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# Factors determining subsistence farmers' access to agricultural credit in flood-prone areas of Pakistan

Shahab E Saqib <sup>a, \*</sup>, John K.M. Kuwornu <sup>b, 1</sup>, Sanaullah Panezia <sup>c</sup>, Ubaid Ali <sup>d</sup>

<sup>a</sup> Regional and Rural Development Planning, Asian Institute of Technology, Thailand

<sup>b</sup> Agri-Business Management (ABM), Asian Institute of Technology, Thailand

<sup>c</sup> Department of Disaster Management and Development Studies, University of Balochistan, Quetta, Pakistan

<sup>d</sup> Lecturer in Economics, Higher Education Department, K.P.K, Pakistan

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#### ABSTRACT

This paper examines the factors influencing farmers' access to agricultural credit in a flood disaster risk-prone area in Pakistan. Multistage sampling through a structured questionnaire was used to collect data from 168 subsistence landholders in Khyber Pakhtunkhwa, Pakistan. The empirical results of the heteroscedasticity corrected and weighted least squares regression with robust standard errors revealed that education, farming experience, total landholding, monthly income, family size, and proportion of owned land were significant factors in farmers' access to credit. The findings of this study reveal that socioeconomic factors play a key role in farmers' access to agricultural credit in flood-hit areas in Pakistan. Hence, there is a need for credit policy to address the issues of farmers living in risk-prone areas. Moreover, the existing credit policy could be amended to protect the interest of tenant farmers, who lack collateral security.

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#### Introduction

Agricultural credit is an essential input along with modern technology for increased farm productivity. With minimal savings, agricultural credit is obtained not only by the small- and medium-scale farmers for survival but also by large-scale farmers to increase farm income (Das, Senapati, & John, 2009). The importance of formal sources of credit has increased compared to informal sources in the farming sector. In spite of the increased importance of institutional sources of credit, farmers have limited access to formal credit (Malik & Nazli, 1999). Agriculture has been

\* Corresponding author.

<sup>1</sup> Co-first author.

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the predominant sector in Pakistan's economy since independence. It contributed 20.9 percent of the Gross Domestic Product (GDP) in 2014–15 and is a source of livelihood for 43.5 percent of the rural population (Pakistan Economic Survey, 2015). Indeed, agricultural output is the main source of economic growth in Pakistan which has grown at an annual average rate of 4.4 percent. The rural credit market in Pakistan includes both formal

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and informal sources, which play a substantial role in the rural economy (Aleem, 1990). Microfinance is important primarily for investment in rural production, where credit has been largely received by the non-poor, whereas poor have had little access to micro credit (Waheed, 2009). It is very important for farmers in Pakistan to obtain financial support for their social needs, to purchase farm inputs, and to make stable improvements in production. While endorsing the importance of the agricultural sector, the

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E-mail address: shahabmomand@gmail.com (S. E Saqib).

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government of Pakistan has over the years implemented agricultural credit policies to finance farmers' production toward increasing farm productivity and ensure food security. Agricultural credit can enhance farmers' managerial efficiency and encourage efficient resource allocation and profitability (Bashir, Mehmood, & Hassan, 2010). Timely access and availability of credit are critical to farmers for acquiring the required inputs and machinery necessary to carry out farm operations (Saboor, Hussain, & Munir, 2009).

There are significant differences for farmers in accessing formal sources of credit compared to informal sources. Large-scale farmers have greater access to formal credit than small-scale farmers, as the former possess assets and collateral security (Binswanger & Sillers, 1983; Heltberg, 1998; Rahman, Hussain, & Taqi, 2014; Swaminathan, 1991). The majority of small-scale farmers not only have limited access to credit from formal sources but also to informal sources such as friends, relatives, and landlords (Amiad & Hasnu, 2007). Informal credit markets are characterized by the personalized nature of contracts. On the basis of personal relationships, anyone who is prepared to pay the interest and meet the collateral requirements is likely to receive credit from all lenders (Basu, 1987; Tsai, 2004), interlinkages (Bell & Srinivasan, 1991; Braverman & Guasch, 1984; Mitra, 1983), and heterogeneous borrowers (Basu, 1987; Braverman & Guasch, 1984).

