

Optimum Water Allocation for Agricultural Section of Zarrinehrud River by Non-Symmetric Nash Modeling

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Abstract

Nonefficient allocation of limited water resources is one of the main reasons for conflict among different stakeholders in a basin. With this regard, the application of conflict resolution models as a sustainable solution is suggested for water allocation, especially for the major consumer such as agricultural sector. In this study, game theory is used for conflict resolution problem and non-symmetric Nash product is considered as the objective function. Utility functions of stakeholders are assumed as nonlinear functions. The model is applied to the Zarrinehrud River system in Northwestern Iran. This model has been then solved by using the Genetic Algorithm. The optimum share of the river's stakeholders has been derived in three different scenarios (based on the importance of the users) in the twelve-month period. Results confirm that the optimum decision on water consumption depends on the weight of the consumers. In the case of equal weights, 780, 323, 78 and 501 million cubic meters should be assigned to agricultural, industrial, domestic and environmental users, respectively in 2020 and in the condition that the relative importance are equal, the share of the West Azerbaijan, East Azerbaijan and Kurdistan and also Urmia Lake from the available water resources are 38, 17, 16 and 39 percent, respectively.

JEL Classification: D70, C70, D61, Q25

Keywords: Water Allocation, Game Theory, Non-symmetric Nash Model, Zarrinehrud River, Agricultural sector.

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Economic Analysis of Transforming Flood Irrigation System to Drip Irrigation in Apple Orchards: Case of Urmia County

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Abstract

Optimum use of water is very important for agricultural development. The purpose of this research was private economic analysis (determination of profitability for single orchardists) of transforming flood irrigation system to drip irrigation in Urmia county apple orchards. Necessary data were collected by interviewing and completing the questionnaires. Using investment economic evaluation methods and Excel Software five orchards with different ages of 15, 17, 20, 22 and 23 years for two cases of with and without irrigation transformation were evaluated. Results showed that net present value and cost benefit ratio in every five orchards in the case of drip irrigation were higher than in the case of flood irrigation. The results of sensitivity analysis showed that in each five orchards 10 percent decrease in income in comparison with 10 percent increase in cost decreased net present value and cost benefit ratio and internal rate of return more but NPVs did not become negative; and with the increase of discount rate up to 30 percent net present value remained positive; but in comparison with two previous cases had higher decrease. In conclusion it should be mentioned that the results of this study shows that the profitability of apple production would be higher if drip irrigation system is used at the lower age; and would have the highest profitability if drip irrigation is used from the start of establishing the orchard.

JEL Classification: Q25, Q15, Q12

Keywords: Flood Irrigation, Drip Irrigation, Economic Analysis, Apple Orchards, Urmia.

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The Economics-Environmental Impacts Analysis of the Promotion of the Wall of Ekbatan Dam in Hamedan

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Abstract

Adverse environmental impacts of dams in the country have become the one of the most controversial issues in various communities. This paper aims to value environmental impacts of Hamden's Ekbatan dam which was implemented in 2007. Environmental impacts of the dam in terms of its specific geographic conditions are evident in the downstream region. The data for this research was collected by using field operation through completing questionnaires with 212 urban households in Hamedan in 2013. For valuing environmental impacts, choice experiment approach was used on the base of stated preferences and two econometric models including conditional and nested logit models. The average marginal willingness to pay for environmental attributes: outdoor recreation, beauty, biodiversity and natural resources conservation were obtained as 10,626, 11,440, 13,738 and 16,776 Rials per month respectively. In order to achieve to the time prior of dam construction, willingness to pay of total urban households to restoring and protection of Ekbatan dam downstream area, was calculated about 118.3 billion Rials per year.

