, membership in 4Ps, and non-farm income.

In the case of borrowing from any source, the significant explanatory variables are region of residence, education of the farmer (those with more education are more likely to borrow), household size (those with larger household sizes are more likely to borrow), and non-farm income (those with higher non-farm income are more likely to borrow). In the case of region of residence, this may have to do with regional differences in availability of lending institutions, as the results show those in poorer and more rural regions appear to have less likelihood of borrowing from any source. In the case of non-farm income, education, and even household size, it may have to do with perceived capacity to pay, as higher non-farm income would mean better means to pay even if the farming activity does not pan out, higher education perhaps with better productivity, better capability to meet documentary requirements, or at least more options if the farming activity does not pay off, and a bigger household size with more hands to work the land.

In the case of borrowing from a formal source, the significant explanatory variables are the same as above but with the addition of the age of the farmer and the sex of the farmer. The relationship between the likelihood of borrowing from a formal source and age is quadratic: increasing with age but at a decreasing rate. Male farmers are less likely to borrow than female farmers.

In the case of borrowing from an informal source, only region of residence has come out as a significant explanatory variable.

Table 1. Correlates of borrowing, small farmers

Variable	Borrowed from formal or informal		Borrowed from formal		Borrowed from informal	
	Odds-ratio	p-value	Odds-ratio	p-value	Odds-ratio	p-value
<i>Region (base = Region 1)</i>						
Region 2	0.603	0.210	0.972	0.955	0.535	0.179
Region 3	0.870	0.725	0.991	0.986	0.459*	0.087*
Region 5	0.543*	0.099	0.920	0.856	0.425*	0.053*
Region 6	0.363**	0.016	0.233**	0.036	0.314**	0.014**
Region 7	0.506*	0.086	0.850	0.739	0.076***	0.000***
Region 10	0.156***	0.000	0.341	0.051	0.078***	0.000***
Region 11	0.457*	0.080	0.479	0.189	0.468	0.120
Region 12	0.695	0.272	1.630	0.235	0.320***	0.007***
CAR	0.049***	0.000	0.065***	0.001	0.053***	0.000***
CARAGA	0.910	0.808	1.279	0.628	0.343*	0.052*
CALABARZON	1.307	0.591	3.379**	0.029	0.277*	0.065*

² Counted as formal sources are commercials banks, government banks, rural banks, cooperative banks, cooperatives, farmers association, NGOs, financing companies, pawnshops, and LGU or government agencies. Counted as informal sources are family, relatives or friends, private moneylenders, traders/millers, input suppliers, landowners, and paluwagan.

MIMAROPA	0.492**	0.048	0.945	0.898	0.237***	0.003***
<i>Age of farmer</i>						
Age	1.081	0.140	1.200**	0.011	1.080	0.320
Age-squared	0.999	0.101	0.998***	0.009	0.999	0.228
<i>Sex of farmer</i>						
Male (base=female)	0.923	0.661	0.672*	0.074	1.008	0.977
<i>Education of farmer</i>						
w/ at least some HS (base=elementary or less)	1.417**	0.049	1.903***	0.002	0.944	0.810
<i>Household size</i>						
HH size	1.135***	0.007	1.179***	0.005	1.056	0.344
<i>No. of parcels of farmed</i>						
No. of parcels	1.006	0.963	0.985	0.926	0.767	0.196
<i>Total size of parcels farmed</i>						
Total size of parcels	1.051	0.418	1.051	0.484	1.042	0.587
<i>Ownership of land</i>						
Own lot (base = does not own lot)	1.099	0.589	1.026	0.899	0.961	0.864
<i>Membership in 4Ps</i>						
4Ps (base=non-4Ps member)	0.744	0.129	0.734	0.182	0.723	0.212
<i>Non-farm income</i>						
ln(non-farm income)	1.029	0.003	1.037	0.003	1.012	0.362
_Constant	0.272	0.360	0.005	0.004	0.436	0.686
No. of observations		847		548		450
Wald chi2 statistic		87.6		89.5		50.1
p-value		0.000		0.000		0.001

Source: SFFI 2017

Note: ***p<0.01; **p<0.05; p<0.1

Table 2 shows the results for small fishers. The explanatory variables across the three models are the same, which are region of residence, age of the fisher, sex of the fisher, education of the fisher, household size, membership in 4Ps, and non-fishing income.

In the case of borrowing from any source, the significant explanatory variables are region of residence, age of the fisher, education of the fisher (those with more education are more likely to borrow), and non-fishing income (those with higher non-farm income are more likely to borrow). As with small farmers, the significance of region of residence may have to do with regional differences in availability of lending institutions. In the case of non-fishing income and education, again it may have to do with perceived capacity to pay.

