Estimating Crop-Specific Production Function in Iran Agriculture: A Generalized Maximum Entropy Approach

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Abstract

One of the important problems in economic is estimating a production function.but one of the problems associated with the estimation of production function is that crop-specific input levels are generally not available. The purpose of this study is to estimate the input allocation in crops during 1375-84 in Iran. Using the general maximum Entropy approach.When there aren't any information about parameters and can't be estimated by standard techniques this method can solve this problem. In this study this method has been used to estimate of each crop production function at Province level, while the shre of land is available for each crop at Province, but the share of other inputs are only available at province level. The results present the input elasticities have changed over time and in the grain crops machinery input elasticity in 1379 and 1380 is fix. The average share of inputs per crops level in during 1375-1384 shows that the share of labor input in grain crops level and machinery input in cereals level are maximum.

JEL Classification: C51

Keywords: Entropy, General Maximum Entropy, Production Function, Elasticity

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Investigating the Substitution and Expansion Effects of the Cropping Pattern Change on the Crop Production in Iran

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Abstract

Cropping pattern as one of the key factors in development of the agriculture sector has a prominent role, especially for those developing countries which faced with the increasing population, high demand and a relative improvement in living standards. Therefore, this study investigated the substitution and expansion effects of the cropping pattern change on the crop Production in Iranian agriculture during the period 1982-83 to 2008-09. Results indicated that despite the 50 percent dominance of wheat on the total cropped area, there was a tendency toward cultivation of crops such as corn, oilseeds and some high consumption crops like legumes and vegetables. These changes were affected by both substitution and expansion effects, so that the 58.7 percent of the change in the cropped area was due to the expansion effect and the rest of the 43.1 percent was due to the substitution effect. Calculating the Herfindal index as a measurement of the diversification level and its relation with the production and yields of the crops, it was indicated no relationship between the current diversification level and the available increase in production and yields of the crops which is not unacceptable due to the high area under wheat cultivation. Therefore, it was recommended to extend diversification through increasing yields of wheat and other crops.

JEL Classification: C22, Q19

Keywords: cropping pattern, substitution and expansion effects, Herfindal index, crops.

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The Analysis the Impact of Agricultural Technologies on Carbon Dioxide Emissions in Selected Countries

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Abstract

Increasing environmental degradation in recent years, have been proposed the investigating relationship between the level of economic activities and Environmental indicators. The objective of this study is to investigate the impact of agricultural technologies on carbon emissions in Asian countries by using of panel data method for annual data from 2000-2010.The results show that among all the agricultural technologies indicators, Agricultural Mechanization variable has largest effect and Agricultural irrigated land has least impact on carbon emissions. For Every one percent crease The use of mechanization, carbon emissions rises to 0/19 %.Also for Every one percent crease in land under irrigation carbon emissions rises to 0/01 %. Therefore, In line with the results of this study suggest it should be used machines with High productivity. When the development of agricultural technologies In addition to the goal of increasing production in the agriculture sector, will also be considered the impact the development of agricultural technologies on carbon dioxide emissions.

JEL Classification: E0, E01
Keywords: carbon dioxide, agricultural technologies, Panel data.

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Investigating on the Energy Efficiency of Wheat Crop Using DEA (A Case of Mahyar Plain in Shahreza, Iran)

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Abstract

In this study the efficiency of wheat crop in Mahyar plain was investigated using data envelope analysis (DEA) method. The necessary data were collected from 100 wheat farms. The results indicated that, consumed water with 79.5% and labor force with 0.24% have the most and the least share of energy consumption respectively. Energy productivity, net added energy and output to input energy ratio in this crop were estimated 0.048, 79.34 and 1.63 respectively. The results of data envelope analysis showed that in constant return to scale model 23% and in variable return to scale model 36% of producers have efficiency of 100% and the other producers have different degrees of inefficiency. Mean of technical efficiency, net technical efficiency and scale efficiency were estimated 90.26%, 95.14% and 94.43% respectively. Also the average of technical efficiency of inefficient units was calculated about 87% based on constant return to scale model. Therefore 13% of inputs can be saved by increasing the efficiency of these units.

JEL classification: Q10, C61.
Keywords: Data Envelope Analysis, energy efficiency, efficient units, technical efficiency and Mahyar plain of Shahreza.

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Application of Unit Root Tests in Seasonal Time Series Prediction"The Case of the Retail Price of Meat Commodity Groups in Iran"

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Abstract

In this paper, meanwhile introducing seasonal unit root test HEGY, we used this test for determining seasonal and non-seasonal unit roots of retail price time series for four of meat products: chicken, salmon, shrimp and beef. For this purpose, the monthly data on retail prices of these products are used across the country for the years 1380-86. The results showed that all price series except chicken meat retail price besides the unit root at zero frequency, have unit root in one or several unit root in seasonal frequencies besides being the result of nonstationary random seasonal process in all series confirm that the prosper difference filter for their stationary are different from seasonal difference filters that was proposed in box and jenkinz approach. Based on HEGY test, traditional methods in experimental studies because use of all the roots of the seasonal (default seasonal roots at all frequencies), causing loss of series inner information and making stipulation bias. This study seeks the time series of monthly behavior in each seasonal frequency separately by HEGY test rather than the default placement of unit roots at all frequencies of occurrence will avoid illusory results.

JEL Classification: E23, H21, N5

Keywords: components, seasonal, nonstationary random process, seasonal, seasonal unit root tests, the meat products.

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Assessment of Effective Factors on Supply and Demand of Iran's Pistachios Export

(Vector Auto Regression Approach)

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Abstract

One of Iran's major lucrative export products, offered by a limited number of countries in the world, yet having a large range of customers is pistachios. The study taking advantage of the statistics from 1980 to 2010 and with Vector Auto Regression approach (VAR), Impulse Response Analysis and forcast error variance decomposition, factors affecting Iran's export supply and demand were analyzed. The results of co-integration model reveals the fact that each of the variables of average income of importing countries, the real exchange rate and domestic production of pistachios has a significant as well as positive relation in long-term while production in other countries in addition to the domestic price of the product has a significant and negative relation with supply and demand of the exporting product in long-term. The analysis of forecast error variance decomposition, additionally, manifests the most effect on the fluctuations of supply of pistachios export in Iran is due to the variable itself, while the most effective factor on fluctuations of the global demand of the export, is the variable of Iran's exporting supply factor, after which the same is true for the exporting price in long-term.

JEL Classification: C32, Q17, C13

Keywords: Vector Auto Regression, Pistachios, demand, export, supply.

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Exchange Pass-Through in to Food Inflation in Iran

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Abstract

One of the central issues in national macroeconomics is exchange pass-through, which investigates the relation between exchange rate fluctuations and price adjustments. For this purpose we used the Structural Vector Autoregressive model (SVAR) and quarterly data from 1992:1 to 2011:4. The results expressed that the exchange pass-through in to food inflation is incomplete, and for food prices, ERPT elasticity is around 3 percent in the short run and 6 percent in the long-run. The results of variance decomposition showed that a small portion of food price changes are explained by exchange rate and money supply shocks, and between 93 to 98 percent of the price level changes are explained by its own shocks. In addition, since, Low exchange rate pass-through provides greater freedom for pursuing independent monetary policy especially through inflation targeting regime, using the suitable exchange rate policies could be effective in decreasing inflation particularly food inflation which could causes food crisis.

JEL classification: Q11, E31, G38

Keywords: Exchange pass-through, Food price index, Inflation Structural vector autoregressive model

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