JEL Classification: Q51, Q56, Q57

Keywords: choice experiment, dam, conditional logit, nested logit, willingness to pay

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**The Measurement of Multidimensional Poverty
in Iran Nomads**

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Accepted: 21 Aug. 2013

Abstract

The aim of this study is to measure the multidimensional poverty index (MPI) in Iranian nomads by using Alkire and Foster method. In this method, the incidence and intensity of poverty is calculated by within and cross dimensional cutoffs. According to the MPI of UNDP, the dimensions of poverty index are education, health and standard of living. Furthermore, the required data consist of the results of the socioeconomic census of nomads in 2008. The results show that, 42% of the tribes are living in poverty condition, deprived at least in 30% of the indicators and intensity of their poverty is 46%. On the other hand, the deprivations of tribes in the dimensions and indicators are heterogeneous. Moreover, improvement on education and health indicators especially in nomad's girls and women has the greatest impact on poverty reduction, which has also been emphasized in the Millennium Development Goals.

JEL Classification: I32, P46, I15, I25

Keywords: *multidimensional poverty, Alkire and Foster method, nomads, capability approach.*

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Abstracts 2

Designing of Iranian Dates Trade Model; Application of Trade Advantages and Theory of Market Structure

Elham Mehrparvar Hosseini¹, Milad Aminizadeh², Hamed Rafiee³, Andisheh Riahi², Mahdi Bastani²

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Abstract

The current study attempted to investigate the Iranian dates trade model in front of export rivals and market structure using comparative advantage, import advantage, concentration ratio and Herfindahl-Hirschman indecies in Iran and world during 1992-2011. The results showed that, the world market structure and Iranian export market structure has become more competitive in this period and despite reduce advantage, therefore, Iran's dates has competitive strength in world market. Also results of correlation indicate, negative relationship of export advantage better exporters such as Pakistan, France and Germany with Iran that means to competition is these countries in the markets of common goal. It is worth noting, Assessment of correlation Iran export advantage and rivals with import advantage of better importers, represent is inimitable Iran in countries market, UAE, Russia, America, Australia and Hong Kong. Because none of Iran's export competitors aren't aligned relationship with the countries mentioned. Also Iran's export advantage has positive and meaningful relationship with countries import advantage such as UAE, Russia, Australia and New Zealand. This relationship between Iran with Pakistan, UK, Germany, Malaysia and Sweden is negative that indicate loss probability these markets for Iran. So suggested, Iran using improve marketing conditions with suitable packaging of dates and Implementation appropriate supportive policies of productive(insurance coverage, granting of banking facilities and support of processing industry) and trade(incentives of export especially in the case of products packaged), their export share is maintain in the world market and with find new markets followed development of Iran's share in the world.

JEL Classification: Q1, Q17, D49, N50

Keywords: World Market Structure, Iranian export market structure, Export Comparative Advantage, Import Advantages, Dates

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Abstracts 1

Comparison Traditional Methods and Genetic Algorithm in Forecasting Price Fluctuations of Agricultural Selected Products

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Abstract

In current study, the retail price fluctuations of agricultural products including Wheat, Barley, Maize and Rice were predicted by traditional methods and genetic algorithm. Required data for all products from Farvardin 1384 to Esfand 1390 were collected. Aban 1390 to Esfand 1390 data were used for forecasting accuracy and also forecasting was done from Farvardin 1391 to Mehr 1391. In order to compare forecasting error of different methods, root mean square error criterion was used. Results showed that genetic algorithm method among all forecasting methods includes less error for forecasting price fluctuations of agricultural selected products, and so it, seasonal autoregressive integrated moving average (SARIMA) method is good. The root mean square error (RMSE) criterion using the genetic algorithm of Wheat, Barley, Maize and Rice price fluctuations are 80.35, 82.78, 376.23 and 923.92 respectively that forecasting price fluctuations of Wheat has the lowest error (80.35). Also, forecasting coming months showed that price fluctuations of selected crops are very high.

JELClassification: Q11, C53, C51, C22

Keywords: Forecast, Price, Agricultural products, SARIMA, Genetic algorithm

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