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ABSTRACTS

**Investigating the Sustainability of Farming Systems Regarding
Economic and Environmental Objectives:
Case Study of Kamfirooz Region**

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Increasing competition for water among farmers accompanying chemical pollution due to current land management practices has caused unsustainability in Kamfirooz region, in Fars province, Iran. The bio-economic modeling approach described in this paper offers a new methodological framework to analyze the implications of alternative water-soil management practices. The suggested model combines a biophysical model (WinEPIC) and a mathematical programming model of farmers' economic behavior with game theory, providing a more realistic representation of economic agri-environmental attitudes. This paper investigates optimal solutions for the conflicting objectives between the two players, the farmers and the environment. The application of four conflict resolution methods indicated that players can compromise to balance their conflicting objectives. This study indicated that it is possible to manage sustainable agricultural systems and a protection of resources to be used in the future by applying the appropriate management practices. The results demonstrated that giving equal weight to environmental and economic attitudes results in 20%, 81% and 5.4% improvements in water, nitrogen and phosphorus loss indicators, respectively, while decreasing only 4% of gross margin.

JEL Classification: C61, C71, Q01, Q15, Q53

Keywords: Bio economic modeling, game theory, sustainability indicators, chemical pollution, water loss

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Examining the Impacts of Oil Revenues, Monetary and Fiscal Policies on Growth of Agricultural Sector in Iran

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Regarding the effects of fiscal and monetary policies and government rules on agricultural sector, the impacts of the government expenditure, fiscal and monetary policies and oil revenue on export, import and value added of agriculture is performed in this study applying vector error correction model (VECM). Two long-run vectors of export and import are estimated by Johnson co-integration method for 1971–2005, which theoretically correspond with export supply and import demand. Regarding the estimated long run and short run equations, oil revenue in long run indicated positive influence on decreasing imports and increasing export. On the other hand, expanding fiscal policy had significant effects on export of the sector in short run. Besides, monetary policy exhibited diminishing and significant impact on agricultural import in short run.

JEL Classification: E6

Keywords: Agricultural sector, monetary and fiscal policies, export and import, value added, vector error correction model

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Groundwater Management at Usual and Droughty Conditions

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In this study, multi objective programming is used to find deficit strategies with different water use efficiencies. Model activity was divided with water use efficiency at 34%, 40% and 65% with deficit strategies. Model fined optimal crop pattern, suitable irrigation strategies and irrigation methods at usual and drought available irrigation water. Water price of each cubic meter resulting of reduction of water consumption determined for representation farmer. When water consumption objective was more important than gross crops modern irrigation with deficit strategies exist in crop pattern. The percentage decrease on benefit was less than that of the withdrawal for all representative farmers so based on the result farmer can water consumption in optimal level.

JEL Classification: C6, Q2

Keywords: *Multi objective programming, usual and droughty conditions, deficit strategies*

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**The Effects of Trade Liberalization and Government Size on
Employment in Agricultural Sector of Iran**

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Trade liberalization as a feature of globalization provides international competitiveness and contribution of countries to the best economic activities. Of course, in this programmed process, activities that have not suitable competition ability, lose continue their works. This study examined the role of trade liberalization and government in agricultural sector on level employment this sector in vectors time series form in 1971-2006. Effects in long-run and short-run were determined by Autoregressive Distributed Lag and Error Correlation Mechanism. Results revealed that trade liberalization has not significant impact on employment level of agricultural sector in long-run, but has significant negative effect in short-run. Also, the results showed that there was a direct relationship between government size in agricultural sector and employment in long-run. Based on findings of this study, it is recommended to increase agribusinesses along with trade liberalization in order to prevent agricultural unemployment in liberalization process.

JEL Classification: Q1, Q17, Q28

Keywords: Trade liberalization, government, employment, agricultural sector, autoregressive distributed lag

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Using Fuzzy Hierarchical Method in Prioritization Decision Making Type (Case study: sustainable development of Forest Park Saravan Gilan)

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Forests as one of the renewable natural resources play a significant role in coordinated growth and development of a country and implementing correct programs, which require sufficient understanding of their role, can make its potential applicable and shows its share in sustainable development of the country. Planning and prioritization decisions, issues related to forests, in case of having several objective criteria when we deal with sustainable development is quite important. In this study hierarchical fuzzy programming method was used to prioritize decisions about economic, ecological and social issues of Saravan Forest Park in Gilan in light of achieving sustainable development. The necessary data were collected completing questionnaires and official comments about Forest Park, respectively. The results showed that the low recreational and welfare facilities of parks place social decisions to be in the first priority. Since the ecological issues are recognized to be close to the first priority, social criteria should be directed such that priority to the ecological damage is minimal in order to achieve development Sustainable Forest Park together with keeping economic capability of the park to reinforce sustainable development.

