Full Length Research Article

THE IMPACT OF GOVERNMENT EXPENSES ON THE GROWTH OF AGRICULTURAL SECTOR OF IRAN

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ABSTRACT

Agriculture sector is a very important sector in Iran's economy. The government pays a huge subsidy for consumption. The research attempts to study the impact of Government Development Costs (GDC) and Current Government Expenses (CGE) on the growth of agricultural sector in the process of trade liberalisation. We used in this paper, Solow's model is determined for the economy of Iran with the assistance of subject literature and the anticipation is accomplished for the future with the contribution of econometric methods VECM,VAR. But we explore that: Government development costs possess positive impact on the added value of agriculture section, but Current Government Expenses is indicative of negative role on agricultural production.

INTRODUCTION

Explanation of the affair

Iran has started limited trade liberalization from 1990s. During the 20 last years, Iran's international relationships have faced a lot ebb and flow so that its efforts to reform its economic structures have not been welcomed internationally. This inability to succeed in agricultural sector, which enjoys a more traditional nature and on which there are more sensitive concerns, has been intensified. It is accepted that the agricultural sector enjoys a huge portion of subsidies in Iran and the government has a major role in that sector's affairs, while actually this role is so few compared with other sectors. Simultaneously a great portion of the paid subsidies here goes to urban consumers not to rural producers. Liberalization is an undeniable trend these days which countries cannot evade that. It will effect on all aspects of economics in the world. In recent decades, trade liberalization policy implemented within "development programs" in Iran. Results shows Iran's economy is experienced broad-based growth with the annual change in real GDP. In spite of government expansionary policies, it has not been affect on raisings of living standards.

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The main instruments of liberalization is the elimination of trade barriers such as quota and other non-tariff barriers (NTBs) and to tariff the omitted trade barriers together with gradual reduction of the tariff and deduction of export subsidies. The vulnerability of agricultural products in the arena of globalization, competitive pressure of price reduction, the rate of food products andraw material exchange, compared with the industrial products indicates the status and susceptibility of the support in this sector and makes it more visible and obvious. In the countries like Iran, holding medium incomes, the contribution of the agricultural sector in Gross Domestic production has been reduced to some extent. Although agriculture is mostly counted as undeveloped, but the reality is that it provides several opportunities to improve technology. Agriculture while preserving related importance in the economic growth, plays a significant role in countries holding medium incomes in respect with social justice and distribution of the income.

The necessity of accomplishing the research

Nowadays different countries of the world, are following after increasing the abilities of national economics and struggle to increase their own bulk of foreign trades, to exploit the advantages. Trade liberalization is one of the effective factors which is forcible in the foreign trade discussion and related

augmentation. On one hand, the specific significance of Agricultural sector in Iran, producing different varieties of the crops and their exports; and on other hand, the better as possible interactions with the world economics and the globalization of economics reveals the necessity of pertinent transaction accomplishment.

Importance of the Topic

An agricultural section has a special and important positions in the economy of many countries including Iran. Particularly, in Iran, this section is one of the powerful sections of country in GDP, which about 20 % of GDP, about 3.5 percent of economy s total exports and 20 and 22.7 percent occupation and Iran's non-oil export respectively has been allocated to it. In addition, an agricultural section is supplier of a noteworthy section of employment in the country. On the other hand, this section in Iran, placed over a period of transition from traditional method to modern methods, which led to communication this section with other economic section of country. Thus, considering to the raised issues, this section by economic policymakers should be considered. But, today, one of the issues, which is considered by an economists and policymakers, is Trade Liberalization."In general, the trade liberalization process, is obtaining the interests, resulting from the development of international exchanges, (Tayebi andMesrinejad, 2007). Indeed, Trade liberalization through the establishment of foreign competition can lead to development of exports and improving productivity. Also through Trade liberalization, technology can be improved and achieved to the economy of scale (Mesrinejad and Ebrahimi, 2006). In addition, it should be noted that, WTO (world Trade Organization) which the large part of trade allocated to it, and many countries have been joined to this organization, or in adhering to it. Indeed, the globalization of trade is like a train that, in each time the speed will increase. Iran considering external and internal conditions is in joining to WTO. Now considering the mentioned contents, the importance of the study of trade liberalization impacts in agricultural section productions can be realized. Because, on the one hand, liberalization of a process is inevitable and the other side, an agricultural section is very important section in Iranian economy. what should be added to above contents, is that, the mentioned relationship should be examined, in a close framework to the growth model of developing countries. Thus, in this study, the Solow's Model is used for modeling.