In the case of borrowing from a formal source, the significant explanatory variables are region of residence, age of fisher, sex of fisher, and education of fisher. There is a quadratic relationship between borrowing from a formal source and the age of fisher, meaning increasing at a decreasing rate. Males are less likely to borrow than females (although females are only 15 percent of all fishers in the sample). And again those with higher education are more likely to borrow from formal sources.

In the case of borrowing from an informal source, the significant explanatory variables are region of residence, education of the fisher, membership in 4Ps, and non-fishing income. Education, membership in 4Ps and higher non-fishing income are each associated with higher likelihood of borrowing from an informal source relative to not borrowing. In the case of 4Ps,

it maybe that informal sources consider the monthly transfers received by households as potential source of payments.

Table 2. Correlates of borrowing, small fishers

Variable	Borrowed from formal or informal		Borrowed from formal		Borrowed from informal	
	Odds-ratio	p-value	Odds-ratio	p-value	Odds-ratio	p-value
<i>Region (base = Region 1)</i>						
Region 2	3.154**	0.029	3.365*	0.059	10.169**	0.014
Region 3	2.559**	0.020	1.236	0.702	14.138***	0.001
Region 5	18.602***	0.000	18.467***	0.000	63.243***	0.000
Region 6	2.322**	0.030	2.684**	0.038	3.638**	0.141
Region 7	4.139***	0.000	2.319	0.104	25.568***	0.000
Region 10	2.828**	0.023	2.791*	0.057	6.517*	0.052
Region 11	1.857	0.149	1.231	0.729	7.852**	0.012
Region 12	5.318***	0.000	4.801***	0.003	24.613***	0.000
CAR	7.629**	0.013	8.487**	0.022	7.682*	0.095
ARMM	0.357*	0.081	0.122*	0.059	3.245	0.227
CARAGA	2.342*	0.063	5.373***	0.001	0.665*	0.744
CALABARZON	3.191**	0.017	1.016**	0.983	17.468***	0.001
MIMAROPA	9.639***	0.000	16.245***	0.000	15.450***	0.001
<i>Age of fisher</i>						
Age	1.066	0.145	1.113*	0.058	1.018	0.770
Age-squared	0.999*	0.070	0.999**	0.021	1.000	0.655
<i>Sex of fisher</i>						
Male (base=female)	0.676	0.115	0.551**	0.041	1.328	0.453
<i>Education of fisher</i>						
w/ at least some HS (base=elementary or less)	1.635***	0.009	1.915***	0.003	1.584*	0.086
<i>Household size</i>						
HH size	1.015	0.682	1.043	0.352	1.017	0.726
<i>Membership in 4Ps</i>						
4Ps (base=non-4Ps member)	1.264	0.254	1.052	0.840	1.784**	0.033
<i>Non-fishing income</i>						
ln(non-fishing income)	1.024**	0.027	1.006	0.684	1.058***	0.000
_Constant	0.152	0.086	0.039	0.021	0.017	0.020
No. of observations		771		559		477
Wald chi2 statistic		115.5		103.7		88.4
p-value		0.000		0.000		0.000

