

## AN EXPLORATORY STUDY ON THE PERCEPTION, CHALLENGES, AND STRATEGIES FOR AGRICULTURE FINANCING IN PAKISTAN: STAKEHOLDER'S PERSPECTIVE

**Aleena Amjad**

Scholar, Department of Business Administration, Fatima Jinnah Woman University  
Rawalpindi  
[Malikaleena65@gmail.com](mailto:Malikaleena65@gmail.com)

**Huma Ayub\***

Assistant Professor, Department of Business Administration, Fatima Jinnah Woman  
University Rawalpindi.  
[huma\\_ayub@fjwu.edu.pk](mailto:huma_ayub@fjwu.edu.pk)

**Saiqa Saddiqa Qureshi**

Assistant Professor, Department of Business Administration, Fatima Jinnah Woman  
University Rawalpindi.  
[saiqa@fjwu.edu.pk](mailto:saiqa@fjwu.edu.pk)

### ABSTRACT

*Agri-financing faces challenges due to a variety of factors that are still uncovered in the context of developing countries. This study aims to explore the challenges from the perspective of stakeholders specifically bankers, farmers, and regulators to boost agriculture financing by channelizing it through commercial banks in Pakistan. The study used interviews through open-ended semi-structured questions from stakeholders. The study capitalizes on the purposive sampling technique for conducting interviews with the 16 conventional and Islamic Agri-bankers. A stratified random sampling design is used to conduct interviews with 30 farmers from the Potohar region. The study used ATLAS.ti version, 8 for thematic analysis of qualitative data. The study finds that the bankers and farmers weigh the challenges such as high-interest rates charged, lengthy and cumbersome documentation, collateral requirements by commercial banks, and socio-demographic factors of farmers (illiteracy, religiosity, poor communication skills) and exploitative role of middlemen (Aarthies). Moreover, a lack of awareness for the use of innovative ways to improve productivity by farmers inhibits the agri-equipment financing from banks. Stakeholders suggest that introducing customized regional farmers' financial literacy programs and platforms for linking farmers with value-added companies, centralized farmers' data portal (landholding/record-keeping system) and digitalization of agriculture loan processes (one window operations) can improve the agri-financing situation in Pakistan. This study has significant implications for the policymakers of the agricultural sector to incentivize farmers and provide strategies to overcome the challenges for facilitating stakeholders in Pakistan.*

**Keywords:** Agriculture Financing, Stakeholders, Challenges, Perceptions, Farmers

### INTRODUCTION

Agricultural sector act as a backbone to the economic growth of developing countries by providing food security, raw materials, and employment generation leading to the reduction in poverty. To boost the economic growth of developing countries there is a need to improve the agriculture infrastructure by providing ample resources in the form of funds/farm credits (Muddassir *et al.*, 2016).

Globally agriculture sector is predominantly financed by the government however, the private sector both formal and informal also contribute to its development by extending loans. Formal sources such as microfinance and commercial banks extend farm credit ranging from a variety of products leading from subsistence to agriculture equipment financing. However, informal sources such as money

---

\* Corresponding Author

lenders, commission brokers, input suppliers, agriculture traders, friends and relatives were the major sources of credit for farmers in developing economies (Elahi *et al.*, 2018). However, these informal sources only provide sponsorship for subsistence farmers. Therefore, there is a need to raise the accessibility of financing for farmers to facilitate investment in modern technologies to improve their productivity and to ensure food security in developing countries.

The agriculture sector contributes about 19.2 percent to the GDP of Pakistan's economy and employs around 38.5 percent of the labor force. More than 65-70 percent of the population depends on agriculture for its livelihood (Pakistan Economic Survey, 2020-21). In pursuance of the government's agenda for promoting the agriculture sector, the State Bank of Pakistan (SBP) heavily sponsored agricultural credit, however, due to some challenges on the demand and supply side banks failed to get the agriculture credit disbursement targets. There is a gap observed in terms of targeted and the actual load disbursement to the agriculture sector details of the gap have been shared in table 1.

**Table No. 1 Targets and Actual Disbursement of Agricultural Loans 2020- 2021**

Banks	Target	2020 (July-March)		Target	2021 (July-March)	
	2020	Disbursed	Achieved (%)	2021	Disbursed	Achieved (%)
Commercial Banks	705	515.2	73.1	800	554.2	69.3
Islamic Banks	55	31.0	56.3	63	35.9	57.0

Source: Pakistan Economic Survey, 2020-21

State Bank of Pakistan provides Agricultural Loans Scheme since 1972 as a part of its regulatory/monitoring and administrative responsibilities. Under the provisions contained in Section 8 (3) of the SBP Act 1956, the State Bank of Pakistan should guarantee the accessibility of sufficient and timely banking credit to the Agricultural Sector, besides creating awareness and inspiring the living standard of the rural community. State Bank has a whole Agriculture department that regulates schemes for financing the agriculture sector. Government support commercial and Islamic banks for agriculture financing as it disbursed a target of Rs 1,500 billion for FY2021 which is a huge amount of contribution. In the dual banking system of Pakistan, both commercial and Islamic banking provides a variety of agriculture products ranging from Tractor finance, Dairy finance, Poultry finance, Input finance, Fisheries, Warehouse finance, Livestock, and Tunnel farming. Similarly, Islamic banks also offer shariah-compliant agriculture products based on Salam, Murabaha, Diminishing Musharakah financing for tractors, Dairy Milk production, Dairy Calf fattening, Poultry finance, and for the assistance in the acquirement of pesticides, fertilizers, and seeds, moreover, Islamic banks also offer competitive products based on the Ijarah contract for agriculture equipment such as tractors, harvesters, and land lasers, Solarization of tube-well, and Specialized machines such as big harvesters and balers. However, the contribution of Islamic agricultural products is still very limited as it has reduced from 7.3 percent in December 2019 to 6.0 percent in March 2020 (Islamic Banking Bulletin, 2020). In a nutshell, due to the importance of agricultural financing to support agricultural activities in Pakistan, there is a need to understand what are the factors and perceptions that hinder the offering of agricultural financing both from the Islamic and commercial sides.

