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ABSTRACTS

Modeling and forecasting of rainfall and determining withdrawal water on agricultural sector in Kabodarahang, Hamadan

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This study forecasts rainfall volume with the use of time series approach in Kabodar Ahang district which located in north part of Hamadan province. Seasonal model results revealed that precipitation data in mentioned district has non-periodic characteristic. Also, HEGY test results show no root in monthly and seasonal data. So, ARMA (4,4), can forecasts and exhibits mentioned region's rainfall pattern mannerly. By determining rainfall volume and applying underground water balance of Kabodar Ahang, accessible water of agriculture sector is estimated for 2008 through 2010 equal to 257.77 mm^3 , 267.56 mm^3 and 254.87 mm^3 .

JEL Classification: C22, D8

Keywords: Rainfall, Forecasting, seasonal and non seasonal pattern, time series models, Kabodar Ahang

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Economic analysis of the effects of government intervention on cotton pricing in Iran

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In recent decades, the policy of government intervention in the pricing of agricultural products has been common in the most of developing countries. Accordingly, the agricultural and livestock products in Iran have mainly been influenced by the interventionist policies. The research intends to investigate the application of Protection Rate Index so as to measure the price intervention policies which have affected the agricultural prices in general and that of cotton in particular during 1983-2008. The model was firstly put into the practice by a group of researches in one of the World Bank project aimed to achieve an economic analysis of agricultural price intervention of government in eighteen countries located in different regions around the world. This research is particularly going to prove that direct price intervention of government in the cotton market has had positive implications. According to this research, these positive effects, more importantly, may differ dependent upon the fact that nominal or implicit rate of protection is calculated and that what exchange rate is applied for the border price evaluation. Considering the above and given the fact that the change in the pricing policies in 1990 has been in favor of the production, it is strongly recommended, for the sake of comparison among probable protective structures of different agricultural products, to focus on calculation of Protection Rate in other sort of significant animal husbandry and agricultural products such as wheat, rice, meat and milk.

JEL Classification: Q18

Keywords: Iran, price policy, nominal protection rate, implicit protection rate, border prices

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The impacts of price and output uncertainty on chicken and beef meats in Fars Province

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At this study, productions of chicken and beef meats were investigated based on the method of Moavia Alghalith, considering simultaneous uncertainty of price and output in the Fars province. This method is applicable for direct and indirect utility functions and does not require specification and estimation of the production function. The estimating equations for two most common forms of output risk (additive and multiplicative risks) were derived and the results empirically were compared. Needed data, including monthly amounts of chicken and beef meat and also price of essential inputs related to these outputs for the years 2001 to 2006, were collected. Results show that, by increasing risk on price and output, chicken production will decrease, considering two forms of output risk. Based on the multiplicative form, beef meat production decreases by increasing price and output risk in the whole periods of study; where as applying additive form represents decreasing and increasing production in different years. Besides amounts of chicken meat reduced by increasing price of chicken meat based on two forms of output risk. In fact, increasing price and output risk of chicken meat not only omitted the positive effect of price increase on incentives of output expansion, but also decreased output in some cases. Amounts of beef meat production have increased by increasing price of beef meat, based on two forms of output risks and are consistent with theory. To reduce price and production risks, providing the necessary context for preparation of pricing contracts for sales of beef and chicken meats and purchasing basic inputs for these products during production and before the decision to produce, through insurer companies are advised. Also training cattle and poultry cooperatives members for marketing activities in this field and regulating the market of these products can be useful. On the other hand, government should avoid from unplanned import that increases the risk for producers.

JEL Classification: D8, D2

Keywords: Output uncertainty, price uncertainty, utility, additive and multiplicative uncertainty, chicken and beef meat

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Externality costs and factors affecting groundwater overexploitation in Mamasani

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This study investigates externality costs of groundwater overexploitation and its determinants in Mamasani a county of Fars province in Iran. Conditional probability and farmer's marginal willingness to pay on investment for drilling well and/or increasing depth of existence wells as the proxy for negative externality costs were estimated applying Logit and Tobit models to data collected from 135 farmers in the region.

The results showed that farmer's willingness to pay for investment of drilling well and/or increasing depth of wells for extraction of water impose relatively high quantity of negative externality costs that farmer's imposes to the society through irregular exploitation of groundwater. Also, the results revealed that credit, size of holding, ratio of irrigated area under vegetables and patch, and ratio of irrigated area under cereals have the highest effects on either farmer's willingness to pay to invest or on negative externality costs. This indicates that despite water scarcity, crop pattern has changed towards high water intensive and profitable crops. Also, the threshold level of holding after which a farmer is willing to invest in drilling well was determined to be 4.76 hectares. Accordingly, it can be concluded that government policy in the field of facilitating water supply has resulted to increasing negative externality cost. In other word, water conservation policies will lead to more destruction of resources if policies are uncoordinated and resource conservation polices are not considered as agricultural supporting polices are performed.

JEL Classification: C2, O13, Q2, Q5.

