

Smallholder farmers behaviour to access bank in an integrated crop-livestock system in West Nusa Tenggara, Indonesia

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Abstract. Agriculture is one of the most important sectors to support household economy in West Nusa Tenggara (WNT), dominated by small holder farmers. This paper aims to provide insight on smallholder farmers attitude to access bank under integrated crop-livestock system in WNT. A survey was conducted in 2021 in East Lombok, Sumbawa and Bima districts covering 103 farmers. This study found that farmers in Lombok has less interaction with bank compared to Sumbawa and Bima. Reasons mentioned were afraid to be unable to repay, no collateral, and no need to loan. Conversely, farmers in Sumbawa and Bima have accessed bank loan for more than 5 years to support crops and cattle farming. This difference was also associated with resources. Average land and cattle ownership per household in East Lombok were much lesser than in Sumbawa and Bima, 0,4 vs 2 and 0,7 ha respectively, and 1-2 vs 4-5 and 5-6 head respectively. Loan for crops farming often get repaid from selling cattle. Hence, it is concluded that farmers with more resources are keener to access bank loan as they have back up from different enterprise for repayment. Cattle play significant safeguard role to repay bank loan in an integrated crop-livestock system.

1 Introduction

Agriculture is one of the most important sectors to support household economy in West Nusa Tenggara (WNT) province [1]. Farmers in WNT dominantly practice integrated crop-livestock system with rice, maize, and cattle being the most common commodities [2]. WNT consists of two main islands, Lombok and Sumbawa where Sumbawa has drier climate, dominated by hilly topography [3, 4].

Bank loan has a long history of interaction with farming activities in Indonesia. Although a study by [5] argues that bank loan has no significant effect on farmer welfare in Indonesia, [6] depicts that access to bank improves small holder farmer performance in

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Africa. Similarly, bank credit has boosted efficiency of farming productivity in Bangladesh [7].

Their views are in line with [8] that financial products including credit will support agricultural productivity and food security. Credit enables farmers to purchase equipment and inputs such as labour, high-yielding seed, and fertiliser to improve productivity [9]. In a study, [10] describes three main theories that explain relationship between financial and agricultural sector. The first is financial structuralist, believing that distributed and even access to financial products like bank loan will promote economic growth and wellbeing in rural areas. More precisely, that wellbeing comes from saving and investment process as a result of better-off condition [11]. The second theory is called Keynesian, emphasizing that monetary policy like low-interest rates will improve production in agricultural sector. The last theory is called neo-structuralists, arguing unbankable agricultural sector in developing countries because of inefficient production as a result of limited land, low business skills and poor financial management. Therefore, most farmers from this segment need to fund their own farming enterprise or seek fund from informal financial institution [12].

Despite a number of studies being reported on the relationship between farmers and bank [13,14,15,16], there has been very few study that assess banking behaviour of small holder farmers in the context of WNT. This paper aims to provide insight on small holder behaviour to access bank under integrated crop-livestock system in WNT.

2 Methods

A mixed-methods study was used to conduct this research from September 2021 to May 2022. Mixed methods were used to understand the social phenomenon [17]. Quantitative and qualitative data were collected using survey and key informant interview methods. A survey was conducted in three districts of WNT including East Lombok, Sumbawa and Bima, covering 103 farmer respondents. They were selected purposively for whom practicing integrated crop-livestock system with rice, maize and cattle as main commodities. Quantitative data were analysed using SPSS and then combined with qualitative data for descriptive analysis. Location of the study is shown in Table 1.

Table 1. Location for data collection

| District | Sub-district | Village |
|-------------|--------------|---------------------|
| East Lombok | Wanasaba | Kembang Kerang Daya |
| | Sikur | Sikur |
| | Terara | Jenggik |
| | Keruak | Pijot |
| Sumbawa | Moyo Hilir | Berare |
| | Moyo Utara | Penyaring |
| | Plampang | Prode |
| | Labangka | Labangka IV |
| Bima | Bolo | Nggembe |
| | Madapangga | Bolo |
| | Monta | Tangga |

3 Results and discussion

3.1 Farming system in WNT

Majority farmers of WNT implement integrated crop-livestock system. Planting round is divided into three seasons: rainy season – early dry season – late dry season. During rainy season, rice is the most common crop across the three districts. Dominant irrigated areas in

East Lombok enables farmers to have three planting rounds with varying crops during dry season including maize, chilli, and tobacco. Meanwhile, with similar irrigated condition, a different feature was found in some part of Sumbawa Island like Moyo Hilir, Bolo, Madapangga and Monta. Despite water availability throughout the year, farmers prefer to have only two planting rounds and leave the land into fallow to allow cattle grazing the crop residue. Upland areas are dominated by maize commodity both in Sumbawa and Bima, yet farmers in upland Sumbawa plant maize in relay system. Maize is inter cropped with mung bean, soy bean or ground nut in which crop residue are conserved as cattle feed.

Land ownership varied between the three districts but showed larger ownership in Sumbawa and Bima Districts. Average land ownership in East Lombok was 0,3 ha/household while in Sumbawa and Bima accounted for 1,5 ha and 0,7 ha per household respectively. These figures correspond to the size of Sumbawa Island of 15.424 km² which is three time larger than Lombok yet hold a third of the provincial population of 5,1 million people [1]. This different land ownership also corresponded into different cattle farming system between the two islands. With limited land ownership in Lombok, most respondents in East Lombok implemented intensive cut-and-carry feeding system with 2-3 cattle ownership per household in average. By contrast, in Sumbawa and Bima farmers practiced extensive grazing system for cow-calf production and extensive system for cattle fattening. This is consistent with previous study [2] that during crop season in Sumbawa, cattle are kept in a yard or open pen and released after harvest season to graze the crop by product. While for fattening, cattle stay in the pen all year round and fed by *Leucaena*.