Although Government is intervening by extending agriculture credit schemes through commercial banks at subsidized rates, however, various challenges hinder the achievement of disbursement targets in Pakistan; therefore, the current study aims to identify the factors that hinder the growth in agriculture credits disbursement. So far in Pakistani literature, this deficiency has not been identified holistically while considering all stakeholders into a loop to discuss strategies to overcome this problem. This study focuses on the Potohar region due to the cultivation of a large variety of crops in this region such as wheat, rice, cotton, maize, olives, barley, gram, groundnuts, and bajra. The Potohar region is also very suitable to produce fruit plants, medical plants, and vegetables. The Potohar region of Punjab has a huge potential for delivering fruits products like peaches, grapes, papayas, and olives because of its favorable climate with the help of innovative farming methods. This study is qualitative and in-depth interviews are conducted with the bank's experts who are dealing with agriculture financing, along with farmers and SBP in the Potohar region in the north of Punjab. The study uses analysis ATLAS.ti software for thematic analysis. Besides the main stakeholders that are the Banks, farmers, and regulatory authority, there are other stakeholders such as NGO's, microcredit institutions as well for the support of financing the agriculture sector however they are not being considered in this study keeping in view their negligible contribution compared to the mainstream banking financing for

the agriculture sector. Currently, the agriculture sector faces many challenges as the increasing need to protect the climate, global consumption of food, and high demand for sustainable energies. In this context, it is very vital to strengthen the agriculture sector by offering loans. The overall objective of the study is to explore the perception, challenges of diverse stakeholders and to devise strategies to overcome agriculture financing challenges in Pakistan. The specific objectives of the study are:

- To explore the perception and challenges faced by the bankers in the agriculture financing department in Pakistan.
- To explore the perception and challenges faced by the farmers for availing agriculture loans in Pakistan.
- To explore the perception and challenges faced by the regulator (SBP) and their role in supporting agriculture financing in Pakistan.
- The study intends to propose recommendations/ strategies to overcome the challenges of agriculture financing in Pakistan.

The remaining sections of this study are as follows; section 2 discussed the literature review and theoretical foundation, section 3 describes the methodology, section 4 discussed the findings and discussion of the study and section 5 concludes the study and gives the recommendations.

## **REVIEW OF LITERATURE**

The agricultural sector plays a significant role in sustainable growth and overall development in developing countries. Several studies stress the need for the appropriate combination of policies and investments to support the agriculture sector (Moahid *et al.*, 2021). Access to credit is one of the significant benefits in the farming sector since it allows farmers to overcome capital constraints (Chandio *et al.*, 2018, 2019; Nan *et al.*, 2019; Nordjo & Adjasi, 2019; Reyes & Lensink, 2011).

Agricultural credit provides financial resources to the farming community for subsistence farming (Masini and Giordani, 2016) and particularly for the purchase of improved inputs like fertilizer, seeds, pesticides, machinery, equipment, etc, and for modernization and innovation to enhance its productivity. However, low access to capital for farmers limits their productivity (Mukasa *et al.*, 2017), decreases their income and investment (Amanullah *et al.*, 2019). The theoretical foundation of this study originates from the Schultz theory which propagates that capital is the main restriction in the agriculture sector. Moreover, Information asymmetry and transaction cost theory also provides a theoretical justification for the study. Several studies conclude lack of access to credit is among the various factors contributing to the low profitability of the agriculture sector (Aziz & Yusoff, 2013; Bharti, 2018). Seasonality and the systematic risk intrinsic to the agriculture sector make agricultural credit more complicated than the credit supplied to other sectors, hence, improving and extending agriculture financing remains an important challenge and top priority for policymakers in developing countries.

Literature highlights the presence of formal and informal sources for meeting the needs of the agriculture sector where formal source includes micro and commercial credit institutions through their branches (Lawal & Abdullahi, 2011). Commercial banks set up agriculture divisions to encourage farm credit in all three seasons (Bilal and Baig, 2019) while informal source includes money lenders, commission brokers, input suppliers, agriculture traders, friends and relatives were the major sources of credit for farmers in developing economies (Elahi *et al.*, 2018; Rehman *et al.*, 2017).

Studies support that the collateral financing requirement of formal financial institutions led to the emergence of microcredit (Barai & Adhikary, 2013). The success of Grameen Bank showed that microcredit moneylenders could guarantee higher rates of credit recovery and returns even without collateral by connecting social and mental proprieties to group development, by which reimbursement of loans turned into a collective responsibility (Shukran & Rahman, 2011). Anyiro and Oriaku (2011) also argue that microcredit enhances the production capacity of poor resource farmers through financial investment in their human and physical capital. The farmers' decisions to participate in formal credit are affected by informal credit markets, which are prevalent, especially in the rural areas of developing countries (Balachandran & Dhal, 2018; Huu Thu *et al.*, 2020).

In the context of Nigeria, farmers are facilitated by Nigeria Agricultural Cooperative and Rural Development Bank (NACRDB), Community Banks (CB), the Nigerian Agricultural Credit Guarantee Scheme Fund (ACGSF) and encouraging the establishment of Co-operative Societies to cater for the

credit needs in the agricultural sector. The level of capital investment required to materialize modernization and innovations cannot easily be accessible by informal sectors.

Keeping in mind the significance of formal sector contribution in the context of agricultural lending in Kenya, different studies focused exclusively on commercial banks and microfinance institutions (MFIs) (Njuguna & Nyairo, 2015). Maloba and Alhassan (2019) argue that the commercial banks focus on large-scale producers who have operational and management structures in place and thereby can commercially sustain their businesses. Informal agriculture lending institutions are, by and large, unregulated, and unstructured in terms of credit scoring and lending decisions.

Maloba and Alhassan (2019) discuss the conservative nature of FIs towards agriculture lending in Kenya is attributed to various reasons, such as liberalization of interest rates, lack of proper records on farming which makes credit assessment challenging for a financial institution. There is a lack of innovative financial products that are tailored to mitigate risks inherent in agricultural lending. Similarly, Belek and Jean-Marie (2020) discuss problems faced by the Cameroon agriculture sector where the problem of low capitalization along with low rural financial service limits the use of modern techniques of production by farmers: therefore, farmers adopt strategies that are not very effective and do not improve the productivity of farmers. In the context of Indonesia, Mariyono (2019) discuss the availability of microcredit for subsistence farming. He also stressed the need for the usage of advanced technology for the cultivation of high-value crops and horticultural sectors needs high operating capital, and the technologies are relatively expensive. Therefore, he also concludes that microcredit might not be the answer to the farmer's requirements in Indonesia. Similarly, Aziz and Yusoff (2013) discuss the reasons for the low growth of the agribusiness industry in Malaysia by employing qualitative techniques based on document analysis on previous articles and literature on several types of Fiqh Muamalat contracts and found that the absence of financing is the main reason along with the lack of banking specialists and underestimation of farming division.

