The impact of targeted subsidies on agricultural production in Iran

Sahel Dargahy
Department of performance Management,science and research branch,Islamic Azad University Kermanshah, iran
Email:s.dargahy64@gmail.com

Mohammad Reza Monjazeb
Faculty Member of University of Economic Sciences
Email:dr_monjazeb@yahoo.com

Abstract

The main objective of this study is to evaluate the impact of targeted subsidies on agricultural production and alsoperuse the relationship of economic factors such as the exchange rate, inflation, liquidity, added value withagricultural productions is one of the other research purposes.Data is seasonally including the period of 1384 to 1392 RIC, which its statistics are collected of the websites of Statistical Center and the Central Bank of Iran.This research was performed by using econometric and time series data and time series regression methods. After the descriptive statistics of the data, in order to test the reliability and durability of data the unit root test of Levin Lin Chow was used.After enduring all data other analysis was performed. The study models have been tested of the autocorrelation, variance dissonance and normality of disturbing statements and then estimating the final and flawless models of research were performed using conventional ols method (ordinary least squares).Results of statistical analysis by using eviews software indicated that the targeted subsidies have negative effect on agriculture production. According to the theory the exchange rate, inflation, liquidity, added values have significant negative impact on the production of the agricultural sector.

Key words: targeted subsidies, agricultural subdivision, econometrics, unit root test, regression analysis.

1. Introduction

Today one of the main factors of economic development in developing countries is the gross domestic productions. In a country, quality of institutions and human capital are the key factors affecting the efficiency growth of all production factors which along with foreign investment and openness the economy to foreign trade have the greatest impact on efficiency growth of production factors.The meaning of institutions in the economic literature includes contracts, legal facilities, economic and governmental bodies and the rules and regulations that govern economic activity and totally regulate the business environment and conditions governing the production, distribution and consumption of goods and services in the country, thereby the consistency and effectiveness of economic policy is influenced by the quality of these institutions.Also the financial markets, including money and capital market, labor market, goods and services market are some of the most important economic institutions. Their quality and efficiency have a significant impact on the of resource allocation, improving the overall efficiency of production factors and economic growth.From this point of view production in the economic subdivision is very important and useful activity of these sectors lead to other sectors and country improvement. Given that in recent years the subsidies was raised and implemented in our country,we decided in addition to review the products of agricultural subdivision, study the impact of the targeted subsidies (cash subsidies) on production of this sub-section. I hope that the research results would be useful to our country's economic planners.

1.1 Necessity and importance of the research

Targeted subsidies are one of the most important and visible parts in the economic development plan. Targeted subsidies could be a big step which will lead to better allocation and productivity increase of resources in the country economy in a long term. Given the importance of production and added value in the country's economic growth and development,production Economics is important and notable.

Production in each country's economy is essential and vital. A basic product is under production or should go under production in the country.If the exists authorities should help to maintain, modernize and develop it,and if the product is not produced, conditions and facilities shall be arranged and regulated in the way that products or crops can easily start with banking facilities.

2. Research background

The article Ramin Amini (1390), one of the government's policies to support the manufacturers is subsidy grant. The agricultural sector is no exception.Studies show thatagricultural production subsidies havea small share of total subsidies and it is better that government with intelligence, tact, consideration of priorities and by increasing the share of subsidies allocated to production agricultural increase their support for it.

A Ravanshadnya M. (1390) reviewed the law of targeted subsidies and by the evidence discussed the opportunities and challenges arising from the implementation of this law to the impact of construction projects. Finally, he provided strategies for better implementing the project and to minimize its negative impact on the implementation of construction projects.

Dr. Mossalanejad Abbas; Yazdani Zazrany, M. (1391) in an effort to find answers, based on the pattern of public policy, perform a posteriori evaluation of targeted subsidies on result criteria and the realization of a desired policy objectives is examined based on reliable indicators. The obtained results show that law enforcement of targeted subsidies by the 10^{th} government of Iran does not succeed in meeting the criteria of results (goals).