Source: SFFI 2017

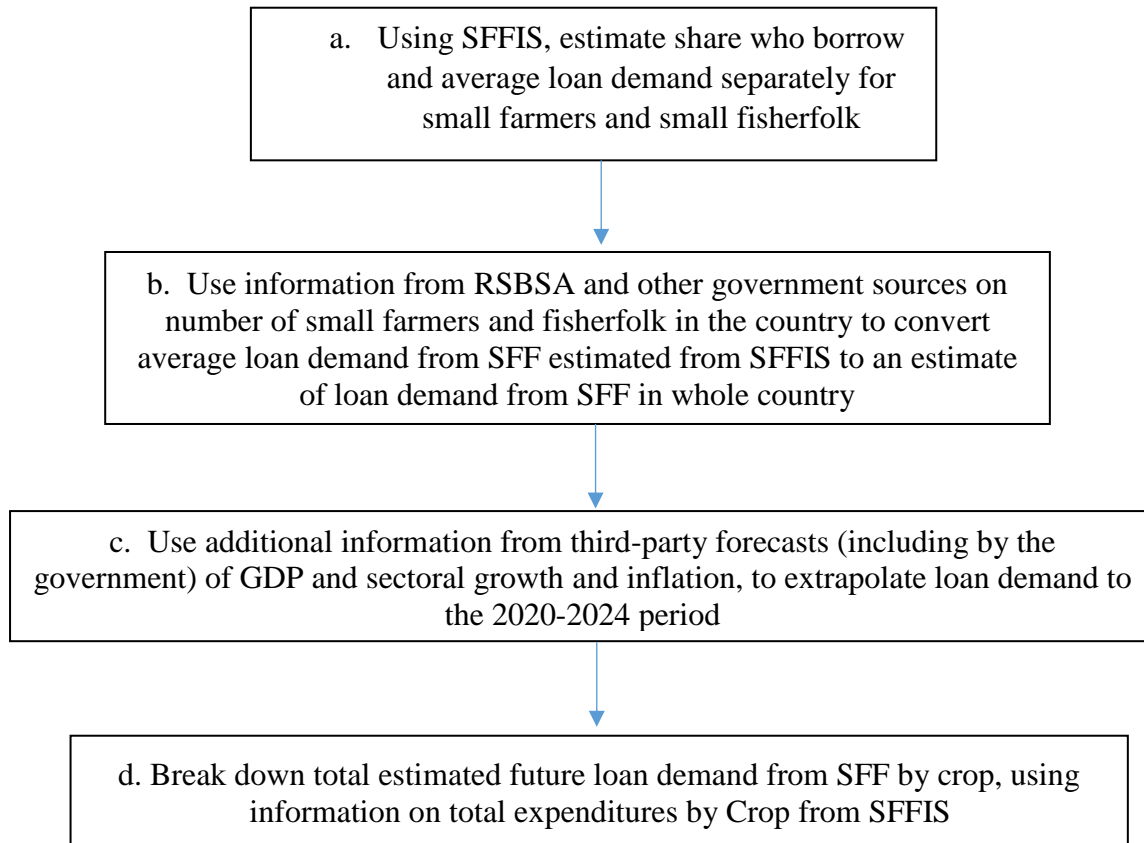
Note: ***p<0.01; **p<0.05; *p<0.1

4. Methodology for Projecting Loan Demand from SFF

The limitations of data prevent us from relying only on one data source, or from using a time series econometric forecasting technique, to generate our projections of loan demand from SFF. Instead we utilize information from different data sets, the main ones being the Small Farmer and Fisherfolk Indebtedness Survey (SFFIS) and the Registry System for Basic Sectors in

Agriculture (RSBSA), and use what can be described as a patchwork but careful methodology to generate the projections. We breakdown the methodology in several steps as illustrated in Figure 1.

Figure 1. Methodology



In **step a)**, using the SFFIS 2017, we first estimate separately for small farmers and small fisherfolk, the share who are likely to demand a loan. These are the small farmers and small fisherfolk who either availed a loan or experienced pawning in the reference period.

For the subset of SFF who availed a loan or experienced pawning, we then estimate the average loan demand, where loan demand is measured in three possible ways: a) first, simply as the sum of loan availed and pawn receipts obtained by all SFF who either obtained a loan or experienced pawning or both; b) second, as the amount of loan applied for by all SFF who applied for a loan; and c) as the planned future borrowings of SFF with reported future agricultural projects requiring financing.

In **step b)**, we estimate the total number of small farmers and fisherfolk in the country. In theory, this could be done using the Census of Agriculture and Fisheries (CAF) or the Registry System for Basic Sectors in Agriculture (RSBSA) database. However, access to these databases was not possible during the study and instead the report relied on figures cited in a report by the Philippine Crop Insurance Corporation but using data collected from the RSBSA, the PCIC itself, the Department of Agrarian Reform, the Department of Agriculture, the Bureau of Fisheries and Aquatic Resources, and the National Irrigation Administration on the number

of small farmers and small fishers in the country. These information will be used to blow up the estimated loan demand using the SFFIS to generate national-level estimates.

The estimated national-level loan demand in **step b)** is for the baseline year, which is 2017 in this case. In **step c)**, we extrapolate to succeeding years by using other information, including projected inflation and the projected or targeted sectoral growth of agriculture.

In **step d)**, we attempt to breakdown the total estimated future loan demand from SFF by crop. This is not straightforward as the SFFIS does not contain information as to the use of the loans obtained by SFF by crop. What is available from the SFFIS instead is information on total expenditures on production activities by crop. Thus, for the purpose of breaking down loan demand by crop, we make the assumption that the share of each crop in total loan demand is proportional to its share in total expenditures on production.

5. Estimation Results

5.1. Estimating the share of SFF who are likely to demand a loan from the SFFIS

In the 2017 SFFIS, the share of SFF who are likely to demand a loan is estimated as the share in the total SFF of those who either availed of a loan or had experienced pawning, broken down into type (whether farmer or fisher).³ Table 3 shows the estimated share of SFF who have experienced availing a loan (borrowers) or pawning.