Keywords: Externality costs, groundwater overexploitation, willingness to pay, Mamasani

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Determinants of agronomic diversification on agricultural crops

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Agriculture in Iran is a high risk activity because of weather diversification, dispersion and small farm sizes in the most regions of the country, which leads to useful approaches to confront this situation by farmers. One of the major approaches is the utilization of agricultural diversification. Measurements of crops diversification is calculated by different indexes. Major policy approaches can be adopted by calculating diversification level and effective factors that leads decreasing production risk for strategic and specific crops and increasing production level in the country. For calculating diversification, the Entropy Index (EI) was measured in this article using panel data of wheat, barely, rice, corn and cotton in Eastern Azarbayejan, Khorasan Razavi, Khuzestan, Fars, Kermanshah and Gilan provinces during 1992-2006. Then, effective factors on agricultural diversification were assessed by regression estimation of panel data using Fixed Effects Model (FEM). Results show that assessed effective factors of diversification including crop price, average annual cost of crops, average agricultural and non-agricultural income of urban households, crop insurance, export and import and subsidy have meaningful relationship with Entropy Index. Additionally, it could be helped to food security of the country by precise attention to existed relationships and calculating economical indexes in agricultural production.

JEL Classification: B23, C33, C22, C52

Keywords: Agricultural crops diversification, Entropy index, panel data

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Analyzing the impact of export premium on agricultural export development

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The augmented gravity model was used to analyze the impact of export premium on Iranian agricultural exports by applying the panel data of 1992-2005 for 72 countries which are considered as the main market of Iran's exports. The results showed that all the gravity factors (population, GDP and distance) have significant effects on agricultural export in both developed and developing countries. In addition, the results confirmed the positive and significant effect of export premium on increasing agricultural export and revealed the effect of this premium through gravity factors. Since the impacts of effective factors on export are not probably momentary, the dynamic gravity model was regressed to separate the short and long run elasticities. The premium has a positive effect on agricultural production export both in short and long run. But, it is higher in long run. So, the study tries to make persuasive programs which follow long run goals.

JEL Classification: F13, F16

Keywords: Export premium, agricultural export, Augmented Gravity Model

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**Challenges and practical guidance for saffron's processing,
marketing and export: application of Delphi technique**

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The purpose of this study is to investigate challenges and practical guidance for saffron's processing, marketing and export by using viewpoints of saffron marketing experts. Results of this study were obtained by utilizing a modified Delphi technique to reach group consensus. Consensus was reached on fourteen challenges of saffron's processing, marketing and export. Some of those challenges include weak e-commerce, the lack of existence of brand for Iranian saffron, and the existence of brokers and dealers in saffron market. Furthermore, consensus was reached on twelve suggestions for solving problems of processing, marketing, and export of saffron. Some of those recommendations included developing of brand for Iranian saffron, organizing exporters and applying international standards such as KODEX, ISO, and HACCP, extending credit for establishing packaging units, developing legal obstacles to prevent saffron expert in bulk, and establishing and improving cooperative marketing.

JEL Classification: Q13, O24, F13

Keywords: Challenge, practical guidance, marketing, Iranian saffron, Delphi Technique

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**Study of mechanical technology impact on poultry industry:
mathematical and econometrics analyses**

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In this paper sources of output growth in poultry meat production are decomposed in Sabzevar city using new technology (mechanical technology). It is based on cross-section data collected in 2008 from poultries sample including 45 observations. At first, a dummy variable is defined as technology term in the pooled production function. Afterwards, the output decomposition model (as developed by Biasaliah, 1977) is used to decompose the difference in the poultry meat output between old and new meat production technologies into technical change and change in quantities of inputs. The results show that the estimated growth in meat output was 214 percent of which 63 percent was contributed by technology and consequently 151 percent was contributed by increasing level of inputs in which food, fuel and labor share 95, 27 and 29 percent respectively. So, investment in mechanical technology researches seems to be essential. Since innovations are mostly introduced by cooperatives in the region, this paper urges improvement of cooperatives role for extension, advertisement and credit provision to poulterers in order to use new technology efficiently.

JEL Classification: C100, D200, O140

Keywords: Mechanical technology, poultries, production function, Sabzevar city

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Estimating preservation value of Nour forest park using a contingent valuation method

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This study attempts to analyze determinants of preservation value of Nour Forest Park and to measure individual's willingness to pay for preservation of the concern park based on contingent valuation method and double-bounded dichotomous choice questionnaire. The logit model and its parameters are used to investigate the effect of explanatory variables on individual's willingness to pay by. The results show that 70 per cent of respondents are willing to pay RLS 12646 per household monthly (i.e. RLS 151752 annually) for preservation of Nour Forest Park. And, the preservation annual value are estimated RLS/ha 229707314. The results revealed that forest parks had considerable preservation value and this may help the programmers and managers of executive, social and economic in the preservation planning and sustainable utilization of natural resources.

JEL Classification: Q51

Keywords: Preservation value, Nour Forest Park, contingent valuation, willingness to pay, Logit model

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**Factors affecting water demand in fish farms in Kohgiluyeh
Buirahmad**

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In Iran, water is a limited factor in agricultural development and as such the management of water consumption has become a vital issue in recent years. This study was conducted to determine factors affecting the demand for water in fish farms in Kohgiluyeh province. By using two staged cluster sampling method, a sample of 55 farmers was selected and interviewed. The demand function for water was estimated by application of profit maximization approach. The results of the study revealed that number and weight of baby fish, labor and water had positive and water temperature had negative effect on fish production. Among the factors, water temperature with coefficient of 0.73 was the most effective factor in fish production. The price elasticity of demand was equal to -1.27, which showed that water demand in fish farms is price elastic and a fair water pricing could persuade farmers to use water more efficiently.

JEL Classification: C230, D400

Keywords: Demand function, water, fish product, Kohgiluyeh and Boyerahmad

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