Mahmoud Khaty, Yunes Gharbali Moghadam, different theories have been proposed about the impact of exchange rate changes on production in Iran. In this paper, the relationship between the exchange rate and GDP in the period 1338 to 1379 were reviewed by ARDL pattern "Edwards" the original investigation. Explanatory variables with the help of public and private sector investment, liquidity and exchange a variety of changes in GDP and the rate of their effects have been studied.

A study conducted by S. Amirteimury, Dr. Sadegh Khalilian shows the productivity has an important and effective role in increasing the growth and competitiveness. In this study, total factor productivity growth and the evaluation process, the factors of production in the agricultural sector during the period 1355-82. Using this method requires the estimation of the production function of the agricultural sector, it was estimated the production function and the growth of total factor productivity of agricultural sector production was estimated ARDL method.

N. Honar Amooz, present the model of agricultural sector growth, with an emphasis on technology of human capital for the period 1350 to 1382 with the production of works of

Douglas and its pattern of distribution of interruption ARDL. The aim of this paper is to identify variables affecting and estimate the quantitative impact on the growth of value added in agriculture in Iran. The most important factors are human capital and technology. The importance of human resources lay down in its great impact on the quality of economic growth. The new growth patterns of human capital accumulation of knowledge, R & D and technology development as the main factors are introduced. The results imply that the development of human capital and technological development coefficients are statistically significant and have positive effect on the growth of the agricultural sector.

Study the impact of targeted subsidies on gas consumption in Khorasan is estimated by ordinary least squares method (ols). In this study 1385 time series data is used. The results indicated that the price elasticity of demand after the project is about 20 times higher but the income potency is 9 times lower, which indicates the success of this project to reduce gas consumption.

In Pashel project, the subsidies to agriculture and natural resources in Australia (2014) are discussed. This project studies two similar subsidies model in production and tax rates in Australia.Production results clearly show that the production tax increase will have a detrimental effect on the Australian economy; the simulation once is with15% subsidy and once with 5% subsidy.

Article John Claudio Thomson (2006) is about the study of economic growth and productivity factors in Niger which deals with the total productivity and efficiency factors. This paper empirically studies determinationof the general factors of production (TFP) in Nigeria between 1963 and 2003 were. The project is estimated by econometrics. This article examines four of Niger's economic growth and GDP, and inflation deals. Security's price volatility is high inflation, uncertainty and instability creates excessive money growth. Niger's highest economic growth with capital accumulation has taken place.

Ayslam (2000) in a study of agriculture in West Australia's studied productivity growth between 1978 and 1998 using nonparametric method.He also calculated for West Australian productivity compared with other parts of it, and concluded that the average productivity growth of 4/2 percent higher growth rate compared to other parts of Australia.

Sharif Husseini, the government subsidized agricultural sector development in Bangladesh paper aims to investigate the causal relationship between the government and agricultural

subsidies in the form of time-series model. Results of the analysis indicate that government subsidies for agricultural development but does not cause the development of state subsidies to agricultural development. So dominant is unidirectional causality.

3. Research Methodology

This research using econometric and time series data in the period of 1384 to 1392 as a seasonal contains, after the descriptive statistics of the data, reliability and durability data test was carried out by the unit root test Levin Lin Chow.Then autocorrelation test was performed to model, it had problem and in order to solve it model was regress ionize. The difference test was performed on the model variance and normality of disturbing statements and then the final estimate of model was performed by using ordinary ols (ordinary least squares). Statistical analysis was performed using the eviews software.

Research linear regression model:

$T1=\beta 0+ \beta 1v+ \beta 2\ ex+\beta 3\ inf+ \beta 4\ m+ \beta 5\ y$

T1: GDP growth (excluding oil), β_0: Regression lines slope, v: added value(VAT), ex: Currency rate, inf: inflation, m: liquidity, y:virtual variable (subsidies).

4. Data analysis

4.1 Data reliability and durability

At first we study the concept of reliability and durability of a time series when we unit root test is followed by discussion. Variable time series is established if itsaverage, variance and covariance remain constant over time. To test the model using static variables Levin x and Lin Chow Levin are used. Unit root tests were performed on each variable, in this case if prob <0.05, the test is meaningful and shows the data are reliable.

