

## **Abstract**

Population growth and the loss of environmental capacities for food production have rendered the realization of food security a more complicated task as compared to the previous decades. In addition to sound management and use of agricultural resources for satisfying the food demand of people, sustainable agriculture improves the quality of the environment and natural resources and tries to safeguard the resources for future generations. Given the importance of this subject matter, the present study aims to explore the relationship between agricultural sustainability and food security in 30 provinces of Iran over the period of 2005-2015 using a spatial econometrics model. For this purpose, first, the overall level of agricultural sustainability was calculated using a combination of agricultural sustainability ( $I_{CSA}$ ) and weighting indicators based on Analytic Hierarchy Process (AHP) method. The household food security index (AHFSI) was used to determine the food security of households in urban and rural areas. Finally, the effectiveness of agricultural sustainability on food security of urban and rural households, as well as other effective factors, is examined using the spatial of Mixed Autoregressive (SAR) model. The results for the composite sustainable agriculture index in Iran show that with the average score of 0.521. The provinces of Fars, Khorasan Razavi and East Azarbayegan have the best stability status respectively with 0.683, 0.653 and 0.625 and the provinces of Sistan and Baluchestan, South Khorasan and Hormozgan have the weakest agriculture sustainability respectively. Average food security index for urban and rural of Households in Iran was reached 89.92 and 87.15 showing implying the improvement in food security. The provinces of Tehran, Qazvin, Fars, Khorasan Razavi, Gilan and East Azarbayegan have the best food security and the provinces of Sistan and Baluchestan, South Khorasan, Hormozgan and Bushehr have the weakest food security. Finally, it was found that the spatial spillovers of the agricultural sustainability influence food security positively and significantly. Thus, given the positive effect of agricultural sustainability on food security, the policymakers of the agricultural sector can make decisions to develop sustainable farming. With, for example, investment in production infrastructure of seeds, fertilizers and pesticides (optimal use of chemical fertilizers and pesticides at the farm level), identification of locally-compatible plant species in order to increase agronomical diversity index, optimal management of agricultural water resources, and appropriate farming practices, measures can be taken to increase sustainable production as a prerequisite for the establishment of sustainable food security.

**Key words:** Aggregate Household Food Security Index, Analytical Hierarchy Process, Composite Sustainable Agriculture Index, Panel Data, Spatial Economics



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