Similarly, Kyere (2014) studied the experience of commercial banks to expand credit facilities to farmers in Ghana. He identified limitations that are comprised of difficulty in loan taking lack of appraisal, lack of marketing, inadequate use of modern agriculture inputs, lack of capital, the uncertainty of market prices, etc., thus threatening the nation's food security.

Similarly, Qin *et al.* (2019) discuss the case of China where the credit source for farmers includes both formal and informal sources. Formal institutions include Rural Credit Cooperatives (RCC), Agricultural Development Bank of China, Agricultural Bank of China, and Postal Saving Banks. Informal channels are the United Society of Urban Credit Cooperatives, money shops, rural cooperative foundations, pawnshops, and loan societies. Most of the farmers satisfied their credit needs through familia borrowing. More than half of the 1.4 billion people of China are still living in rural areas, and more than 800 million are involved in farming, fishing, and forestry. They suggest that there is a need to raise the accessibility of financing for farmers and other rural residents, particularly to facilitate investment in modern technologies and new enterprises in China. Ding and Abdulai (2018) and Dufhues *et al.* (2004) found that farmers prefer to provide guarantors to secure microcredit in China. Collateral increases a farmer's ability to obtain external financial resources. Financial institutions use the pledging of assets to determine a farmer's creditworthiness and decrease the default risk (Akram & Hussain, 2008).

In the context of Afghanistan, the informal credit market contributes extensively as 42% of people's rural areas obtained informal credit. Hence, more attention is required to design credit products that satisfy farmers' needs and preferences to increase formal agricultural credit participation in Afghanistan. Furthermore, due to the absence or lack of active formal credit systems, farmers have limited experience with formal credit. Proximity to financial institutions to farmers encourages formal credit participation. It reduces farmers' transaction costs in obtaining credit (Moahid & Maharjan, 2020b).

Farmers avoid formal credit due to their religious constraints in Muslim-majority countries (Moahid and Maharjan, 2020b; Saiti *et al.*, 2018). According to Saiti *et al.* (2018), through Sharia-compliant credit, participation in formal agricultural credit can be increased in Afghanistan. World Bank (2014) reports that people have difficulty in providing security (i.e., collateral) to obtain formal credit in Afghanistan. Asogwa *et al.* (2014), Ayegba and Ikani (2013), and Dhakshana and Rajandran (2018) find that a lack of collateral and the stipulation of unfavorable conditions by financial institutions constrain farmers' access to formal agricultural credit in developing countries. There is a need for the

promotion of group lending to decreases the impedances hindering rural credit participation (Paal & Wiseman, 2011). The results of Moahid *et al.* (2021) also suggest that farmers prefer collateral-less joint liability group credit. Farmers in Afghanistan rarely possess land titles that can be used as collateral for financial institutions. Even if they have collateral, legal procedures to use it are usually cumbersome. The distance to formal financial institutions is another factor that hinders agriculture financing from the formal sector (Agricultural Development Fund, 2019). Several studies explain that reducing lender farmer distance increases credit participation as it decreases transaction costs for farmers (Carrer *et al.*, 2020).

Stringent terms and conditions (particularly the long disbursement process and unsuitable repayment period), and a lack of trust in formal institutions are the few critical challenges to formal agricultural credit in Afghanistan (Agricultural Development Fund, 2019). There is a need for simple terms and conditions for sanctioning formal credit for farmers in developing countries (Ayegba & Ikani, 2013; Dhakshana & Rajandran, 2018). A lengthy and complicated credit disbursement procedure discourages farmers from participating in formal agricultural credit (Moahid & Maharjan, 2020a). Maloba and Alhassan (2019) argue that the borrowers faced significantly higher interest rates and were therefore struggling to keep up with loan repayments.

Literature suggests the provision of agricultural credit and agricultural technical advisory services facilitate the farmers with low productivity (Elahi *et al.*, 2018). Ullah *et al.*, (2020) confirm that asset-rich farmers with more farming experience and better access to information relied more on banks than on input providers and informal credit sources. Similarly, older farmers with more education, larger farm sizes, and high farm income were more likely to have borrowed from input providers than banks.

Agriculture growth remains low in Pakistan due to various problems such as lack of innovation, crop management techniques, convenient accessibility of water and current inputs, steady infrastructure, rising production cost, unpredictable year-to-year costs, and supply of credit (Khan *et al.*, 2011). Traditional informal credit sources existed extensively given by relatives, commission agents, neighbors, local money lenders, friends, village shopkeepers, and traders. The formal sources in Pakistan (particularly in KPK), are provided by conventional banks and Islamic financial institutions. These sources also include, in a broad sense, non-governmental organizations (NGOs) and some international bodies (Saqib *et al.*, 2017). Extensive research in the context of Pakistan confirms the significant role of microcredit<sup>†</sup> in extending microloans to the subsistence farmers to raise their income level (Alam *et al.*, 2020). However, in Pakistan, the production of crops has not been increased due to the lack of technology in the rural-urban areas mainly due to the weak linkages between the accesses to formal credit.

Several researches identified factors that contribute to this end such as various socioeconomic factors, such as gender, age, household size, educational level, farming experience, farm size and income and financial status of farmers (Kaleem and Ahmad, 2016), high mark-up (Noonari *et al.*, 2015), complicated bank procedures, long-distance from formal credit sources, lack of guarantees and collateral (Ali and Alam, 2010) and the requirement of collateral for innovation especially for agriculture inputs (Riaz *et al.*, 2012). World Bank report also points out about property rights that there is heavy dependence on Patwari systems for record maintaining which delays the credit process (Elahi *et al.*, 2018). Despite Government policies regarding agriculture financing to safeguard the interest of the small farmers by giving loans to them on easy terms and conditions to protect them from natural calamities, institutional credit is not available to small farmers.

Access to agricultural financial services such as credit can entice farmers into investing in farm inputs to attain sustainable production and maintain food security. Usually, landlords and large farmers have access to credit from banks, whereas small farmers rely on informal sources such as friends and relatives. Informal credit sources and input providers are the major (78%) credit sources for farmers, followed by banks and other formal institutions (15%). In the case of small farmers, only 6.5% have access to bank credit. However, formal, and informal credits are dominant factors in the improvement of agricultural production and farmers' technical efficiency in Pakistan.