Table 1: shows the results of the durability test for and unit root for agricultural sector variables

Assumption	Test	Unit root test	GDP growth	Currency	Inflation	Liquidity	Added Value
The unit root	Levin lin & chu		Prob	prob	prob	Prob	Prob
		level	0.7167	1	0.1727	0.9447	1
		1st difference	1	0	0.3857	1	0
		2st difference	0		0.0269	0	

Source: Researcher calculations

As you can see in Table 1, the agricultural sector data, the currency variable and the Added Value variable of the first-order differences are persistent. And liquidity, Inflation and GDP growth variables in the second-order differences are persistent.

4.2 Model estimation:

After testing the autocorrelation, the model was autocorrelation and the problem was resolved by regression, and then the absence of variance anisotropy and normality of disturbing sentences were proved and model estimation was performed ols method (ordinary least squares).

Table 2: shows the results of agriculture model estimation

Variable	Coefficient	Std .error	T-statistic	Prob
C	11.20463	1.970772	5.685404	0
Ex Agriculture	0.030646	0.044699	-0.68561	0.4984
Inf Agriculture	-0.152593	0.069383	-2.199275	0.036
M Agriculture	-0.090112	0.047447	-1.899202	0.0675
Va Agriculture	-0.092801	0.069325	-1.338648	0.1911
Y Agriculture	-3.422024	0.805465	-4.248508	0.0002
R-squared	0.765691	Mean dependent var		3.74
Adjusted R-squared	0.725293	S .Dependent var		3.284473
S.E. of regression	1.721475	Sum squared resid		85.94078
Durbin-watson stat	1.131149	Long-run variance		4.539647
F-statistic	23.73421			
Prob(F-statistic)	0			

Source: *Research calculations*

4.3 Introduction of model variables:

Subsidies variable:Y Agriculture , Exchange variable: Ex Agriculture,Inflation variable:Inf Agriculture ,Liquidity variable:M Agriculture, Added value variable:Va Agriculture

As table above shows the adjusted coefficient of determination in model is equal to 72% and it means about 72% of production economic changes are explained by the independent variables. Test f reviews meaning of the estimated model. Statistics above the f = 23.73421 means that h0 assumption based on all coefficients equal to zero is rejected and opposite assumption will be accepted.Hence, the f-statistic and probability equal to 0.000 and less than 0.05 indicate the model is significant, therefore, research hypotheses will be addressed with ensure of the model effectiveness.

4.4 Research hypotheses results:

About the main hypothesis of this study based on a meaningful relationship between the subsidies variable and agricultural sector, according to the results presented in Table 4-2, the significance of this relationship is examined based on the t-statistic.As you can see the calculated t-statistic for subsidy variable (YAGRICULTURE) is 4.248508, which represents a meaningful and negative relationship between subsidies and production agriculture. So the main research hypothesis is not rejected.

In fact, the negative impacts of subsidies are: due to the elimination of subsidies, energy prices increased, which accompanied the increases in production costsof the agricultural sector,this increased production costs and reduced income leaded to farmers losses and ruin the motivation among them.

So the elimination of subsidies (cash subsidies) had reduced production in the agricultural sector.

4.5 About the other research hypotheses:

The first sub-hypothesis:

According to the t-statistic 685404, currency rate (EXAGRICULTURE)has negative impact on agricultural production.So exchange significant and negative relationship with agricultural products will be accepted and this hypothesis is not rejected.

The second hypothesis:

According to the f-statistic 2.199275, inflation (INFAGRICULTURE)has a negative impact on agricultural production.Soinflation significant and negative relationship with agricultural products will be accepted. This hypothesis is not rejected.

The third hypothesis:

According to the f-statistic 1.899202, liquidity (VAAGRICULTURE) has a negative impact on agricultural production. So liquidity significant and negative relationship with agricultural products will be accepted. This hypothesis is not rejected.

