ABSTRACT

Smallholder farmers in Southern Mali mainly in the cotton production zone are facing decreasing income over time. This constraint makes producers resort to alternative sources of income to supplement agricultural activities to sustain and secure their livelihoods situation. However, the diversified crops and having multiple sources of agricultural income constitute the significant opportunity for smallholder farmers to ensure food security and reduce over dependency on income from cotton. Thus, the main objective of this study was to contribute to the improvement of the livelihood conditions of smallholder farmers through income and crop diversification strategies. The study was conducted in three villages in the cotton-growing zone with different agro-climatic conditions. A multistage sampling technique procedure was used to obtain a sample size of 134 farmers who were selected randomly. A semi-structured questionnaire was used to collect cross-sectional data from smallholder farmers while focus group discussions was used to collect data on agricultural production systems in each village. Descriptive statistics, Principal Component Analysis (PCA), multivariate probit, seemingly unrelated regression, multinomial logit, logit model, bivariate probit, stochastic frontier analysis (SFA) were used for the analysis. Simulation was also done to understand and predict the dynamics of smallholder farmer's income. Findings distinguished 5 types of smallholder farmers. Type 1 was super large families representing 14 % of the total smallholder farmers. Type 2 was large families and constituted 28 % of the smallholder farmers. Type 3 was medium-sized families that represented 28 % of the total smallholder farmers. Type 4 and type 5 were small and young families and represented 19 % and 11 % of smallholder farmers, respectively. Farmers' endowment and institutional factors constitute major determinants of multiple sources of income and crops diversifications strategies. Stochastic frontier model for mean technical efficiencies were 58%, 80% and 84% for maize and millet, sorghum and cotton producers, respectively. Agricultural technology practices were significantly influenced by farmer's characteristics, factors endowment, and institutional factors. Simulation of collective decision for farming revealed different scenarios regarding gross margin across 5 types of smallholder farmers. Policy interventions therefore, should be considered to encourage and promote profit-oriented activities through diversification strategies. In addition, policymakers and agricultural development programs should target strengthening of institutions and enhance farmer's access to productive resources. Future research should be based on agricultural technology adoption by farmers in Southern-Mali for improvement of food security.

Keywords

Income, crop diversification strategies -- Agricultural practices