Several studies from a global perspective investigated the factors that may hinder access to credit for the agriculture sector. Most of them have considered the survey approach to determine the

---

<sup>†</sup> Punjab Rural Support Programme (PRSP) and Aga Khan Rural Support Program (AKRSP) etc.

relationship between variables for the promotion of agriculture sector financing. Studies in the context of developing countries concerning the subject are still at the infancy stage were keeping the perspective of all stakeholders for the promotion of financing to the agriculture sector is still not observed (Maloba & Alhassan, 2019). Studies in literature both focus on stakeholders in silos and hence are unable to present meaningful strategies to overcome agriculture financing challenges in the Pakistani context. A current research work intends to cover the research gap by considering the diverse stakeholder's perspectives to devise strategies accordingly. The current study presents the strategies while considering the nexus of credit providers, users, and regulators to present the policy implications for the maximum utilization of the disbursement targets in the context of Pakistan. There is still a gap to take into consideration the three-fold perspective into account by using qualitative research i.e., interviews to understand ground realities and thus to propose strategies to improve the situation.

Throughout the literature in the Pakistani context studies are at the nascent stage that highlights the perceptions and challenges faced by the agriculture sector to different stakeholders. As Pakistan is an agriculture-based society to explore the factors that hinder the financing of the agriculture sector there is a need for further research to better understand the perception and challenges of agriculture financing faced by the different stakeholders. This issue is unfolded because there is a very limited study that focused on the stakeholders from the grass-roots level. The next chapter provides the methodological perspective to explore different challenges and issues in the agriculture financing sector.

## METHODOLOGY

This study used interviews as a research tool to obtain information and perspectives of three key stakeholders mainly i.e., agriculture experts from banks, farmers, and regulators' perspectives from the State bank of Pakistan. The qualitative sample used in this study is sufficient to assure that all the perceptions that may be significant are uncovered. However, the sample size in this research also follows the concept of saturation where the assortment of new information does not shed any further light on the issue being analyzed (Mason, 2010). Therefore, the current study is based on a sample of 16 banks experts from the heads of the agricultural department. Demographics of Agri-bankers are as shown below in table 2.

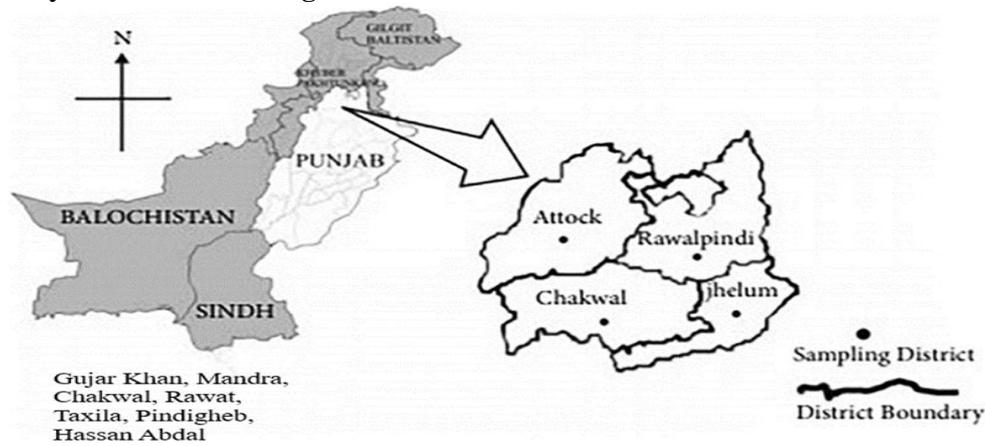
**Table No. 2 Demographics of Agri-Bankers**

Demographics variables		%
Age	30-44	76.92%
	45-59	23.07%
Education	M.Phil./MBA in Agriculture	69.23%
	MSc Horn. Agriculture	30.76%
Job Title	Senior Manager	30.76%
	Head Agriculture	53.84%

Likewise, 30 interviews were conducted by applying a stratified random sampling design to choose the respondents from the Potohar region which is the north of Punjab and comprised of four districts namely Jhelum district, Chakwal district, Attock district, and Rawalpindi districts. The cities included in these districts are Jhelum, Gujar Khan, Mandra, Chakwal, Rawat, Taxila, Pindigheb, and Hassan Abdal. These districts produce a wide variety of agricultural products including wheat, rice, cotton, maize, olives, barley, gram, groundnuts, and bajra. The Potohar region is also very suitable to produce fruit plants, medical plants, and vegetables. These four districts are also the main sources of vegetables for Punjab in Pakistan (Rashid & Rasul, 2011). The agricultural importance of the province in the country makes it appropriate for this study. Figure 1 shows the study area. Secondly, two villages were randomly drawn from each district and within each village, 3 to 4 respondents were randomly chosen from the available farmers' lists. This procedure generated a sample of 30 farmers who were regarded as the participants of the study. It is imperative to understand the perceptions and challenges of farmers to design effective financial products and services. However, it is challenging to obtain this information from a survey by using a questionnaire as most farmers in this region were illiterate and ground realities were expected to be well explored with the help of face-to-face in-depth interviews with farmers. The third stakeholder is from the regulatory authority which is the state bank of Pakistan's agriculture finance division, there is only one respondent taken as it is representative of the organization.

The study used a semi-structured and self-administered interview guide. During interviews, subjects were asked mostly open-ended questions, and their answers are summarized and later analyzed by researchers.

Figure. 1: Study area of Potohar region



The authors addressed the weaknesses of using interviews such as interviewer bias and leading or loaded questions by pilot testing the instrument. The interview guide was shared with several industry professionals and researchers who are well-rounded and familiar with this topic and can identify potential issues with the design of the instrument. Each participant was engaged in a 30 to 50 minutes interview. They are recorded and transcribed. ATLAS. ti 8 software is used for thematic analysis in this study. ATLAS. ti is a powerful bench for qualitative analysis and helps in coding and determining the common themes. The study used thematic analysis for the interview transcripts.

## FINDINGS AND DISCUSSION

Thematic analysis of interviews with the Agri-bankers is presented in this section. The first objective of the study is linked with Theme A to explore the perception and challenges of agriculture financing faced by bankers for the disbursement of agricultural loans and the measures that bankers may consider overcoming the issues in the banking sector of Pakistan. Interviewees discussed challenges like high-interest costs, lack of farmer's education, mortgaging of land, the religious factor, the recovery of money, etc. banks faced during agriculture financing. Bank experts criticize the lending rates as one of the major challenges for agricultural equipment loans as reported:

*"KIBOR rate is very high, due to this the bank charges higher mark-up from the farmers. If the bank takes a 3% to 4% spread, then after adding the KIBOR rate the total mark-up becomes 20% to 21% which is a big challenge to market it or to recover it. The higher mark-up charged by the bank causes less demand of agriculture equipment loans."*