The fourth hypothesis:

According to the f-statistic 1.338648, added value (MAGRICULTURE) has a negative impact on agricultural production. So added value significant and negative relationship with agricultural products will be accepted. This hypothesis is not rejected.

The results of the statistical analysis are consistent with research theory. Elimination of subsidies and reshape them into cash actually lead to negative effects on products of agricultural sector and also produce factors such as exchange rates, inflation, liquidity and value added in Iran.

5. Conclusions and Recommendations:

According to the results presented in tables, targeted subsidies (cash subsidies) clearly had negative impact on the growth of gross domestic product (excluding oil) and agricultural products of Iran.Accordingly the main research hypothesis is not rejected. Subsidies, particularly its administration guidelines play a significant role in the production of country. Although many factors influence the production of the country, but present study discussed the targeted subsidies because it is an important and up to date problem. So based on the results it can be stated that these variables have a significant impact on agricultural production. Economic planners need to consider these variables to increase the productivity of the agricultural sector.

Therefore, economic policy makers and planners in the field of production suggest that:

Government veer and flexible its supports policy from consumer subsidies to production subsidies in the agricultural sector.

Better resources management.

Appling newer methods in production factors composition, due to resource constraints.

Allocation of resources to develop new technologies in agricultural mechanization.

More focus on providing facilities for the creation and development of competition through the activation the private sector in production and supply affair.

References:

Australia: Modeling Subsidies to Agriculture, Natural Resources, and Manufacturing- Owen Paschal .March, (2014).

Central Bank of the Islamic Republic of Iran, the economic time series data.

Demver, Gujarati, Principles of Econometrics, translated by Hamid Abrishami, Volume 1 and 2, the seventh edition, Tehran University republication, (1390)

Does government subsidy on agricultural sector cause development agricultural Bangladesh MD. Sharif hosseini (PH.D). (2008)

Dr. Abbas Mossala Nejad, Mohammad Reza Yazdani Zazrany., A posteriori evaluation of the implementation of the first phase of targetted subsidies Law from the perspective of result, from beginning by the end of 1391, Journal of Iran studies, sixth year, No.1, Winter (1392)

Economic growth and total factor productivity in Niger prepared by jean-Claude Nachega and Thomson Fontaine (2006).

Islam, N (2000), an analysis of productivity growth in western Australian Agriculture, www.agencon. Lib. Edu/ ch. Pdf.

Journal of Economic Modeling Research, No. 11, Spring (1392)

Mahmoud Khatay, Younes Gharbali Moghadam, study of the dynamic relationship between exchange rate and GDP in the economy; Journal of Planning and Budget, No. 83; (1381)

Mehdi Ravanshadnia., Analytical articles on the opportunities and challenges of the targeted subsidies project on the Fifth Development Plan (1390).

Mohammad Noferesti, Unit roots and co-integration in Econometrics, Rasa Cultural Services Institute, (1378)

Narges Honaramuz, Growth model of agriculture sector with an emphasis on human capital. Journal of Economics and Trade, No. 3 (119 to 137) Winter 1384.

Nazarul Islam, department of agriculture and food western Australia analysis of productivity growth Australian agriculture,(September ,2004)

Ramin Amini, Targetted subsidies and agriculture; Journal of economic, social, public information, Fifth Year, No. 19, pp. 56, Fall (1388)

Sina Kajbaf, History of subsidies in world, the Directorate General Political Department of Education of the Islamic Republic of Iran Broadcasting, (1387)

Somayeh Amir Teimuri, Dr. Sadegh Khalilian, productivity growth in total factor of the agricultural sector and the prospects of its development plan, Agricultural and Development Economics, Vol. XV, No. 59, pp. 37.

Statistical Center of Iran, monthly index report (1384-1392).

Statistical Center of Iran, national statistical reports, various years(1384 to 1392)

Taghi Ebrahim Salari, Seyed Mohsen Agha Hosseini, Mahdieh Arabshahi. Effect of subsidies on gas consumption in the household sector (Mashhad city), the first international conference on new approaches to energy storage, (2011)