The major problem faced by farmers is limited credit accessibility or capital constraints, which hinder the adoption of more efficient and modern technologies in the farming sector. This lack of resources not only limits the possibilities of increased productivity, it also hinders the capacity for smooth consumption (Malik & Nazli, 1999). Farmers need money immediately after the harvest period for the next growing season to cover cash shortages and non-payment of their latest crop. Additionally, modern agriculture is based on high-yielding seeds, fertilizers, and plant protection measures which are expensive. Most of their inputs are purchased in cash or from dealers on a credit-in-kind basis, leading to an increased dependence of farm households on credit markets. An efficient credit market provides farmers with the opportunity to meet consumption requirements and proper input use, thus, resulting in improvement to farmers' livelihoods (Feder, Lau, Lin, & Luo, 1990). Farmers' easy and timely access to credit enables them to expand and diversify their farming activities by venturing into new investment or adopting new technologies.

Lack of collateral is the main reason for farmers' inability to benefit from loan schemes in Pakistan (Ahmad, 2011; Rahman et al., 2014). Access to formal credit is challenging for the small-scale farmers due to collateral issues, so they resort to informal sources due to their timely delivery, no need for collateral, and flexibility in loan transactions. The majority of small-scale farmers cannot borrow from banks or other financial institutions due to a lack of collateral security (Khandker & Faruqee, 2003; Rahman et al., 2014). In most instances, small-scale farmers can only apply for small amounts of credits

to purchase seeds, fertilizers, and pesticides, but cannot apply for loans to purchase tractors, tube wells, and farm machinery, due to insufficient collateral (Hussain & Thapa, 2012).

The effects of socio-economic factors such as age, family size, and income on access to agricultural credit has been well established in the literature (Abedullah, Khalid, & Kouser, 2009; Amjad & Hasnu, 2007; Hananu, Abdul-Hanan, & Zakaria, 2015; Nguyen & Le, 2015; Saleem, Jan, Khattak, & Ouraishi, 2014; Sagib, Ahmad, & Panezai, 2016; Sebatta, Wamulume, & Mwansakilwa, 2014). Similar studies have revealed the effect of education on access to credit (Abedullah et al., 2009; Amjad & Hasnu, 2007; Chaudhary & Ishfaq, 2003; Hananu et al., 2015; Javed et al., 2006; Kosgey, 2013; Nguyen & Le, 2015; Saleem et al., 2014; Sebatta et al., 2014). Likewise, the literature has highlighted the role of farming experience in credit markets (Nguyen & Le, 2015; Yehuala, 2008). However, landholding size is the most important factor in farmers' access to agricultural credit in Pakistan (Ahmad, 2011; Hananu et al., 2015; Kosgey, 2013; Saleem et al., 2014). Studies have revealed the association of farmers' land ownership with their access to credit (Kosgey, 2013; Nguyen & Le, 2015). Farm labor has also been associated with farmers' access to credit sources (Ahmad, 2011; Nguyen & Le, 2015).

Farmers in Pakistan are confronted with natural hazards (flooding, drought, heavy rains, and storms), pests and disease, low product prices, high input costs, and monopolies by intermediaries, just to mention a few. In recent years, the agricultural sector in Pakistan has faced three massive floods that devastated the agricultural sector in Pakistan. Monsoon floods in 2010, 2011, and 2014 caused huge damage to agricultural crops, fisheries, forestry, livestock, and primary infrastructure like water channels, tube wells, houses, personal items, seed stocks, animal sheds, stored fertilizer, and agricultural equipment/ machinery (National Disaster Management Authority, 2014). Pakistan's credit policy has no priority to assist the most vulnerable farmers who are in dire need of agricultural credit to rejuvenate crop production, prepare fields and buy seed, fertilizer, and other agriculture inputs (Saqib, Ahmad, Panezai, & Ali, 2016). In brief, it is important to study farmers' access to credit in flood-prone areas. Therefore, this study explores the socio-economic factors influencing farmers' access to credit in flood-prone areas in Pakistan.

#### **Material and Methods**

#### Study Area and Sampling

The data were collected using a multi-stage sampling technique. First, Khyber Pakhtunkhwa was purposely selected. Second, a vulnerable rural population was selected for further sampling. In total, 970 farm-households were identified as vulnerable in Khyber Pakhtunkhwa, Mardan District (Provincial Disaster Management Authority, 2013). Employing the formula of Yamane

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