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DEVELOPMENT AND DIVERSIFICATION OF SMALL-SCALE AGRICULTURE IN AFGHANISTAN

By

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THESIS

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ABSTRACT

Agriculture is central to the Afghanistan's economy. It continues to be a strategic sector in the economic development of Afghanistan in terms of its potential for contributing to household income, food security, and rural employment. The sector is dominated by resource-poor small-scale subsistence farmers emphasising food security through own production. The recent policy changes to transform the sector from a subsistence to a self-sufficient market-led system have presented opportunities but posed challenges and created uncertainties. Empirical evidence is required to assess the status of the sector, the effect of policies, and to guide future interventions. The self-contained essays in this thesis attempt to address these emerging concerns by analysing small-scale farmers production efficiency, diversification strategies, and market participation decisions.

The first essay investigates farm-level Technical Efficiency (TE) and empirically assesses how adopting Crop Diversification (CD) strategies by farmers affect production efficiency. A parametric Stochastic Frontier (SF) technique is employed to estimate production efficiency as well as identify potential sources of (in)efficiency. Our analysis suggests that substantial inefficiencies exist; there is room to expand farm revenues by more than a quarter by applying improved farm management strategies (such as crop diversification) without having to resort to greater use of production inputs or adopting expensive production technologies. Adopting a diversified portfolio of crop production by farm households significantly improves production efficiency and farm revenues, but the data confirm the low level of diversity in crop production. Production function estimates exhibits Constant Returns-to-Scale (CRS) meaning that doubling production inputs would lead to an equivalent increase in output.

The second essay addresses low diversity in crop production by identifying drivers of diversity in crop production, with emphasis on the allocation of labour between farm and non-farm activities and access to off-farm income. Our findings show that a third of farmers do not diversify, and the majority that do grow only two or three crops. Our empirical

results confirm that a significantly lower degree of diversification is found for farm households with higher off-farm income consistent with the hypothesis that allocation of farm labour away to non-farm activities decrease diversity due to negative labour effects, mainly because the opportunity cost of household labour is higher than the off-farm wages under imperfect markets implying non-separability between households' farm profits and off-farm earnings. Identification through instrumental variables confirms endogeneity in off-farm income revealing that unobserved factors such as risk-aversion behaviour of farmers drives household's decisions to diversify into both non-farm income and crop mix.

The third essay investigates factor market failures by testing separability in the household production and consumption decisions. Estimates of household labour demand rejects separability; labour demand decisions are strongly influenced by preferences and demographic compositions of household (endowments of labour) suggesting that there exist potential market failures in Afghanistan. Our analysis of input market participation reveals that the ownership of information and communication technologies and transport assets by the farm households, better access to roads, and proximity to permanent food markets, increase the likelihood of household's participation in factor markets. Transaction costs have critical implications for household's market participation and possibly causing market failures.