In the case of borrowers, the share is 63.7% overall and higher for farmers (68.6%) than fisherfolk (57.9%). Also included among those likely to avail a loan are those who have experienced pawning. Table 3 shows the estimated share who have experienced pawning is 14.2% overall and higher for fisherfolk (15.8%) than farmers (12.7%). Since some SFF may have both availed of a loan and at the same time experienced pawning, we combine those information to obtain the share of the SFF who either availed of a loan or experienced pawning. The results are also in Table 3 and shows that 71.2% of SFF either availed of a loan or experienced pawning, and higher for farmers (76.2%) than fisherfolk (65.3%).

Table 3. Share of borrowers and pawners among SFF, 2017

Type	% who borrowed	# who borrowed	% who pawned	# who pawned	% who borrowed or pawned	# who borrowed or pawned	Total number of respondents
Farmer	68.6%	641	12.7%	98	76.2%	675	935
Fisher	57.9%	453	15.8%	107	65.3%	494	782
Total	63.7%	1094	14.2%	205	71.2%	1169	1,717

Source: SFFIS 2017

This exercise was also done using the SFFIS for 2015 and 2006. However, the previous surveys were different in that information on the SFF's experience in pawning were not yet included. But the results are shown in Tables 4 and 5 below. What is notable from Tables 4 and 5 are the higher share of those who availed of a loan compared to the 2017 SFFIS (74% in 2015 and

³ Note that, alternatively, instead of using information on those who have availed of a loan at anytime, information on those who have availed of loan or with outstanding balance in the immediately preceding year could be used.

72% in 2006 compared to 63.7% in 2017). It is not yet clear why this is the case. Of course it could just be sampling error but if it were the case that previously those who experienced pawning (but did not avail a regular loan) classified themselves also as having availed a loan, then the figures will be much closer to each other (71.2% availed a loan or pawned in 2017, compared to the 74% in 2015 and 72% in 2006). Also note that in the 2015 and 2006 SFFIS, the SFF were classified into their main agricultural activity over the past 12 months. In practice, an SFF can engage in more than one agricultural activity and many farmers, for instance, plant several crops.

Table 4. Share of borrowers, 2015

Main agricultural activity	% who availed loan from any source	% who availed loan or with outstanding balance past 12 months
Rice	75	69
Corn	80	70
Coconut	66	55
HVCC	86	75
Fisheries	69	43
Livestock	64	46
Total	74	62

Source: SFFIS 2015

Table 5. Share of borrowers, 2006

Main agricultural activity	% who availed loan from any source	% who availed loan or with outstanding balance past 3 years
Rice	77	90
Corn	63	66
Coconut	80	76
Sugarcane	77	80
Fisheries	61	63
Livestock/Poultry	76	82
Total	72	75

Source: SFFIS 2006

Although the information is not used in the estimation exercise in the succeeding sections, based on the SFFIS data, 64% of the number of loans taken out by small farmers were from formal sources and 36% were from informal sources.⁴ In terms of amount, 71% were from formal sources and 29% were from informal sources. For small fishers, a similar 64% of the number of loans were from formal sources and 36% were from informal sources. In terms of amount, a higher 83% were from formal sources and 17% were from informal sources. These are in Annex Tables 1 and 2. Loans from both formal and informal sources were considered in the estimation of total loan demand because doing so is consistent with the goal of encouraging

⁴ See footnote 2.

farmers to shift to more formal sources. If they are going to shift to formal sources, then even what they were formerly getting from informal sources should be included in counting future loan demand.

5.2. Estimating the average loan demand from SFF using the SFFIS

The estimated amount of loan demanded by the average farmer of fisherfolk who availed of a loan or pawned is computed in three different ways: a) first, by adding up all the loan amounts (up to 4) and pawning receipts (up to 3) for each SFF and averaging them out for all who have availed of a loan or pawned; b) second by adding all the loan amounts applied for (rather than what was approved or received for each SFF) and averaging them out for all who have availed of a loan; c) and third by adding up the amounts the SFF reported they were planning to borrow for future projects. The results are shown in Tables 6a to 6c.

For farmers who have borrowed (availed of loan or pawned), the average amount borrowed in 2017 is Php 32,182 and for fisherfolk the average amount is lower at Php 23,686. The overall average for SFF who borrowed is Php 28,483.

Table 6a. Average total amount received from loan and pawning, 2017

Type	Amount of loan availed (Php)	Amount of pawning receipts (Php)	Amount from loan or pawning (Php)
Farmer	28,835	3,347	32,182
Fisher	19,619	4,067	23,686
Total	24,823	3,660	28,483

Source: SFFIS 2017

It should be noted, however, that a higher amount of average loan demanded overall is obtained when using the 2015 SFFIS, not even accounting for inflation (and that the amount received from pawning is not explicitly included). This is shown in Annex Table 3, which shows an average of Php36,517 overall, although much higher for farmers than fisherfolk.