Fundamental aim and method of the research

The aim of this paper, is to study the impact of Government Development Costs (GDC) and Current Government Expenses (CGE) on the growth of agricultural sector in Iran which considers about financial phenomena and liberalization due attention. Thus, in this research, Solow's model is determined for the economy of Iran with the assistance of subject literature and the anticipation is accomplished for the future with the contribution of econometric methods VECM ,VAR.

Place of agriculture in Iran's Economy

Iran's economy has been shaped by oil export. But agriculture sector dependency is very little that the other sectors. This situation cased that agriculture sector, as the smallest sector has an effective role in Iran's economy. Iran is a major world provider source of caviar and pistachio nuts, a significant non-oil export for Iran. Iran's climate and terrain also support tobacco, tea, wheat and barley, among other food commodities (Shahbazkhani *et al.*, 2011). Iran's agriculture production is vulnerable to periodic droughts, including a severe drought in 2008. Overfishing and environmental degradation also threaten the agriculture sector. Although the share of agriculture has decreased in recent decade, but this sector shared 13 percent of Iran's GDPabout 3.5 percent of economy s total exports and 20 and 22.7 percent occupation and Iran's non-oil export respectively. (www.data.worldbank.org /indicator) Investment in Iran's economy especially in agriculture sector is low. One of the main reasons of this situation is intervention of government. Low investment in agriculture sector case educated labor forces cannot be engaged by this sector. Iran has used oil export revenues to pay for agricultural imports. However, rising international food commodity prices combined with a large population increase have placed pressure on Iran's economy, despite high international oil prices. (Shahbazkhani *et al.*, 2011).

Economic Policy and Reform Efforts

Over the past few decades, Iran has engaged in a series of five-year economic plans in order to shift its state-dominated economy into an economy that is market-oriented, private sector-led, and economically diversified. Significant strides toward trade liberalization, economic diversification, and privatization since 1997. The government introduced some structural reforms such as tax policy changes and adoption of new foreign investment laws to promote Iran's global market integration and attract investment. Iran shifted to a unified managed float exchange rate system in March 2002 (7). At various times previously, Iran has had different combinations of exchange rates, including official, export, parallel market, and Tehran stock market versions. The exchange rate reform is considered to have improved Iran's trading environment and to have enhanced public sector transparency modestly (EIU, 2008).

Since 2005, fiscal policy has been expansionary. The government provides extensive public subsidies on gasoline, food, and housing. Energy subsidies alone represent about 12% of Iran's GDP. Some observers estimate total subsidies to reach over 25% of GDP. When including implicit subsidies, the government's spending on subsidies may be even higher. In addition to subsidies, the government has provided cash handouts to the poor. Subsidies and cash handouts are considered by many to be un-targeted and ineffective at helping the poor. In January 2010, the legislation reduces state subsidies by $20 billion. A goal of the reforms is to reduce overconsumption. Many analysts contend that the government expansionary policies are ineffective in raisings of living standards in country and they do not give Iranians an incentive to conserve. (IMF, 2007).

Monetary policy also has been expansionary. The government has provided low-interest loans for agriculture, tourism, and industry and has instituted loan forgiveness policies. Other activities include the creation of a number of social programs

to assist farmer and rural residents. On the other hand, many of the export agricultural products have lost their comparative advantage in the international markets. In order to find a solution for this problem, some export subsidies are paid to very limited number of agricultural commodities. But practice the government supports the export commodities in two more ways which can be known as export subsidies, (Shahbazkhani *et al.*, 2011).

Background Research

John Romalis (John Romalis *et al.,* 2007) in a study investigated the causal effect of openness to international trade on growth using tariff barriers in the United States as instruments for the openness of developing countries. It was stated that trade liberalization by a large trading partner causes an expansion in the trade of other countries. Trade expansion induced by greater market access appears to cause a quantitatively large acceleration in the growth rates of developing countries. Moreover, in a paper entitled "Trade Liberalization with costly adjustment" written by Alvaro Forteza (Alvaro Forteza and Rossana Patron, 2003) and *et al* in 2002 found that by the efficiency and the distributional effects of eliminating a tariff in a protected sector, in a Heckscher-Ohlin model of trade with costs of adjustment. The tariff can be eliminated at the onset or after a while. It is shown that while large adjustment costs reduce the efficiency gains from trade liberalization, small to moderate adjustment costs may raise the efficiency gains from a pre-announced liberalization. Roberto Chang *et al.* (2005) in their article explained how the effect of trade openness on economic growth depends on complementary reforms and used a simple Harris-Todaro model. They find that the growth effects of openness are positive and economically significant if certain complementary reforms are undertaken.

