Livelihood Transition and Conversion of Traditional Knowledge Towards Sustainable Rural Development

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ABSTRACT

Rural development during the industrialization and urbanization in developing countries has been coping with rapid technology development and natural resource exhaustion. This study addresses rural sustainable development by justifying the local conditions and resources. A conceptual framework for sustainable rural development was proposed, which encompasses five systems: social, economic, locality, creative, and physical. This study aims to investigate the determinants for employment transition in the economic system as well as the conversion of traditional knowledge in the creative system. A data set comprising of 300 households engaged in large cardamom cultivation in Hoang Lien National Park in the Northern Vietnam was analyzed using a Probit model. The results showed that labor surplus, information access and rural network of social organizations affected the employments transition; while cultural capital, non-farm employment, credit capital and knowledge-transfer influenced the conversion of traditional knowledge. In addition, the results confirmed a causal relationship among the systems in the conceptual framework. That is, the social system exerted a strong impact on the economic system, and in turn the economic system and the locality system influenced the creative system. As such, rural development will continuously undergo according to the conceptual framework, which proposed an upward spiral movement among the five systems in the long term.

Key words: Agroforestry, credit accession, ethnic minorities, knowledge-transfer, **l**arge cardamom (*Amomum tsao-ko Crevost Lemarim*), non-farm employments, social network.

April 14, 2022

References

Aghion, P. and P. W. Howitt. 2008. *The economics of growth*: MIT press.

Akgün, A. A., T. Baycan, and P. Nijkamp. 2015. "Rethinking on sustainable rural development," *European Planning Studies*, 23(4): 678-692.

Ansoms, A. and A. McKay. 2010. "A quantitative analysis of poverty and livelihood profiles: The case of rural Rwanda," *Food Policy*, 35(6): 584-598.

Baird, T. D. and C. L. Gray. 2014. "Livelihood diversification and shifting social networks of exchange: a social network transition?," *World development*, 60: 14-30.

Beyazli, D., S. Aydemir, A. M. Öksüz, and S. Özlü. 2017. "Rural typology with and inductive approach," *International Journal of Environmental Research*, 11(2): 225-241.

Chavas, J. P. and C. Nauges. 2020. "Uncertainty, learning, and technology adoption in agriculture," *Applied Economic Perspectives and Policy*, 42(1): 42-53.

Fang, Y.-p., J. Fan, M.-y. Shen, and M.-q. Song. 2014. "Sensitivity of livelihood strategy to livelihood capital in mountain areas: Empirical analysis based on different settlements in the upper reaches of the Minjiang River, China," *Ecological indicators*, 38: 225-235.

Fuglie, K. and S. L. Wang. 2012. "Productivity growth in global agriculture shifting to developing countries," *Choices*, 27(4): 1-7.

Hall, B. H. and B. Khan. 2003. Adoption of new technology. National bureau of economic research Cambridge, Mass., USA.

Hemmert, G. A., L. M. Schons, J. Wieseke, and H. Schimmelpfennig. 2018. "Log-likelihood-based pseudo-R 2 in logistic regression: deriving sample-sensitive benchmarks," *Sociological Methods & Research*, 47(3): 507-531.

Jiao, X., M. Pouliot, and S. Z. Walelign. 2017. "Livelihood strategies and dynamics in rural Cambodia," *World Development*, 97: 266-278.

Kattel, R., P. Regmi, M. Sharma, and Y. Thapa. 2020. "Factors affecting adoption of improved method in large cardamom curing and drying and its impact on household income in the Eastern Himalayan road-corridor of Nepal," *Technology in Society*, 63: 101384.

Lampach, N., N. To-The, and T. Nguyen-Anh. 2021. "Technical efficiency and the adoption of multiple agricultural technologies in the mountainous areas of Northern Vietnam," *Land Use Policy*, 103: 105289.

Laurin, F., S. Pronovost, and M. Carrier. 2020. "The end of the urban-rural dichotomy? Towards a new regional typology for SME performance," *Journal of Rural Studies*, 80: 53-75.

Liangjie, X. 2017. "Impacts of non-farm employment of rural laborers on agricultural land use: Theoretical analysis and its policy implications," *Journal of Resources and Ecology*, 8(6): 595-604.

Liu, Z. and L. Liu. 2016. "Characteristics and driving factors of rural livelihood transition in the east coastal region of China: A case study of suburban Shanghai," *Journal of Rural Studies*, 43: 145-158.