If one considers instead the ‘amount of loan applied for’ rather than the ‘amount of loan received’ by the SFF who applied for loans, the results are in Table 6b. Note that there is very little difference between the figures in the last column of Table 6a and the entries in Table 6b. Perhaps this means that whatever gap there is between the amount of loan an SFF applies for and what he gets, he or she makes up for by pawning.

Table 6b. Average total amount of loan applied for, 2017

Type	Amount of loan applied for (Php)
Farmer	32,609
Fisher	23,145
Total	28,635

Source: SFFIS 2017

Another question asked in the 2017 SFFIS is how much the SFF intends to borrow in the future to finance up to three farming or fishing activities. This can be expected to be higher than the amount of loan they applied for (Table 6b) and the amount of loan they ended up getting (Table

6a) because it is less constrained by what they can offer as collateral or their perceived capacity to pay at the time they were borrowing. In fact, Table 6c shows that is indeed the case, as the average amount of planned future borrowing among farmers who expressed such desire is Php69,121, while for fishers it was Php48,717, and overall was Php59,828. These amounts are more than double what they applied for and actually borrowed in 2017.

Table 6c. Average planned future borrowing for farming/fishing activities, 2017

Type	Average planned future borrowing (Php)
Farmer	69,121
Fisher	48,717
Total	59,828

Source: SFFIS 2017

The figures above, in particular, provide high and low estimates (bounds) for the amount small farmers and small fishers can be expected to borrow, on average. For a small farmer, the low estimate is Php 32,182 (from Table 6a) and the high estimate is Php 69,121 (from Table 6c). For a small fisher, the low estimate is Php 23,145 (from Table 6b) and the high estimate is Php 48,717.

5.3. Extrapolation to population of SFF

In the Revised Implementing Guidelines on the Utilization Premium Subsidy (GPS) to the Philippine Crop Insurance Corporation Under FY 2017 General Appropriations Act, it was reported that there were 6.8 million SFF, of whom 5.5 million were farmers and 1.4 million were fishers.⁵ We use these as our estimate of the total number of SFF in 2017.⁶

Small Farmers

Of the 5.5 million small farmers, based on Table 3, 76.2% or 4.2 million are estimated to avail of a loan. These 3.7 million small farmers are estimated on average to demand from Php 32,182 to Php 69,121 in loans based on Tables 6a to 6c. This means that the total demand for loans of small farmers is estimated at from Php 134 billion to Php 289 billion.

Small Fisherfolk

Meanwhile, of the 1.4 million small fishers, based on Table 3, 65.3% or 890 thousand are estimated to avail of a loan. These 890 thousand small fishers are estimated on average to demand from Php 23,145 to Php 48,717 in loans based on Tables 6a to 6c. This means that the total demand for loans of small fishers is estimated at from Php 21 billion to Php 43 billion.

Taken together, this means that total demand for loans circa 2017 from SFF is estimated to range from Php155 billion to Php332 billion. The computations are shown in Table 7.

⁵ This is based on consolidated and cleaned data from the RSBSA, the Department of Agrarian Reform, the Philippine Crop Insurance Corp, the National Irrigation Administration, the Bureau of Fisheries and Aquatic Resources, and the Department of Agriculture. See <https://pcic.gov.ph/rsbsa/>

⁶ Note that the actual number of SFF will depend on many factors, among the most important of which, are population and labor force growth, as well as sectoral growth and the changing structure of the economy. Population growth has likely had a positive effect on the size of the SFF but the changing structure of the economy (declining agriculture) likely had a negative impact.

Table 7. Estimated demand for loans by small farmers and fishers, 2017

Type	Estimated No. of SFF (in millions)	No. of SFF expected to borrow (in millions)	Lower bound: expected amount of loan per farmer or fisher (Php)	Lower bound: Total amount of loan for all small farmer or fishers (Php millions)	Upper bound: expected amount of loan per farmer or fisher (Php)	Upper bound: Total amount of loan for all small farmer or fishers (Php millions)
Small farmers	5.5	4.2	32,182	134,419	69,121	288,708
Small fishers	1.4	0.89	23,145	20,620	48,717	43,402
Total	6.8	5.1		155,039		332,110

Source: Author's calculations

Tables 8 and 9 give the projection of the loan demand from small farmers and small fishers, respectively, up to the year 2024, assuming that the growth in loan demand rises proportionately with inflation and the growth in gross value added in the sector, and not taking into account the possible impact of the COVID-19-induced economic crisis on loan demand from SFF. For small farmers, loan demand is projected to be from Php 156 billion to Php 336 billion this year (2020) and to be from Php 165 billion to Php 354 billion next year. For small fishers, loan demand is projected to be from Php 24 billion to Php 50 billion this year and to be from Php 25 billion to Php 53 billion next year.

