Agricultural Economics
Journal of Iranian Agricultural Economics Society

Vol.5/No.4/2012

Publisher: Iranian Agricultural Economics Society
Managing Director: Saeed Yazdani, PhD, Tehran University
Editor- in- Chief: Mohammad Bakhshoodeh, PhD, Shiraz University
Editorial Manager: Shahrokh Shajari, PhD, Shiraz University

***Editorial Board*:**

M. Bakhshoodeh, PhD ----------***Shiraz University***
S. Hoseini, PhD ----------***Tehran University***
S. Dehghanian, PhD ----------***Ferdowsi University of Mashhad***
H. Salami, PhD ----------***Tehran University***
G.R. Soltani, PhD ----------***Shiraz University***
G. Sharzei, PhD ----------***Tehran University***
D. Salehi- Isfahani, PhD ---------- ***Virginia Polytechnic Institute and State University***
M. Koopahi, PhD ----------***Tehran University***
R. Mohammad Rezaei, PhD ----------***Tabriz University***
H. Mehrabi Boshrabadi, PhD ----------***Kerman University***
B. Najafi, PhD ----------***Shiraz University***
S. Yazdani, PhD ----------***Tehran University***

***Address*: Journal of Agricultural Economics, Collage of Agricultural Economics and Development, Agriculture & Natural Resource Paradise of Tehran University, Karaj, Iran.**
Tel: (+98) 26-32222767
Fax: (+98) 26-32247783
E-mail: iaejournal@gmail.com
www.iranianjae.ir

Contents:

Application of game theory for the optimal groundwater extraction in Firozabad plain
F. Poorzand
M. Zibaei

Determination of vulnerability and risk management in microcredit programs: applying risk sharing model and panel data approach
Z. Tabibi
B. Najafi

Study on the impact of oil income shocks on agriculture: examination of Dutch Disease
S. Yazdani
H. Sherafatmand

Measuring the level of contribution of crops to regional productivity in Iran
M. Bakhshoodeh
M. Shokoohi

Determination of agricultural programming in Fars Province using utility-efficient programming approach
M. Alvanchi
M. Sabouhi Sabouni
F. Rastegari

Investigating External Effects of Excess Extraction from Groundwateron Wheat Supply in Parishan Plain
S. Ghazali
A. Esmaeli

Investigation of livestock and poultry feed crops supply for animal protein supply adequacy in Iran
M. Bakhshoudeh
N. Shahnoushi
A. Firoozzarea
A. Doorandish
I. Azarinfar

Determining agriculture development in Fars townships by using numerical taxonomy
S. N. Mousav
A. Rosta
S. Keshavarzi

Forecasting of Day-Old chick monthly price in East Azarbaijan Province: application of seasonal time series models
M. Ghahremanzadeh

Sustainable management of Zarrinabad forest using fuzzy planning and modeling to generate alternative approach
M. Sabuhi
S. Darvishi

ABSTRACTS

Application of game theory for the optimal groundwater extraction in Firozabad plain

F. Poorzand and M. Zibaei*

Received: 29 March 2011 Accepted:23 November 2011

Water scarcity problem due to insufficient rainfall in majority of Iran provinces such as Fars is very important. The other factor that makes the water scarcity problem more intensive is overexploitation of groundwater. In this study, game theory was applied to determine the optimal groundwater exploitation and resources management in Firozabad plain. In order to achieve payoff matrix and extract the Pareto frontier for two conflict objectives (economics and environmental), the linear programming and aquifer overexploitation coefficient were used. Four conflict methods were applied to determinate the optimal groundwater extraction: non-symmetric Nash solution, non-symmetric Kalai-Smorodinsky solution, non-symmetric area monotonic solution and non-symmetric equal loss solution. A random sample of 128 farmers was selected from Firozabad County in 2007-2008. Results show that when environment and economics objectives are assigned equal important, the optimal groundwater withdrawals is 162/79 million m^3 in 2007-2008.

JEL Classification: C7, D74, Q25

Keywords: ***groundwater, environmental impacts, conflict solution, game theory***

*Respectively MSc. student and Associate Professor of Agricultural Economics, Shiraz University

Determination of vulnerability and risk management in microcredit programs: applying risk sharing model and panel data approach

Z. Tabibi and B. Najafi*

Received: 8 September 2011 Accepted: 18 April 2010

This research aims to determine the household vulnerability in two microcredit programs, namely Women Microcredit Fund (WMF) and Self-Financed groups (SF). The panel data of monthly consumption and income for a sample of 280 households were collected in Fars province. Risk-sharing framework was used for determination of vulnerability of each households and groups. Results showed that two groups were accepted risk sharing. Moreover, 48 and 45 percent of member households was vulnerable in WMF and SF groups, respectively. Also, the vulnerability of member households in SF groups and non-member households in WMF was more than others. According to the results, microcredit programs can reduce and share the risk of household consumption, so expansion of them seems necessary.