Susan Senior Nello (2007) has elaborated the role of agriculture in determining many of the controversies and problems of the current phase of globalization. This first entails presenting key statistics indicating the main developments in world agricultural trade, illustrating how there has been a relative deterioration of the export performance of developing countries. Besides, in another paper, published by Tengku Mohd Ariff (1999) defined that the effects of agricultural trade liberalization are analyzed from two main Perspectives. The first is from a commodity perspective, where consumers' and producers' welfare were evaluated. Subsequently, the study analyzed the effects of liberalization on the farmers involved with the commodity. Sang-Wook (Stanley) Cho and Juli´an P. D´ıaz (Sang-Wook, 2008) in their paper discussed that the potential effects of two ongoing trade liberalization experiences: Ecuador signing a Free Trade Agreement with the United States and Slovenia joining the European Union as a full member. The paper finds that different forms of trade liberalization have different implications on the patterns of trade and welfare.

In the same way, a paper written by Xiaohe Liu (2007). The results from this study could be of great value for policy makers to identify courses of action for enhancing the positive income distributional outcomes and reducing any unfavorable effects from further changes in trade policy. The paper "Trade Liberalization and Agriculture: Does it Ensure Food Security and Food Sovereignty in Developing World?" published by AtaharulHuq Chowdhury, (2008) declared that free trade policy promoted by WTO worldwide in developing world. In the same manner, Rizwana Siddiqui, (2007) illustrated that Pakistan is an agrarian country. A larger proportion of its exports are agro based. Higher agriculture trade is expected to contribute larger to growth of agriculture as well as non-agriculture sector due to strong linkages between agriculture and non-agriculture economies. The objective of the research is to examine the growth effects of liberalized trade. In an article published by M. Bruna Zolin, (2008) explained that in the trade policy debate, the complete liberalization of world trade for agricultural products is one of the most relevant issues. The elimination of trade barriers among the EU member states has achieved European self-sufficiency in food and a strong integration in the European market.

RESULTS

Aspect of Research Innovation

Limited researches has conducted on the effects of liberalization on agricultural productions. But, so far, Solow's model has not considered based on this analysis. It should be noted that, Solow's model is more capable in conformity with the actual situation of the developing countries economy. So, this research compared to other models can provide better results. In addition, in connection with the applied econometric techniques, should said that, the other studies have been attempted to station thenonstationary time series of model. (Rahmatiandesmaeili, 2007). This difference, will make that, variables not examine in level, and this makes to lose some information about long-term behavior. In some studies, a simple econometric models such as OLS have been used that require to stationary variables by taking first difference. Thus, in total, can be said: The present study in terms of modeling based on Solow's model, and also applied econometric methods VECM, VAR, has been differentiated from done researches and this can be considered as a new work.

Stipulates of Model

As mentioned, a basis for modeling in this study is Solow's model . Hence the production function:

$$Q = A K^{\alpha} L^{\beta} \qquad \qquad \text{................(1)}$$

Can be said that, the research variables are, agricultural section production, Active population, Capital Stock, the government size in both developing and current section and Degree of trade freedom. It should be noted that the basic equation of Solo's model is shown following:

$$\Delta k = sy - (\delta + n)k \qquad \qquad \text{................(2)}$$

Where $k = K / L$ capital per capita worker, n the population growth rate, δ the depreciation rate of capital stock, y production's per capita labor , and s is the amount of savings in each period.

Government Size in both Developing and Current Sections (GDC, CGE)

Government expenditures will generally placed in the fields of developing and current. Ratio of developing and current costs of government to GDP, both have been another explanatory variables which have been entered into the model. On the other hand, the current budget can show its inflationary effects, and thus, affectson the production of agriculture. Developing budget by directing towards the infrastructure of agricultural section in the development of transport, can help to the production growth of agricultural section.

Trade Liberalization (TL)

As described earlier, trade liberalization is an inevitable process and is effective on production growth of various economic sections, including the agricultural section. In fact, by entering this variable, are following to find a solution for a basic question in this research, namely, how the impacts of trade liberalization in agricultural sections products. Indeed, it should be examined, whether, liberalization is more in favor of agricultural product's import or in favor of agricultural product's export in Iran? It should be noted that, the replaced variable of Trade liberalization, is the degree of commercial freedom, which based on definition include: the ratio of total export and import to GDP.