Table 8. Projected loan demand from small farmers

Year	(A): Actual or assumed Inflation (%)	(B): Actual or targeted GVA growth in agriculture (%)	(A) + (B): Estimated loan growth from previous year (inflation + GVA growth)	Low Estimate: Loan Demand	High Estimate: Loan Demand
2017 (baseline)				134,419	288,708
2018	5.2%	1.0%	6.2%	142,753	306,608
2019	2.5%	1.3%	3.8%	148,178	318,259
2020	2.5%	3.0%	5.5%	156,328	335,763
2021	2.5%	3.0%	5.5%	164,926	354,230
2022	2.5%	3.0%	5.5%	173,997	373,713
2023	2.5%	3.0%	5.5%	183,566	394,267
2024	2.5%	3.0%	5.5%	193,663	415,952

Note: Low estimate of loan demand for 2018 is computed as the baseline low estimate (134,419) multiplied by (1 + 0.062 (the estimated growth from previous year)). Low estimate of loan demand for 2019 is computed as the low estimate for 2018 (142,743) multiplied by (1 + 0.038 (estimated growth from previous year)). The same methodology is applied to the high estimate for loan demand.

Table 9. Projected loan demand from small fishers

Year	Actual or assumed Inflation (%)	Actual or targeted GVA growth in fishery (%)	(A) + (B): Estimated growth from previous year (inflation + GVA growth)	Low Estimate: Loan Demand	High Estimate: Loan Demand
2017 (baseline)				20,620	43,402
2018	5.2%	-0.2%	5.0%	21,651	45,572
2019	2.5%	2.5%	5.0%	22,733	47,851

2020	2.5%	3.0%	5.5%	23,984	50,482
2021	2.5%	3.0%	5.5%	25,303	53,259
2022	2.5%	3.0%	5.5%	26,695	56,188
2023	2.5%	3.0%	5.5%	28,163	59,279
2024	2.5%	3.0%	5.5%	29,712	62,539

Note: Low estimate of loan demand for 2018 is computed as the baseline low estimate (20,620) multiplied by (1 + 0.05 (the estimated growth from previous year)). Low estimate of loan demand for 2019 is computed as the low estimate for 2018 (21,651) multiplied by (1 + 0.05 (estimated growth from previous year)). The same methodology is applied to the high estimate for loan demand.

5.4. Estimating the shares in total loan demand of SFF by crop (including livestock and fishery)

It is not possible from the data to directly classify borrowed money into different crops (including livestock and fishery). Instead, the share of the different crops will be estimated from their reported share in total farming and fishery production expenditure based on the 2017 SFFIS.

For crop farmers, the total production expenditure (summed over all reporting SFF) by crop and the share of each crop in total expenditures is shown in Table 10. It shows that for those with data in the survey, the total production expenditure on crops was at Php50 million, of which 43% went to rice, 34% went to corn, 10% went to vegetables, and the rest to the other crops.

Table 10. Expenditures on crops and share of each crop in total expenditures on crops, 2017

Crop	Crop Number						Total	% share
	1	2	3	4	5	6		
Abaca	715,567	33,900					749,467	1%
Cacao		2,600	5,000				7,600	0%
Coconut	2,585,606	1,093,650	218,600	31,000	26,400		3,955,256	8%
Coffee	1,000	25,000			17,700		43,700	0%
Corn	14,671,088	2,061,068	297,800	44,000	29,000	20,000	17,122,956	34%
Fruit	1,017,920	237,455	608,013	7,208	27,065		1,897,661	4%
Nut	3,200	51,100	1,600	12,600			68,500	0%
Rubber	120,000						120,000	0%
Rice	19,564,948	1,941,200	34,175				21,540,323	43%
Tobacco	40,000	20,000		10,000			70,000	0%
Ube	5,480					1,000	6,480	0%
Vegetable	2,717,720	1,482,665	293,295	236,477	21,951	46,240	4,798,348	10%
Total	41,442,528	6,948,638	1,458,483	341,285	122,116	67,240	50,380,291	100%

Note: Total expenditures on crops is adjusted for reported number of croppings.

For livestock raisers, the total production expenditure (summed over all reporting SFF) by livestock and the share of each livestock in total expenditure is shown in Table 11. It shows that for those with data in the survey, the total expenditure on livestock was at Php 8 million of which, 78% went to pigs, 13% went to chickens, and the rest to the other livestock.