JEL Classification: C23, G21, G32, O18

Keywords*: Microcredit, vulnerability, risk-sharing, panel data*

* Respectively Postgraduate student and Professor of Agricultural Economics, Shiraz University, Shiraz, Iran.

Study on the Impact of Oil Income Shocks on agriculture: examination of Dutch Disease

S. Yazdani and – H. Sherafatmand*

Received: 11 January 2011 Accepted: 20 March 2011

Based on classic models of Dutch Disease, it has been forecasted that production in traditional and agricultural sector would decrease with an increase in oil price and income. In this paper, the impact of oil income shocks on agriculture sector of Iran was studied applying Hedrick Prescott filter, and also Two Stage least Square (2SLS) and simultaneous equation system was applied for analyzing oil income shocks during 1966-2007. The results indicated that the impact of oil income shocks on agricultural product is asymmetric. it means that negative shocks of oil income do not have a significant effect on agricultural production, but positive shocks of oil income has a negative and significant effect on agriculture sector.

JEL Classification: C22-Q1

Keywords: ***Oil Income Shocks –Simultaneously test-Hedrick Prescott Filter- Dutch Disease***

*Respectively Professor of Agricultural Economics and PhD student, Agriculture and Natural Resources Paradise, University of Tehran

Measuring the level of contribution of crops to regional productivity in Iran

M. Bakhshoodeh and M. Shokoohi*

Received:12 June 2009 Accepted: 24 August 2011

In this study, regional total factor productivity (TFP) was calculated for Khorasan, Fars, and Khuzestan provinces, and for the country. Level of the contribution crops to regional productivity was investigated. The regional TFP for crops in Khorasan, Fars, and Khuzestan provinces are found to significantly contribute to that of Iran as a whole. Wheat had the highest contribution to the growth of regional productivity. The decomposing regional TFP change into crops productivity, share of land area and crops mix indicates that crops productivity have had vital role in regional TFP growth. Moreover, the second factor (share of land area) was recognized as a determinant of increasing productivity in all regions. Share of land area resulted in a decreasing productivity only in Fars province. An amount of 1.48% of the productivity of Iran's and 6.85% of Khorasan can be explained by changes in crops mix. On contrary, this factor caused the productivity to decrease in Fars and Khuzestan provinces. In other words, crops mix switch from crops with lower TFP growth to those that are growing faster in Iran and Khorasan, but not in Fars and Khuzestan provinces.

JEL Classification: **D24، Q1 ،Q12**

Keywords: ***regional productivity, crops, Iran***

* Respectively Professor of Agricultural Economics, Shiraz University, Shiraz, Iran and PhD student of Agricultural Economics, Tehran University.

Determination of agricultural programming in Fars Province using utility-efficient programming approach

M. Alvanchi, M. Sabouhi Sabouni and F. Rastegari*

Received: 27 November 2010 Accepted: 7 February 2012

Programming for favorable optimization of resources and production factors is very important in agricultural management. Agricultural activity is combined with uncertainty and it is necessary to take this subject into account. In the present study, Farming Projects in Fars province was prepared with utility-efficient programming. The results showed that at all levels of risk aversion, there was wheat in crop pattern. Sugar beet area decreased with increasing amount of risk aversion and tomatoes grown was deleted from the crop pattern. In addition, onion did not enter in the model in any level of aversion risk. The results showed that government intervention could lead to reduced production risk and therefore increase the level of a particular product (wheat). Therefore, targeted government intervention with decrease in cost and increase in social profit is necessary.

JEL Classification: **Q10, D61, C69**

Keywords: ***agricultural programming, utility-efficient programming, Fars province***

* Respectively M.Sc. Student, Associate professor and PhD student of Agricultural Economics, University of Zabol

Investigating External Effects of Excess Extraction from Groundwateron Wheat Supply in Parishan Plain

S. Ghazali and A. Esmaeli*

Received: 19 May 2011 Accepted: 23 November 2011

Excess water extraction in Parishan plain would cause a fall in groundwater and become salty, and it would cause to fall Parishan lake level and move lake water to wells. In this study, it is endeavored to investigate external effects of excess extraction from groundwater on wheat supply function by Johanson approach in 1986_2008. Result showed that quantities of supply increased after taking external effects of excess extraction on income because excess extraction from groundwater would cause to increase yield and consequently farmer's income. But compared to quantities of supply, before and after taking external effects of excess extraction on the pumping cost, showed that quantities of supply decreased after taking the effects, because more extraction from groundwater would cause to fall groundwater level and to increase farmer's pumping cost. At last, consequent of two effects of excess extraction had negative profit (loss) for farmers and would cause to decrease quantities of wheat supply and consumption of water.

