

Research Paper

Agricultural Commercialization in Rural Farming Systems and Causal Interpretation of its Determinants Using Structural Equation Modeling and Path Analysis

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ABSTRACT

Commercial agriculture means production in large scale, specialized, and market-oriented cropping. The present study aims to identify the commercialization components of strawberry cultivation in Marivan township and to evaluate its determinants causally. A stratified random sample comprising of 191 stakeholders were interviewed to collect data. The dependent variables of strawberry cropping commercialization includes the area under cultivation, crop specialization, crop intensification, under cultivation area addition, crop yield and sale proportion. A set of economic, social, technical, and institutional factors operationalized and measured as the independent variables. Measuring of dependent scale was modeled using confirmatory factor analysis (CFA) and the path analysis approach was used to interpret its causal relationships with independent variables. Farms average area under cultivation, literacy and acquaintance of the family head, satisfaction with job and future hopefulness, informal vocational training, the degree of modern irrigation usage and level of wage labor utilization were the final constructive variables set of the study's causal-structural model. First three variables are external- while the remaining are internal-structural model variables. Based on the total direct and indirect effects, farms average area under cultivation, satisfaction with job and future hopefulness and degree of modern irrigation usage had the most influence on commercialization of strawberry cultivation. Contrarily, the level of wage labor utilization, acquaintance, and literacy of the family head had minor influences on the commercialization of the strawberry.

Keywords:

Strawberry commercialization, Rural smallholders, Causal interpretation, Structural modeling

Extended Abstract**1. Introduction**

Societies' food security and moving toward development, entails the transition of the primary sector from traditional subsistence farming systems to advanced commercial ones. Commercial agriculture generally means production in large scale beyond the basic needs, with specialized, market-oriented and marketed cropping. The inevitable policy of commercializing agriculture to achieve the simultaneous aims of promoting the economic development nationally as well as improving the poor rural livelihood and rural economic development regionally entails noticing and planning for all types of farming systems, i.e. from small scale to big corporations. Focusing on various more beneficiary crops via practicing the rural and peasantry farms, on different regional climates corresponding to the properties and physiological requirements of these crops is one of the important schemes to achieve rural economic growth programs.

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Some of the instances are the specialized cultivation of crops such as saffron, cotton, rape, peanut, summer crops market gardening, vegetables, oilseeds cultivation, pistachio gardening, flowering, strawberry cultivation, etc. in some of Iran's rural areas. This approach is investigated by several studies as the agricultural diversification, aiming the replacement of traditional strategic and low productive crops with the more technical and beneficiary ones, accompanied by its various impacts on social and economical structures of the rural areas. The present study aims to identify and introduce the commercialization components of strawberry cultivation as the main agricultural product of Marivan Township and evaluate its determinants causally.

2. Methodology

A stratified random sample comprising of 191 strawberry cultivators were interviewed to compile the needed data, based on a self-designed and validated questionnaire. Dependent variable of strawberry cropping commercialization has operationalized considering the area under cultivation, cropping specialization, cropping intensification, under cultivation area addition, crop yield, sale proportion and Packing. A set of economic, social, technical, and institutional factors as the independent variables were operationalized and measured differently with appropriate questions. The variables were the age, literacy and acquaintance of the family head, family size, farms average area under cultivation, degree of modern irrigation usage, level of wage labor utilization (non-familial structure of the farming system), informal vocational trainings, satisfaction and hopes with the job and its future, product warehouse and maintenance equipment, and transportation infrastructures (on all weather road). Evaluation of commercialized strawberry cultivation, as a dependent scale, was modeled and validated using the statistical procedure of confirmatory factor analysis (CFA). Biased observed variables were eliminated from the final scale. Amos Graphics was performed to standardize the path coefficients.

3. Results

The regression analysis weighs, crop intensity and crop specialty as more determinant in predicting commercialization followed by the other components such as crop yield, marketed production and cultivation expansion by the crop's income. The statistical path analysis approach was used to interpret the causal relationships of commercialization with independent variables as well of their interrelation causalities. Path analysis diagram is a drawing based on theoretical considerations regarding the causal order of antecedent and consequent variables. One of the complementary distinguishing procedures to do this is multi-stage performing

multiple regressions, which is leading to the conceptual framework and analytical model of the study. Farms average area under cultivation, literacy and acquaintance of the family head, satisfaction with job and future hopefulness, informal vocational trainings, degree of modern irrigation usage and level of wage labor utilization have been the final constructive variables set of the study's causal-structural model. The first three variables are external and the remaining are internal structural model variables.

4. Discussions

As identified and represented in [figure 3](#), the final causal-structural model is combination of several multivariate path models. The external and internal variables have influenced the strawberry cropping commercialization via six direct as well of twenty seven indirect paths because of their inter-casualty relations. Based on the total direct and indirect effects, farms average area under cultivation, satisfaction with job and future hopefulness and degree of modern irrigation usage had the most influence on commercialization of strawberry cultivation. The level of wage labor utilization, acquaintance and literacy of the family head had minimal effect on commercialization of strawberry.

4. Conclusion

Increasing modernity in recent century has made strong evolution in the economy of developing countries from primary sector business to more industrial level. A statistically significant decline in agriculture's contribution to macroeconomic indices of developing countries is seen. Nevertheless, the social and economic viability of many rural communities in these countries depends highly on farming activities and entails its development. Provision and promotion of food security, creation and durability of job and income opportunities and development of farming as well as non-farming activities are some aspects to be considered for the redemption of property in the peripheral rural communities. The difficulty faced by such poor and isolated rural communities as well as their small and traditional farms is their impotency to challenge with current contingences, which in no way are consistent with them.

On one hand, sub-optimal utilization of their small and sparse lands and water resources does not give them competitive ability for meeting their economical needs. On the other hand, it is, for many reasons, impossible the consolidation of their lands and mechanization to have a share from economy of scale. Thus, the attention and emphasis must be paid to other factors and approaches than to modernize

and commercialize the small rural holders and actualize their potentials to cope with their needs successfully. Specialized cropping with regards to different regional and geographical properties is one of the major approaches to optimize the productive potencies of disperse small scale farmers. Some of the non-compromising requisites are as strengthening of production systems by input (seeds, fertilizers, machines, equipment etc.) and output (products) flows, development of conducive social structures, development of research, education and advisory institutions, development and enhancement of infrastructures such as all weather roads, power, communication and irrigations systems, transportation, warehousing and marketing facilities and processing industries.