Table 11. Expenditures on livestock and share in total expenditures on livestock, 2017

Livestock/Livestock #	1	2	3	Total	% share
Cattle	179,775	173,925	17,000	370,700	5%
Chicken	744,256	273,520	640	1,018,416	13%
Duck	344,000	320		344,320	4%
Goat	8,136	7,100	1,500	16,736	0%
Pig	5,950,721	301,310	37,060	6,289,091	78%
Total	7,226,887	756,175	56,200	8,039,263	100%

Note: Total expenditures on livestock is adjusted for estimated number of cycles.

For aquaculture farmers, the total expenditures (summed over all reporting SFF) by fish type and the share of each type in total expenditures is shown in Table 12. It shows that for those with data in the survey, the total expenditure on aquaculture farming was at Php 10 million, of which 49% went to crabs/shrimps, 41% went to tilapia/bangus, and the rest to the other types.

Table 12. Expenditure on Aquaculture farming by fish type and share in total expenditures on aquaculture farming, 2017

Fish Type	1	2	3	4	Total	% share
Tilapia/Bangus	1,860,526	481,350	1,268,933	422400	4,033,209	41%
Mussels/Oysters	341,900				341,900	3%
Crabs/Shrimps	2,168,933	1,695,733	530,650	479850	4,875,166	49%
Assorted Fish	27,885	668,080			695,965	7%
Total	4,399,244	2,845,163	1,799,583	902250	9,946,240	100%

Note: Total expenditures on crops is adjusted for reported number of croppings.

And for those engaged in fish capture, the estimated total production expenditure was at Php 13 million.

Overall, the total production expenditure on farming reported by small farmers in the survey was Php58 million, of which 86% went to crops and 14% went to livestock. Meanwhile, the total production expenditure on fishing reported by small fishers was Php23 million, of which 44% went to aquaculture and 56% went to fish capture.

Applying these shares and the shares estimated in Tables 10 to 12 to the projected loan demand from SFF in 2021, we get Tables 13 and 14 below, which give the breakdown of loan demand by subgroup (either by crop by livestock or by fishing activity/fish type) for small farmers and small fishers, respectively.

Table 13. Small farmers: Estimated loan demand by crop/livestock, 2021

Crop/Livestock	Lower estimate (in Php Mn)	High estimate (in Php Mn)
Abaca	2,116	4,544
Cacao	21	46

Coconut	11,166	23,983
Coffee	123	265
Corn	48,340	103,826
Fruit	5,357	11,507
Nut	193	415
Rubber	339	728
Rice	60,811	130,611
Tobacco	198	424
Ube	18	39
Vegetable	13,546	29,095
Cattle	1,047	2,248
Chicken	2,875	6,175
Duck	972	2,088
Goat	47	101
Pig	17,755	38,134
Total	164,926	354,230

Source: Author's calculations

Table 14. Small fishers: Estimated loan demand by fishing activity/fish type, 2021

Fishing activity and fish type	Lower estimate (in Php Mn)	High estimate (in Php Mn)
Aquaculture: Tilapia/Bangus	4,497	9,465
Aquaculture: Mussels/Oysters	381	802
Aquaculture: Crabs/Shrimps	5,435	11,441
Aquaculture: Assorted Fish	776	1,633
Fish Capture	14,214	29,918
Total	25,303	53,259

Source: Author's calculations

6. Possible Impact of COVID-19 crisis

The COVID-19 crisis is likely to have a significant impact on loan demand from small farmers and small fishers, which have not been taken into account, and which are difficult to take into account, in the estimation exercise presented above.

The lockdown engendered by the pandemic caused severe difficulties in transporting farming produce and fishing catch to the markets and likely heavily reduced the incomes of farmers and fishers. The probable scenario is that loan demand from small farmers and fishers will increase due to the COVID-19 crisis.

There are three reasons why this is likely to happen: i) a greater share of the existing small farmers and small fishers will want to borrow money due to the crisis; ii) they will want to borrow a larger amount now compared to what they would have wanted to borrow without the crisis; and iii) there would be an increase in the number of small farmers and small fishers, at

least some of whom will want to borrow, as workers who lost jobs in the services and industry sector move to or move back to agriculture.

Some evidence of the hardship experienced by small farmers and small fishers can be gleaned from the results of recent survey by one big microfinance institution (ASA Philippines) of its clients, a big share of whom are small farmers and fishers. The survey sought to assess the impact of COVID-19, especially the enhanced community quarantine (ECQ), on the clients of the MFI and their livelihoods. The survey had more than 97 thousand respondents across all the regions of the country, about 12 thousand of whom gave farming or fishing as their first answer when asked what their livelihoods were (multiple answers were allowed). The survey was not intended to be representative of the entire population of microenterprises or the subset of small farmers and fishers, and so the results can be taken only as descriptive of those covered in the sample and not necessarily all small farmers and fishers in the country.