JEL Classification: Q25, Q21

Keywords: ***Wheat Supply, Johanson Approach, External Effects, Parishan Plain***

* Respectively Msc. and Associate Professor of Agricultural Economics, Shiraz University

Investigation of livestock and poultry feed crops supply for animal protein supply adequacy in Iran

M. Bakhshoudeh, N. Shahnoushi, A. Firoozzarea, A. Doorandish and I. Azarinfar*

Received: 24 January 2011 Accepted: 30 September 2011

In this study, in order to investigate measures of feed crops supply during Iran fourth program of development, the Nerlove partial adjustment model and system equations estimated by seemingly unrelated regression method were applied to time-series data of 1989- 2004. Results showed that compensation of animal protein shortage require providing inputs and production factors, i.e. agricultural sector products, which should be prepared from internal production or import. Based on the results, current flow of import and production of these crops did not compensate shortage of animal protein at the end of the program, unless by applying mentioned approaches, increasing productivity, making use of modern production methods, employing experts and educated labors, etc. Yield of production would be increased and this gap would be filled.

JEL Classification: **Q10, Q11**

Keywords: ***Livestock and poultry feed crops, animal protein supply, Iran***

* Respectively Professor of Agricultural Economics, College of Shiraz, Associate Professor, M.Sc, Assistant Professor of Ferdowsi University and M.Sc of Agricultural Economics, ARDPERI.

Determining agriculture development in Fars townships by using numerical taxonomy

S. N. Mousavi, A. Rosta and S. Keshavarzi*

Received:21 November 2010 Accepted: 17 February 2012

There are various levels of agriculture development in different areas. So, there would be a heterogeneous case in order to observe such an event. This case might not lead to study and evaluate all the processes of development completely. The first step in planning and developing agriculture cases is to analyse the facilities and to recognize the potentials. So, this paper aims to determine the level of agricultural development in Fars cities by using numerical taxonomy method. Ten main agriculture indexes have been used. The statistics and data were taken from Fars agriculture database and annual statistics from 2003-2007. It can be derived from the study that some cities like Khorambid, Arsenjan, Mohr and Sepidan have developed remarkably in comparison with other cities. Besides, Kazeron, Lamerd, Ghir-o-karzin are placed in a lower rank of development except Farashband that is omitted from this list for being heterogeneous. Finally, some solutions have been suggested to develop various parts of Fars in order to develop agriculture.

JEL Classification: O21,O10,Q10
Keywords: ***Development, Numerical taxonomy, Fars province, Ranking, Agriculture***

*Respectively Assistant Professor of Agricultural Economic, Islamic Azad University, branch of Marvdasht and MSc. students of agricultural economics, Islamic Azad University, branch of Marvdasht

Forecasting of Day-Old Chick Monthly Price in East Azarbaijan Province: Application of Seasonal Time Series Models

M. Ghahremanzadeh[*]

Received: 24 November 2010 Accepted:10 January 2012

The broiler industry is one of the main subsectors of agriculture in Iran. This industry is a risky business. Reduction and market risks cause fluctuations in the broiler producer's income. In this context, price fluctuation of day-old-chick is one of the main sources of the market risk. The objective of present study is modeling and forecasting monthly prices of day-old-chick in East Azarbaijan. To this end, the behavior of day-old-chick prices was specified with considering its characteristics, spatially seasonality by using regression-based model by applying seasonal unit root test (BM test) and seasonal Box-Jenkins models as the primary nominates for forecasting model. Results of seasonal unit root test indicated that the monthly prices of day-old chick follow a non-stationary stochastic seasonal process. Accordingly, the regression-based model is an appropriate modeling framework. While SARIMA is an alternative modeling approach, the RMSE of forecasting error suggested the superiority of the regression-based model over the SARIMA model. Therefore, the estimated parameters of the regression-based model can be used to predict the monthly prices of day-old chick in Iran.

JEL Classification: C22, C53, Q14

Keywords: ***Price forecasting, Seasonal price, Seasonal unit root test, SARIMA, Day-old chick***

[*] Rrspectively Assistant Professor of Agricultural Economics, Faculty of Agriculture, Tabriz University, Iran

Sustainable management of Zarrinabad forest using fuzzy planning and modeling to generate alternative approach

M. Sabuhi and S. Darvishi*

Received: 26 May 2011 Accepted: 17 January 2012

In this paper, Zarrinabad forest management is examined with attention to economic effects of wood harvested according to the environmental goals with different levels of ecological. Environmental objectives include significant increase in deadwood, increasing the area of broad-leaved forest and old forest area. This analysis is performed using fuzzy linear programming that predicts net present value of wood production with respect to the defined constraints and crates various management programs for successive years through MGA method. This program act such that different environmental goals such as increasing areas of broad leaf forests, age of forests as well as economic goals including net worth maximizing can be achieved at the end of programming horizon. Data such as old forest area, forest type, forest age and other information related to the third ten-year project study of this area forestry was provided from the Department of natural resources of the Sari city, and fixed and variable costs of timber harvesting and reforestation was collected from Neka-Choob Company. Results showed that net present value decreases after implementing environmental objectives.

JEL Classification: Q, C02

Keywords: ***forest, creating alternative models of program planning phase***

* Respectively Associate Professor and Msc. Student of Aagricultural Economics, Zabol University