JEL Classification: C35, C61, Q01

Keywords: Saravan forest park, fuzzy hierarchical method, sustainable development

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**Economies of Scope in Wheat and Barley Production in North
Korasan and Khorasan Razavi Provinces**

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Economies of scope evaluate the amount of cost reduction in a joint production system in compare with a commercial one. Investigating the economies of scope in agricultural enterprises provide the possibility of reduction in production costs and usage of economics advantages. This article estimated economies of scope for wheat and barley in North Khorasan and Khorasan Razavi Provinces applying cost approach on data of 2007. Results showed that economies of scope in these provinces are 55 and 57 percent, respectively. So, according to the results, wheat and barley farmers in these two provinces can merge in a firm and then reduce their costs.

JEL Classification: D21, L23

Keywords: *Economies of scope, cost approach, wheat, barley, Khorasan*

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Analyzing Situations of Agricultural Sub-sectors among Sectors of Isfahan Province Economy (based on Input-Output Approach)

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In view of scarcity and restriction of the resources, identification of key sectors in the economy has great importance in policy making. The aim of this paper is to identify key sectors in Isfahan province and investigate situation of agricultural sub-sectors. For doing that, Isfahan Input-Output table for 2001 has been generated based on location quotient method (AFLQ) for 69 sectors. This table and hypothetical extraction method was used to investigate the importance of economic sectors. The results reveal that the two sub-sectors of agriculture (cultivation, horticulture sector and animal husbandry, aviculture, sericulture and apiculture sector) are key sectors. Also, two sectors of agricultural-related industries (food products and beverages manufacture and textiles manufacture) are viewed as key sectors. The sector of basic metals has a first rank among other key sectors.

JEL Classification: D57, C67, O25

Keywords: Backward and forward linkages, hypothetical extraction method, Input-output table, key sectors

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**Regionalism and Iran's Agricultural Trade Promotion in
Economic Cooperation Organization (ECO)**

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World economy has become increasingly integrated. There is an underlying assumption that integration into the world economy provides more opportunities for trade. The evidence shows that integration at the regional levels can help developing countries to prepare for the international economic integration. It will be important to outline and analyze past efforts at regional integration (regionalism) to have prospects for future arrangements. This study assessed the impact of Iran membership in Economic Cooperation Organization on agricultural trade by means of generalized gravity model. The econometric method used to isolate and eliminate the regional agreement effects is panel and pooled data techniques. Our results indicated positive and significant intra-trade impact of regionalism on Iranian agricultural trade. We found that, directly and indirectly, ECO have had positive effects on Iranian agricultural trade. Indirectly, the degree of similarity between Iran and the other ECO members in religion, border, ethnic, and language is very high in relation to the other chosen trade partners of Iran. Also a considerable share of the variability in ECO agricultural trade flows referred to uneconomic factors. Therefore, it seems that Iran would be able to expand its agricultural trade by gradually reducing trade barriers in ECO region, using these ECO members' similarities.

JEL Classification: F13, F15, Q1

Keywords: Regionalism, agriculture, Iran, ECO, gravity model

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Long-term Relationship between Rural Household Income and Macroeconomic Variables in Iran

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In this study, short and long term effects of macroeconomic variables such as prices of agricultural commodities, interest rates, exchange rates on rural household income are investigated. For this purpose, pattern autoregressive distributed lag were applied on time series of 1977-2008. The results of this study showed that a long-term relationship exists between variables included in the model and rural household income. Among these variables, the price indexes of agricultural products and exchange rates with respected coefficients of 1.81 and -0.65 have significant effects. Considering these effects on rural household income, adjustment and stabilization agricultural price index and interest rates and currency and adopting appropriate macroeconomic variables to improve rural income is recommended.

JEL Classification: E6

Keywords: *Autoregressive distributed lag model, rural household income, macro variables*

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Determination of Technical, Allocative and Economical Efficiency of Cotton Growing Farmers in Tehran Province (case study: Varamin)

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The main objective of this study was to determine technical, allocative and economical efficiency of cotton producers to analyze degree of farmer's success in optimum allocation of production resources and also study of possibility of increasing production, with specific production resources. Data were obtained by systematic random sampling in 2008 through 110 cotton producers of Varamin. Stochastic frontier production and cost frontier functions were used to analyze technical, allocative and economical efficiencies. Based on the results, some variables such as land area, machineries, labor, seeds and water have significant and positive impacts on cotton production in Varamin. Also, age and promotion terms affects technical inefficiency negatively. But relationship between technical inefficiency and number of patches is significant and positive. Estimation of efficiencies show that on average, technical, allocative and economical efficiency are 93%, 80% and 74% respectively. The ranges of technical efficiency, allocative efficiency and economical efficiency were calculated to be about 40%, 43% and 31% respectively. Based on the findings, educating farmers about farm management and economic use of inputs as well as expanding their knowledge to enhance production and efficiency is so essential.

JEL Classification: D61, G14

Keywords: Cotton, technical efficiency, allocative efficiency, economical efficiency, Varamin, Tehran Province

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