The findings of the study conform with the work of Maloba and Alhassan (2019) where borrowers faced significantly higher interest rates and were therefore struggling to keep up with loan repayments in the context of Kenya. The second challenge that most experts highlighted is the illiteracy of farmers with poor communication skills. The strong link between banks and farmers is missing in the context of agriculture financing as highlighted by experts:

*"Farmers are illiterate so they did not understand the process properly because of their illiteracy, they do not properly communicate with us and hesitate to go to banks for a loan. Customers do not have much awareness about the terms and conditions of agriculture financing. There is a missing connection between banks and farmers."*

This finding conforms with the work of Kaleem and Ahmad (2016) where socioeconomic factors such as various socioeconomic factors, such as educational level, farming experience, farm size, income, and financial status of farmers affect the credit availability. Reluctance to take loans due to

religious factors from conventional banks is another reason for the low consumption of agricultural products financing in this region. According to the bank's interviewee:

*"Most of the farmers are religious and they fear taking a loan on an interest basis."*

Literature also confirms that religious obligation is playing a significant role in affecting farmers' behavior for loan consumption therefore availability of Sharia-compliant products by Islamic banks nearby of farmers can promote Agri financing (Moahid & Maharjan, 2020b; Saiti *et al.*, 2018). Bankers also highlighted the reluctance of farmers to the process of mortgage as reported:

*"The socioeconomic fears of farmers to mortgage land in favor of bank is negatively perceived by farmers in villages that's why farmers are not happily motivated to take a loan."*

The absence of landholding for the provision of security and mortgaging of their land is another key challenge as reported:

*"Farmers face difficulty during acquiring the agriculture loan due to the collateral requirements (security of any property while taking a loan above Rs.500,000) and clean financing (in which a personal guarantee is given). Landholding is also an issue for the customers. In the revenue department, they face difficulty in the lien of their property"*

This finding is in conformity with World Bank (WB, 2014) reports in the context of Afghanistan. Asogwa *et al.* (2014), Ayegba and Ikani (2013) and, Dhakshana and Rajandran (2018) also find that a lack of collateral and the stipulation of unfavorable conditions by financial institutions constrain farmers' access to formal agricultural credit in developing countries.

Lack of evidence for transfer of land is another challenge reported by bankers:

*"Lack of Transfer of land ownership to young generations who intends to borrow from banks is another challenge. There is a myth that after the death of their father or forefather the land is transferred to them. This exposes the bank to credit risk while granting a loan to a 70-80 old year person which seems risky."*

The lengthy documentation process and the system of *Patwari* for land record officers at the tehsil division is another challenge faced by the banks and farmers. *Patwari's* office is responsible for making the documents such as *Passbook*, *Inteqal*, *Khasra Girdawari*, *Jamabandi*, and *Fard*, etc. when the customers are asked for the list of documentation prepared by *Patwari's* office then it takes time. The bank interviewees also reported that:

*"The revenue department takes time for lien/mortgage the property so that loan is delayed and at the end, the farmer is not able to purchase their inputs or fertilizers timely to produce the crops."*

This finding is in conformity with Moahid and Maharjan, (2020a) work and the World Bank report also points out that there is heavy dependence on *Patwari* systems for record maintaining which delays the credit process in developing countries (Elahi *et al.*, 2018). Bankers also highlight the role of the middleman (*Aarthies*) for exploiting the interest of farmers. Awareness and the advisory role of banks may play a significant role to overcome this challenge as reported by banker:

*"Banks have a good environment for farmers but the other agents as middlemen (Aarthies) and the hoarders exploit them most. SBP is conducting a farmer's financial literacy program to give training to illiterate farmers about agriculture products. We are also conducting such seminars to literate farmers with the knowledge of all bank's products. Our RM goes to the village and meets their head of the village after that we conduct rural Baithaks with all farmers"*

The study confirms that training plays a vital role in the growth of the economy as when the farmer is well trained then it increases productivity which automatically increases economic prosperity (Kaleem & Ahmad, 2016). Bankers suggest the need to introduce platforms to link small farmers with value-added companies such as dairy or livestock to wipe off the middleman (*Aarthies*) role. Additionally, they suggest the multifaceted role of the Government to improve the situation by offering subsidized rates for Agricultural farming and equipment loans. There is a need for "One Window operations" support to facilitate the farmers by computerization of landholding/record-keeping system. There is a need for governmental intervention to facilitate aggressive training on improving productivity by taking agricultural loans by farmers. On part of the banking sector, there is a need for introducing new schemes for different districts, and more efforts to provide interest-free loans; moreover, governmental insurance to all small, medium- or long-term loans of crops. There should be branchless banking just like easy paisa so there is no need to come to banks. Farmers just go to the store and ask for a loan and then he pays all the installments through that store which is secure and less time-consuming.

The second objective of the study is linked with Theme B to explore the perception and challenges faced by them for availing agriculture loans and suggestions given by the farmers. Majority of them shared similar reasons as already discussed by the bank experts such as lack of collateral, transfer of land, high-interest rate, revenue department issues, the middleman (*Aarthies*) exploitation, distance to formal financial institutions and lengthy process of documentation. In addition to the above, they also highlighted that there is a need to understand the type of land/region and then offer agricultural loans/ products accordingly. Currently, farmers in the Potohar region faces difficulty in assessing loans against their *barren land*. The respondents point out that:

*"In the Punjab side, the government facilitates only irrigated lands, not the barren land."*

Farmers stressed the need to offer interest-free loans to small farmers by financial institutions with the support of the Government and link the profits from agricultural products with the installment to the banks to ensure fair returns which is in conformity with the literature (Moahid & Maharjan, 2020b; Saiti *et al.*, 2018). The respondents point out that:

*"There must be a system to give interest-free loans to small farmers for less time duration. But if banks are giving loans on interest, then they should take their installments back on the profit that we earn on this loan."*

Farmers highlight the importance of subsidies such as free electricity or subsidized prices of diesel at the time of harvesting crops for farmers. Moreover, the installation of tube-well on the solar system is another suggestion to facilitate the small farmers. With the help of such subsidies, there will be increases in agriculture growth, which automatically improves the country's economic growth (Khan *et al.*, 2011). Farmers responded:

*"At the time of harvesting, the government increases the prices of diesel so that "there must be some policies to control the prices of diesel at the time of harvesting crops."*

The third objective of the study is linked with Theme C to explore the perception and challenges faced by the government and their role in supporting agriculture financing in Pakistan. Representatives of SBP reported that:

*"The major challenge is the lack of a centralized farmers' data portal for enabling easy approachability by the concerned stakeholders such as banks, fertilizer companies, and government departments. Second, lack of collateral availability by subsistence farmers for secured lending by banks. Third, the lack of credit profile of farmers as they are using informal channels of lending results in information asymmetry. Fourth, lack of thematic, spatial, and temporal crop-specific data using satellite imagery for better crop loans assessment mechanisms for banks. Fifth, the Lack of digitized land records data as manual verification of land records is a long process. Sixth, lack of availability of suitable risk insurance products to enable risk mitigation for banks. Seventh, lack of social connection between bank representatives and farmers. Eighth, Lack of access points in rural areas."*

While addressing the mentioned challenges the SBP representative discusses government initiatives to support agriculture sector financing. The interviewee reported that:

*"SBP is promoting the digitalization of agriculture loan processes through the adoption of Land Records Information Systems integration with banks systems to increase efficiencies in the processing of loan applications. Secondly, SBP has launched the Electronic Warehouse Receipt Financing (WHRF) allowing banks to accept electronic warehouse receipts as collateral for lending against the storage of agricultural produce and commodities. WHRF would benefit small farmers who usually found it difficult to access credit from banks due to the non-availability of agricultural land as collateral. Moreover, WHRF is a Shariah-compliant mechanism enabling the inclusion of faith-sensitive farmers in availing lending from the banking sector. Thirdly, SBP is working on the development of Kissan Digital Portal for agricultural financing. An information portal for registration of farmers will be initiated which will eventually integrate provincial Land Records Management Information Systems (LRMIS) with the information portal. Fourth, SBP is taking the step to launch smart subsidies schemes for agricultural input to small farmers. Fifth, SBP is working on the National Crop Insurance Scheme (NCIS) to provide insurance coverage and financial support to farmers in the event of natural calamities, pests, and diseases. Sixth, SBP is conducting various awareness programs in rural areas for farmers on the availability of agricultural finance."*

## CONCLUSION

Agriculture plays a vital role in Pakistan's economy. The financing in the agriculture sector helps in the economic development and productivity growth by adopting new technologies for Pakistan. In Pakistan, both formal and informal source of credit intends to improve farmers' productivity and income, however, low access to credit by farmers remains a critical problem in Pakistan. This study explores the perceptions and challenges of agriculture financing while taking different opinions and points of view of stakeholders as bankers, farmers, and SBP in the district of Potohar. The findings of the study recognize the banker's response as they face challenges in the process of documentation, awareness of farmers, religious obligation, limited landholding, mortgage of property, rising production cost, unpredictable year-to-year costs, lack of innovation, illiteracy of farmers, and high-interest rates. The farmers respond that they face challenges in the transfer of land, limited training sessions, exploitation of middlemen, revenue departments, and high-interest rates. According to the regulator perspective supporting agriculture, financings require to meet challenges such as lack of centralized farmers' data portal, lack of collateral availability, lack of suitable risk insurance products, lack of digitized land records, lack of social connection, and lack of access points in rural areas. Following are the integrated recommendations for bankers and policymakers to improve the access of financing to the agriculture sector.

1. Banks need to improve their documentation process and convert them into a few easy steps for illiterate farmers for subsistence financing. There is a need for easy straightforward terms and conditions (i.e., repayment that complies with farmers' cash flow and a rapid disbursal process). There is also a need for banks to customize agriculture products offerings according to the regional seasonal demand basis.
2. Keeping in view interest as a religious constraint in Pakistan, it is recommended to promote diverse Islamic shariah-compliant products for agriculture financing. There is a clear need to link the returns of agriculture financing with the seasonal patterns of profitability of farmers to facilitate the repayments of the principal amount.
3. Banks need to open their window operations in the proximity of agricultural regions i.e., in villages to facilitate the farmer's active engagement. Distance is also a determinant of awareness. The conveniently accessible location of credit providers facilitates the farmer's lives to be more informed. It is also recommended that agriculture branchless banking should be an initiative for contactless financing and payment systems.
4. There is a need for simultaneous provision of agricultural credit and agricultural technical advisory services by the banks to the farmers for their long-term relationships. It is evident from the interviews of the farmers that technical assistance to the farmers by banks is only in papers not in reality, hence it is recommended that steps should be taken and there must be a check on banks for field training/advisory sessions.
5. It is recommended that public and private banks need to improve outreach by increasing the marketing campaign in their regional languages specifically designed to pitch the mindset of illiterate farmers so that they consider it is essential for their farming practices to take a loan for improving their farm productivity.
6. There is a need to promote group lending as financial institutions' overemphasis on collateral and guarantors is a challenge to the expansion of formal agricultural credit in Pakistan. Financial institutions in other developing countries such as Afghanistan also accept guarantors. Furthermore, keeping in view the security or collateral challenge it is recommended to launch agriculture products where value-added agribusiness will relate to farmers to provide coverage for collateral, and it will also exempt the role of the middleman (*Aarthies*).
7. Regulators need to effectively play their role in the provision of information on credit and agricultural technology which is imperative and requires separate policies that are specifically aimed at different groups of farmers with different socioeconomic and farm-related characteristics.
8. It is recommended that SBP should focus on the policy for barren land financing to make it fertile/productive in the Potohar region of Pakistan.
9. It is recommended that government should digitize the departments involved in the agricultural value chain processes such as Pakistan Agricultural Storage and Services Corporation (PASSCO) for bringing efficiencies in the agricultural sector.

10. According to farmer's response government is fluctuating the rates of inputs/ equipment that is used at the time of cultivation and harvesting of crops. Therefore, it is highly recommended that the government should give relaxation to the farmers at the time of cultivation and harvesting on the fertilizers, diesel, seeds, and equipment.
11. The regulatory authority should take steps to develop the satellite-based crop imagery system for better availability of crop data for concerned stakeholders.
12. There is an essential need for the training of bankers, farmers, and regulators to promote and influence farmers' adoption of modern technologies and choice of credit sources for planning and executing agricultural credit-related policies and programs to meet the challenges of food security in Pakistan.
13. In a response by the bankers that the default of customer is another challenge which they faced in case of natural calamities such as crop destruction, pest attack, and flood the farmers go to default. There is a need to introduce agricultural insurance from the regulator side to support the risk mitigation for banks and farmers.