3.2 Banking attitude and relationship with the Bank

This study found different features in regard to small holder farmers' behaviours and relationship to the bank among three regions in WNT. Majority of respondents in East Lombok (> 80%) had no relationship with the bank. A converse situation was found in Sumbawa and Bima region where 74% and 64% of respondent respectively had access to bank. Among reasons mentioned by farmers in East Lombok for not accessing bank credit included fear of risk in case of inability to repay loan that will lead to collateral loss as consequence, no need to bank credit and did not know how to access bank credit. Farmer reluctance to access bank loan in Lombok shares a common feature of Indonesian farmers where bank loan to agricultural sector is less than 1 % [5]. [18] points out that smallholders' risk-averse behaviour especially fears of losing collateral as a consequence of unable to pay back loan is among the determinant factors influencing farmers decision to take credit, other than transaction cost and lack of information. Farmers in Lombok perceive bank as a scary institution that can take collateral in failure repay back loan. In many instances, the collateral is farmer's only most valuable belonging. Therefore, farmers become too afraid to access bank loan. These reasons behind reluctance to access bank loan is well suited with neo-structuralist theory [12] that limited land and traditional management were among barriers that hampered farmers to access loan.

The next reason banking is more common among Sumbawanese and Bimanese farmers was land and cattle holding. These assets are closely related to farming inputs requirement and safety cushion to repay loan when crop farming goes wrong. Average land holding for farmers in Sumbawa and Bima was 1,5 and 0,7 ha per household as compared to only 0,3 ha in Lombok. This larger land size of course needs larger inputs and hence capital to purchase inputs such as labour, seed and fertiliser, as also stated in [9] study (2019). In the context of WNT, one hectare maize plantation in Sumbawa requires around IDR 7,7 million/ha for inputs purchase [19]. On the other hand, farmers often have limited capital when needed. Based on the interviews, bank credit was one of the reasonable solutions to solve this problem for rates and social relation reasons. This has confirmed other studies by [20], [21], [22] that likelihood to take credit among farmers will be higher for those whose

production affectively influenced by credit. Respondent farmers in Sumbawa and Bima reported that access to credit determines inputs purchase for rice and maize farming which subsequently influence productivity and hence income and livelihood. Larger land ownership in Sumbawa and Bima also means ownership of larger collateral value that enable farmers to take bank loan. Moreover, bank loan rates were considered to be more humane than borrowing from neighbours. Based on this study, the rate for people's business credit scheme (KUR) was 6 % per year. This is in contrast to borrowing from neighbour that charge 10% interest every month. Some respondents in Sumbawa reported that borrowing from bank poses less social burden and intimidation than from neighbour. Often the lender talked about the borrower to other neighbour about the loan when the borrower bought something. Hence, respondents found it more comfortable to deal with bank than own colleague.

Another reason farmers in Sumbawa and Bima have been more familiar to bank credit is cattle ownership as cushion to repay loan in case something goes wrong with the harvest that affect their repayment ability. Average cattle ownership in Sumbawa Island was 5-10 head with some farmers own more than 20 cattle. Majority of respondents from Sumbawa and Bima reported that they repaid bank loan for crops farming from selling cattle. As an example, 50-60 % out of the loan was used to purchase crop farming inputs and the remaining was used to buy cattle feeder for fattening. With this practice, they consider to be safer instead of allocating all loan for crop farming inputs. Farmers already have cattle for loan repayment that will reach added value after loan tenor. This system was not found in Lombok. One possible contributing factor was cattle ownership dominated by "ngadas" system. Ngadas is looking after someone cattle in a profit-sharing scheme, a 50:50 % profit share for fattening and getting calf in turn for cow-calf production. Majority of farmers in Lombok (around 70%) are ngadas, hence they have small control power over the cattle. Therefore, cattle cannot be used as repayment cushion for bank loan in Lombok.

3.3 Amount of loan and repayment ability

Average bank loan for farmers in Sumbawa and Bima were around IDR 30 and IDR 60 million respectively. Farmers in Bima take double the amount than in Sumbawa as they do more cattle fattening business that require larger capital. Around 65% farmers in these two regions accessed KUR scheme and the remaining took commercial scheme. Average loan tenor 12 months. Vast majority of respondents borrowing KUR repay loan every 6 months or once before the due date at the end of loan period. Small percentage of respondents in commercial scheme repaid loan every month. Farmers reported that they have been repaying the loan on time and try to maintain good name in the bank. During difficult time such as Covid pandemic that has affected agribusiness sector, farmers assisted each other for repaying loan. For example, farmer X had difficulty in repaying loan, neighbouring farmer would borrow another loan for farmer X to repay loan. Farmer X will repay back to farmer Y once his economic conditions get better. [13] study depicts that farmer and financial institution has a complex relationship in providing credit to support farm productivity and ensuring financial institution profitability. Therefore, bank always perform credit evaluation to evaluate and predict farmer credit worthiness. What practiced by farmers in Sumbawa to assist each other repaying loan was a strategy to maintain farmers good name in the bank.

4 Conclusions

This study concludes that farmers in Lombok has less interaction with bank compared to Sumbawa and Bima attributed to fear of unable to repay loan, unavailable collateral, no

need to loan and land and cattle ownership. In the integrated crop-livestock farming system as commonly found in WNT, loan for crops farming often get repaid from selling cattle. Hence, farmers with more resources are keener to take bank loan as they have back up from cattle enterprise for repayment. Therefore, cattle play significant safeguard role to repay bank loan for small holders in an integrated crop-livestock system.

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