Nguyen, M. P., T. Pagella, D. C. Catacutan, T. Q. Nguyen, and F. Sinclair. 2021. "Adoption of Agroforestry in Northwest Viet Nam: What Roles Do Social and Cultural Norms Play?," *Forests*, 12(4): 493.

Pardey, P. G., J. M. Alston, and V. W. Ruttan. 2010. "The economics of innovation and technical change in agriculture," *Handbook of the Economics of Innovation*, 2: 939-984.

Redclift, M. 1991. "The multiple dimensions of sustainable development," *Geography*: 36-42.

Renkow, M. 2003. "Employment growth, worker mobility, and rural economic development," *American Journal of Agricultural Economics*, 85(2): 503-513.

Rousseau, J.-F., S. Turner, and Y. Xu. 2019. "Cardamom casualties: Extreme weather events and ethnic minority livelihood vulnerability in the Sino-Vietnamese Borderlands," *Climate*, 7(1): 14.

Rusu, M. 2015. "A Typology of Rural Areas in Danube Region," *Procedia Economics and Finance*, 22: 733-741.

Santiago-Freijanes, J. J., M. R. Mosquera-Losada, M. Rois-Díaz, N. Ferreiro-Domínguez, A. Pantera, J. Aldrey, and A. Rigueiro-Rodríguez. 2021. "Global and European policies to foster agricultural sustainability: agroforestry," *Agroforestry Systems*, 95(5): 775-790.

Sun, R., J. Mi, S. Cao, and T. Zhang. 2021. "Trends and Determinants of Income-Oriented Livelihood Transitions in Rural China," *Social Indicators Research*, 155(2): 601-624.

Takahashi, K., R. Muraoka, and K. Otsuka. 2020. "Technology adoption, impact, and extension in developing countries' agriculture: A review of the recent literature," *Agricultural Economics*, 51(1): 31-45.

Tugault-Lafleur, C. and S. Turner. 2009. "The price of spice: Ethnic minority livelihoods and cardamom commodity chains in upland northern Vietnam," *Singapore Journal of Tropical Geography*, 30(3): 388-403.

Van den Broeck, G. and M. Maertens. 2017. "Moving up or moving out? Insights into rural development and poverty reduction in Senegal," *World Development*, 99: 95-109.

Van On, T., N. T. Canh, N. Van Trung, and H. Van Lam. 2005. "In situ conservation of native cardamom diversity in natural ecosystems of Vietnam: lessons learned and policy issues," *In situ Conservation of Agricultural Biodiversity on-farm: Lessons Learned and Policy Implications*, 30: 49.

Vecchio, Y., M. De Rosa, F. Adinolfi, L. Bartoli, and M. Masi. 2020. "Adoption of precision farming tools: A context-related analysis," *Land Use Policy*, 94: 104481.

Walelign, S. Z. and X. Jiao. 2017. "Dynamics of rural livelihoods and environmental reliance: Empirical evidence from Nepal," *Forest Policy and Economics*, 83: 199-209.

Wang, H., J. Fidrmuc, Q. Luo, and M. Luo. 2020. "Exploring the determinants of on-farm transitions: Evidence from rural China," *Applied Economics*, 52(52): 5667-5686.

Wu, Z., B. Li, and Y. Hou. 2017. "Adaptive choice of livelihood patterns in rural households in a farm-pastoral zone: A case study in Jungar, Inner Mongolia," *Land Use Policy*, 62: 361-375.

Xu, D., X. Deng, S. Guo, and S. Liu. 2019. "Sensitivity of livelihood strategy to livelihood capital: An empirical investigation using nationally representative survey data from rural China," *Social Indicators Research*, 144(1): 113-131.

Yang, L., M. Liu, F. Lun, Q. Min, C. Zhang, and H. Li. 2018. "Livelihood assets and strategies among rural households: Comparative analysis of rice and dryland terrace systems in China," *Sustainability*, 10(7): 2525.

Yang, L., M. Liu, Q. Min, and W. Li. 2018. "Specialization or diversification? The situation and transition of households' livelihood in agricultural heritage systems," *International Journal of Agricultural Sustainability*, 16(6): 455-471.

Zhang, J., A. K. Mishra, and P. Zhu. 2019. "Identifying livelihood strategies and transitions in rural China: Is land holding an obstacle?," *Land Use Policy*, 80: 107-117.

Zhou, Y., Y. Shen, X. Yang, Z. Wang, and L. Xu. 2021. "Where to Revitalize, and How? A Rural Typology Zoning for China," *Land*, 10(12): 1336.