## REFERENCES

- Agricultural Development Fund. (2019). Summary of the National Survey of Agricultural Credit Demand and Supply, Agricultural Development Fund (ADF), Kabul. Available at: [https://drive.google.com/file/d/1vTICC8rbMelwEY9Th8NQrYuxxEo\\_gwQ7/view](https://drive.google.com/file/d/1vTICC8rbMelwEY9Th8NQrYuxxEo_gwQ7/view) (accessed 2 April 2020).
- Akram, W. & Hussain, Z. (2008). 'Agricultural credit constraints and borrowing behavior of farmers in rural Punjab'.
- Alam, M., Ullah, R., Mirza, A. I., Elahi, M., Saleem, W. & Sultan, H. (2020). 'Impact of Microcredit Scheme on Socio-economic Status of Farmers (A case study of PRSP in District Gujranwala)'. *South Asian Studies*, 29(1).
- Ali, A. & Alam, M. A. (2010). 'Role and performance of microcredit in Pakistan'.
- Amanullah, W. J., Khan, I., Channa, S. A. & Magsi, H. (2019). 'Farm level impacts of credit constraints on agricultural investment and income'. *Pak. J. Agr. Scen*, 56(2), p511-521.
- Anyiro, C. O. & Oriaku, B. N. (2011). 'Access to and investment of formal micro credit by small holder farmers in Abia State, Nigeria. A case study of Absu Micro Finance Bank, Uturu'.
- Asogwa, B. C., Abu, O. & Ochoche, G. E. (2014). 'Analysis of peasant farmers' access to agricultural credit in Benue State, Nigeria'. *Journal of Economics, Management and Trade*, p1525-1543.
- Ayegba, O. & Ikani, D. I. (2013). 'An impact assessment of agricultural credit on rural farmers in Nigeria'. *Research Journal of finance and Accounting*, 4(18), p80-89.
- Aziz, M. R. A. & Yusoff, M. M. (2013). 'Financing for Agro Projects in Islamic Banks', *International Conference on Agriculture and Biotechnology (ICABT)*. 60(3). Available at: <https://doi.org/10.7763/IPCBE>
- Balachandran, R. P. & Dhal, S. C. (2018) 'Relationship between money lenders and farmers: Theoretical perspective and evidence from potato farmers of West Bengal, India'. *Agricultural Finance Review*. Available at: <https://doi.org/10.1108/AFR-07-2016-0066>
- Barai, M. K. & Adhikary, B. K. (2013). 'The success of microcredit in Bangladesh: Supplementing 'group lending 'explanation with institutional understanding'. *Review of Integrative Business and Economics Research*, 2(1), p471.
- Belek, A. & Jean-Marie, A. N. (2020). 'Microfinance services and the productivity of cocoa family farms in Cameroon'. *Journal of Agribusiness in Developing and Emerging Economies*. Available at: <https://doi.org/10.1108/JADEE-12-2018-0186>
- Bharti, N. (2018). Evolution of agriculture finance in India: a historical perspective. *Agricultural Finance Review*.
- Bilal, A. R. & Baig, M. M. A. (2019). 'Transformation of agriculture risk management: The new horizon of regulatory compliance in farm credits. *Agricultural Finance Review*, 79(1), p136-155. Available at: <https://doi.org/10.1108/AFR-05-2018-0038>
- Carrer, M. J., Maia, A. G., Vinholis, M. D. M. B. & de Souza Filho, H. M. (2020). 'Assessing the effectiveness of rural credit policy on the adoption of integrated crop-livestock systems in Brazil'. *Land use policy*, 92, 104468.

- Chandio, A. A., Jiang, Y., Gessesse, A. T. & Dunya, R. (2019). 'The nexus of agricultural credit, farm size and technical efficiency in Sindh, Pakistan: A stochastic production frontier approach. *Journal of the Saudi Society of Agricultural Sciences*, 18(3), p348-354.
- Chandio, A. A., Jiang, Y., Wei, F. & Guangshun, X. (2018). 'Effects of agricultural credit on wheat productivity of small farms in Sindh, Pakistan: are short-term loans better?'. *Agricultural Finance Review*, 78(5), p592-610. Available at: <https://doi.org/10.1108/AFR-02-2017-0010>
- Dhakshana, A. & Rajandran, K. V. R. (2018). 'Challenges and problems on farmers' access to agricultural credit facilities in Cauvery Delta, Thanjavur District'. *St. Theresa Journal of Humanities and Social Sciences*, 4(1), p50-62.
- Ding, Z. & Abdulai, A. (2018). 'Smallholder preferences and willingness-to-pay measures for microcredit: Evidence from Sichuan province in China'. *China Agricultural Economic Review*.
- Dufhues, T., Heidhues, F. & Buchenrieder, G. (2004). 'Participatory product design by using Conjoint Analysis in the rural financial market of Northern Vietnam'. *Asian Economic Journal*, 18(1), p81-114.
- Elahi, E., Abid, M., Zhang, L., ul Haq, S. & Sahito, J. G. M. (2018). 'Agricultural advisory and financial services; farm level access, outreach, and impact in a mixed cropping district of Punjab, Pakistan'. *Land Use Policy*, 71, p249-260.
- Huu Thu, N., Bao Duong, P. & Huu Tho, N. (2020). 'Filling the voids left by the formal sector: informal borrowings by poor households in northern mountainous Vietnam'. *Agricultural Finance Review*, 81(1). p94-113. Available at: <https://doi.org/10.1108/AFR-12-2019-0134>
- Islamic Banking Bulletin. (2020). Retrieved from <https://www.sbp.org.pk/ibd/Bulletin/Bulletin-1.asp>
- Kaleem, A. & Ahmad, S. (2016). 'Bankers' perception towards *Bai Salam* method for agriculture financing in Pakistan'. In *Islamic Finance*, p66-85. Palgrave Macmillan, Cham. Available at: <https://doi.org/10.1057/fsm.2010.18>
- Khan, N., Shafi, M. M., Shah, M., Islam, Z., Arif, M., Javed, R. & Shah, N. (2011). 'Review of past literature on agriculture credit in rural area of Pakistan'. *Sarhad Journal of Agriculture*, 27(1), p103-110.
- Kyere, I. S. A. A. C. (2014). 'Financial Institutions and Agricultural Financing in Ghana: The Case of The Ghana Commercial Bank-1953–1994', (Doctoral dissertation).
- Lawal, W. A. & Abdullahi, I. B. (2011). 'Impact of informal agricultural financing on agricultural production in the rural economy of Kwara State, Nigeria'. *International Journal of Business and Social Science*, 2(19), p241-248.
- Maloba, M. & Alhassan, A. L. (2019). 'Determinants of agri-lending in Kenya'. *Agricultural Finance Review*.
- Mariyono, J. (2019). 'Microcredit and technology adoption: Sustained pathways to improve farmers' prosperity in Indonesia'. *Agricultural Finance Review*.
- Masini, G. & Giordani, E. (2016). 'From traditional orchards to advanced fruitculture: establishing the bases of commercial horticulture in Afghanistan'. *Advances in Horticultural Science*, 30(4), p197-206.
- Mason, M. (2010). 'Sample size and saturation in PhD studies using qualitative interviews', *Forum qualitative Sozialforschung/Forum: qualitative social research*, 11(3).
- Moahid, M. & Maharjan, K. L. (2020). 'The role of credit obtained from input suppliers in farm investment in Afghanistan'. *J. Contemp. India Stud. Space Soc. Hiroshima Univ*, 10, p1-16.
- Moahid, M. & Maharjan, K. L. (2020b) 'Factors affecting farmers' access to formal and informal credit: Evidence from Rural Afghanistan'. *Sustainability*, 12(3), p1268.
- Moahid, M., Khan, G. D., Yoshida, Y., Maharjan, K. L. & Wafa, I. K. (2021). 'What farmers expect from the proposed formal agricultural credit policy: Evidence from a randomized conjoint experiment in Nangarhar Province, Afghanistan'. *Agricultural Finance Review*.
- Muddassir, M., Noor, M. A., Zuhabe, A. H., Muneer, S. E. T., Fiaz, S., Mubushar, M. & Zia, M. A. (2016). 'Effectiveness of micro-credit loans provided by Zarai Taraqiati Bank Limited under awami zarai scheme to the farmers of Faisalabad, Pakistan'. *Pakistan. J. Global Innovations Agric. Soc. Sci*, 4(1), p29-39. Available at: <https://doi.org/10.17957/JGIASS/4.1.725>
- Mukasa, A. N., Simpasa, A. M. & Salami, A. O. (2017). 'Credit constraints and farm productivity: Micro-level evidence from smallholder farmers in Ethiopia'. *African Development Bank*, (247).