More than one-fourth (28 percent) of small farmers and fishers in the sample reported suffering a decline in income category during the lockdown period from March 16 to May 15.⁷ Note that this is true not only for small farmers and fishers in Luzon but also those outside Luzon. In contrast, for the small farmers and fishers in all the regions, roughly three-fourths reported no change in income category and a very small minority reported a rise in income category. The decline in income is actually worse than that because about two-thirds of the sample were already in the lowest income category pre-ECQ and so could not get to a lower income category. If one considers only small farmers and fishers that were in the second and higher income categories pre-ECQ, three-fourths of the sample reported experiencing a decline in income.

In addition, about half (49 percent) of the SFF in the sample reported they were not able to adequately provide for the basic needs (food, water, medicine, etc.) of their families during the lockdown, and close to one-third said they coped by borrowing money. A relatively high 45 percent of small farmers and fishers in the sample said they will need to get a new loan in order to revive their livelihoods after the ECQ. A good portion also said they will need to restructure or reschedule their existing loans. Of the total SFF in the sample, the great majority said they will need additional capital just to get them back to pre-ECQ level.

The April 2020 LFS also showed around 7.7 million jobs in industry and services were lost compared to April 2019, which accounts for 96% of all the job losses in the period. Although some of these jobs are returning as the lockdown has eased, many might not be recovered for a while and some of the workers who have lost their jobs, as well as new entrants to the labor force, could go to agriculture. In fact, in the July 2020 LFS, there were a reported additional 1.1 million agricultural workers compared to July of the previous year, equivalent to an increase of 12 percent, and reversing a long-term decline in the number of agricultural workers. The Balik Probinsya program of the government will also push more workers into agriculture. All of these factors could drive loan demand from small farmers and fishers higher.

7. Conclusion

In this report, we developed and applied a method for estimating loan demand from small farmers and small fishers in the Philippines. We used this method to project this loan demand

⁷ The income categories are the following (in Php): 0-10K; 10-20k; 20-30K; 30-40k; 40-50K; 50-60K; 60-70K; 70-80K; 80-90K; 90-100K; 100K+.

up to 2024. The method uses a patchwork of data: the SFFIS to estimate the proportion of SFF who can be expected to borrow, how much they are expected to borrow, and the share by crop/livestock/fish type in total loan demand; the RSBSA to get the estimated number of SFF in the country; inflation and projected (or targeted) sectoral gross value added growth to project SFF loan demand into the future. The loan demand for SFF is estimated to be from Php172 billion (low estimate) to Php367 billion in 2021. This is projected to grow to Php201 billion (low estimate) to Php431 billion (high estimate) in 2024.

The report also examined the potential impact of the COVID-19 crisis on loan demand from SFF and concluded that it is likely to push loan demand upwards, from a combination of more SFF needing to borrow and to borrow a higher amount, plus the likely increase in the number of SFF as some workers who have lost their jobs in industry and services go back to agriculture.

Moving forward, on data, the estimation of loan demand from SFF can be facilitated if the sampling design of the SFFIS can be revised so as to be made representative nationally (and possibly even by region). At the moment, this does not appear to be the case. Some regions are not represented in the sample and the sample size by region does not appear to correspond to the relative population of farmers and fishers by region based on existing data. The RSBSA or the most recent CAF can be used as the sampling frame.

Many small farmers and fishers belong to the working poor and are among most vulnerable members of the population. Their number is expected to grow, and in fact there is evidence it has already grown, as a result of the COVID-19-induced decline in the industry and services sectors. The government should ensure there is adequate fund, whether from government or from formal private sources, to meet the loan demand of small farmers and fishers for purposes of production, while still maintaining prudence. Not only will this help small farmers and fishers keep their head above poverty, it would help boost food security in the country in the present time when there are continuing risks of supply chain disruptions.

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Annex Table 1. Number and amount of loans by small farmers by type of source

	Number of loans	% share	Amount of loans (Php)	% share
Formal	369	64%	9,784,592	71%
Informal	212	36%	3,994,100	29%
Total	581	100%	13,778,692	100%

Annex Table 2. Number and amount of loans by small fishers by type of source

	Number of loans	% share	Amount of loans (Php)	% share
Formal	288	64%	6,243,896	83%
Informal	165	36%	1,256,640	17%
Total	453	100%	7,500,536	100%

Annex Table 3. Average total amount received from loans availed, 2015

Type	Amount borrowed (Php)
Rice	40,774
Corn	66,158
Coconut	23,721
HVCC	29,344
Fisheries	11,723
Livestock	19,598
Total	36,517