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## Labour Markets and Income Stability of Smallholder Rubber Farmers: Evidence from Southwest China

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### Abstract

The expansion of rubber cultivation has been a driving force for poverty reduction in Xishuangbanna Dai Autonomous Prefecture (XSBN), Southwest China. However, monoculture causes income variance due to rubber price fluctuations. In addition, since 2011, rubber price has decreased constantly. Hence, smallholder rubber farmers are challenged to diversify their income portfolio. With the rapid growth of labour markets in industry and service sector in China, complementary off-farm employment, which includes non-farm self-employment and off-farm wage employment, becomes an option for farmers. In this paper, we investigate the role of off-farm employment in stabilising household income of smallholder rubber farmers in XSBN. The specific objectives are: (1) to examine the factors influencing the participation in off-farm labour markets; (2) to explore the impacts of off-farm employment on rubber farmers' income stability.

Our analysis is based on a unique panel data set of three waves of comprehensive socioeconomic surveys of 612 rubber farmers in XSBN in 2013, 2015 and 2019. We apply two models, namely a random effects logit model for the first objective and a propensity score matching with difference-in-differences approach for the second question. To facilitate the analysis, we grouped the sample households in those with and without off-farm employment. The variance in net farm income from 2013 to 2019 is used to indicate income stability.

Our results show that just over one third of household income stems from off-farm employment. The factors that determine participation in off-farm labour market are education, age of household head, ethnicity, elevation, number of mobile phones and the distance to village. We also find a significant difference in income stability between households with and without off-farm employment. As long as the economy is growing, off-farm employment offer stable employment opportunities and contribute to income stability.

**Keywords:** Income stability, off-farm employment, smallholder rubber farmers, Southwest China