- Nan, Y., Gao, Y. & Zhou, Q. (2019). 'Rural credit cooperatives' contribution to agricultural growth: evidence from China'. *Agricultural Finance Review*. 79(1), p119-135. Available at: <https://doi.org/10.1108/AFR-06-2017-0042>
- Njuguna, E. & Nyairo, N. (2015). 'Formal conditions that affect agricultural credit supply to small-scale farmers in rural Kenya: case study for Kiambu county'. 20(2), p59-66.
- Noonari, S., Memon, M. I. N., Bijarani, A. A., Peerzdo, M. B., Bhatti, M. A. & Kalwar, G. Y. (2015). 'Impact of Credit on Agricultural Productivity: A Case Study of Zarai Taraqiati Bank Ltd (ZTBL) Loans in District Kashmore at Kandh Kot, Sindh'. Available at: Pakistan. <https://www.researchgate.net/publication/308595501>
- Nordjo, R. E. & Adjasi, C. K. (2019). 'The impact of credit on productivity of smallholder farmers in Ghana'. *Agricultural Finance Review*, 80(1), p91-109. Available at: <https://doi.org/10.1108/AFR-10-2018-0096>
- Paal, B. & Wiseman, T. (2011). 'Group insurance and lending with endogenous social collateral'. *Journal of Development Economics*, 94(1), p30-40.
- Pakistan Economic Survey. (2018-19). Finance Division, Government of Pakistan, Islamabad Retrieved from: [http://finance.gov.pk/survey/chapters\\_19/Economic\\_Survey\\_2018\\_19.pdf](http://finance.gov.pk/survey/chapters_19/Economic_Survey_2018_19.pdf)
- Pakistan Economic Survey. (2020-21). Finance Division, Government of Pakistan, Islamabad Retrieved from: [https://www.finance.gov.pk/survey\\_2021.html](https://www.finance.gov.pk/survey_2021.html)
- Qin, M., Wachenheim, C. J., Wang, Z. & Zheng, S. (2019). 'Factors affecting Chinese farmers' microcredit participation'. *Agricultural Finance Review*.
- Rashid, K. & Rasul, G. (2011). 'Rainfall variability and maize production over the Potohar Plateau of Pakistan'. *Pakistan Journal of Meteorology*, 8(15), p63-74.
- Rehman, A., Chandio, A. A., Hussain, I. & Jingdong, L. (2017). 'Is credit the devil in the agriculture? The role of credit in Pakistan's agricultural sector'. *The Journal of Finance and Data Science*, 3(1-4), p38-44. Available at: <https://doi.org/10.1016/j.jfds.2017.07.001>
- Reyes, A. & Lensink, R. (2011). 'The credit constraints of market-oriented farmers in Chile'. *Journal of Development Studies*, 47(12), p1851-1868. Available at: <https://doi.org/10.1080/00220388.2011.579111>
- Riaz, A., Khan, G. A. & Ahmad, M. (2012). 'Utilization of agriculture credit by the farming community of Zarai Tariqiati Bank Limited (ZTBL) for agriculture development'. *Pakistan Journal of Agricultural Sciences*, 49(4), p557-560.
- Saiti, B., Afghan, M. & Noordin, N. H. (2018). 'Financing agricultural activities in Afghanistan: a proposed salam-based crowdfunding structure'. *ISRA International Journal of Islamic Finance*, 10(1), p52-61. Available at: <https://doi.org/10.1108/IJIF-09-2017-0029>
- Saqib, L., Attaullah, Q. & Mursaleen, M. (2017). 'The Role of Informal Agricultural Finance in the Development of Local Farming in Khyber Pakhtunkhwa (Pakistan): A Critical Analysis'. *Pak. J. Soc. Sci*, 37, p420-434.
- Schultz, T. W. (1966). 'Transforming traditional agriculture: Reply'. *Journal of farm Economics*, 48(4), p1015-1018.
- Shukran, M. K. & Rahman, F. (2011). 'A Grameen Bank concept: Micro-credit and poverty alleviation program in Bangladesh. *International Conference on emerging trends in computer and image processing* (pp. 47-51).
- State Bank of Pakistan. (2019). 'Agricultural credit target achievements in FY 2018-19'. Available at: <http://www.sbp.org.pk/press/2019/Pr-05-Aug-19.pdf>
- Ullah, A., Mahmood, N., Zeb, A. & Kächele, H. (2020). 'Factors determining farmers' access to and sources of credit: Evidence from the rain-fed zone of Pakistan'. *Agriculture*, 10(12), p586.
- World Bank. (2014). 'Unlocking the potential of agriculture for Afghanistan's growth'. Available at: [www.worldbank.org/en/country/afghanistan/publication/unlocking-potential-of-agriculture-for-Afghanistan-growth](http://www.worldbank.org/en/country/afghanistan/publication/unlocking-potential-of-agriculture-for-Afghanistan-growth)