Time series of all variables has been annual form in (1984-2008) period and has been extracted from central bank internet base. All variables, in the form of logarithm have been entered to model.For preventing from false regression unit root test has been done for variables of model. According to results of these tests, all variables of model are in a stationary first degree. Means that, by making difference, it has not unit root and are stationed. (Table 1)

As mentioned earlier, the VAR approach will be used to analyze the relationship Trade Liberalization on agricultural section production. In VAR procedure, variables are written in matrix form, and by multiplying equation 2 in C^{-1}, can reach to a general equation like equation 3.

$$\begin{pmatrix} c_{11} & c_{12} & c_{13} & c_{14} & c_{15} \\ c_{21} & c_{22} & c_{23} & c_{24} & c_{25} \\ c_{31} & c_{32} & c_{33} & c_{34} & c_{35} \\ c_{41} & c_{42} & c_{43} & c_{44} & c_{45} \\ c_{51} & c_{52} & c_{53} & c_{54} & c_{55} \end{pmatrix} \begin{pmatrix} gdp \\ oilp \\ exr \\ cpi \\ m_2 \end{pmatrix} = \begin{pmatrix} b_{10} \\ b_{20} \\ b_{30} \\ b_{40} \\ b_{50} \end{pmatrix} + \begin{pmatrix} b_{11} & b_{12} & b_{13} & b_{14} & b_{15} \\ b_{21} & b_{22} & b_{23} & b_{24} & b_{25} \\ b_{31} & b_{32} & b_{33} & b_{34} & b_{35} \\ b_{41} & b_{42} & b_{43} & b_{44} & b_{45} \\ b_{51} & b_{52} & b_{53} & b_{54} & b_{55} \end{pmatrix} \begin{pmatrix} gdp_{t-p} \\ oilp_{t-p} \\ exr_{t-p} \\ cpi_{t-p} \\ m_{2t-p} \end{pmatrix} + \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \\ \varepsilon_5 \end{pmatrix}$$ ....(3)

Or

$$C_{3*3} Z_{t\,3*1} = \Gamma_0 + \Gamma_1 Z_{t-1_{3*1}} + \varepsilon_{t\,3*1}$$
$$Z_t = D_0 + D_1 Z_{t-1} + e_t$$

Furthermore, in these models, explanatory variables exhibiting strong multicollinearity with each other, and so, T statistic relating to individual coefficients, does not count as a reliable tool for deletion or reducing variables. (ENDERS, 2004). After entering data, the test of optimal lag number was performed, according to HQ,SC,AIC,FPE,LR indexes. According to statistics LR and HQ and SC one lag and based on statistics AIC and FPE two lag confirmed.

It should be noted that, in this research to determine the optimal interruption length, AIC and FPE has been used. According to these two Tests, model should be possessed two interrupt. Considering the number of optimal interruption, VAR model is estimated as follows:

$\log AGRI = -1.054 + 0.062 \log AGRI(-1) - 0.077 \log AGRI(-2) + 0.0097 \log GDC(-1)$
$+ 0.04 \log GDC(-2) + 3.693 \log AR(-1) - 2.412 \log AR(-2) - 0.166 \log CGE(-1) - 0.243 \log CGE(-2)$
$+ 0.005 \log TL(-1) + 0.004 \log TL(-2) - 0.727 \log K(-1) + 0.656 \log K(-2)$

Table 1. Grade accumulation of model variables

variable	Accumulation degree	ADF Statistic	Prob.*	Critical value		
				1%	5%	10%
Active Population Logarithm	I(1)	-3.137343	0.0337	-3.65373	-2.95711	-2.617434
Ratio logarithm of Current expenses to GDP	I(1)	-5.764545	0.0000	-3.65373	-2.95711	-2.617434
Ratio logarithm of development expenses to GDP	I(1)	-6.589109	0.0000	-2.636901	-1.951332	-1.610747
logarithm of liberalization degree	I(1)	-5.939562	0.0000	-2.636901	-1.951332	-1.610747
logarithm of capital stock	I(1)	-2.947978	0.0045	-2.636901	-1.951332	-1.610747
logarithm of agricultural products	I(1)	-6.26184	0.0000	-3.65373	-2.95711	-2.617434

Response of LOGAGRI to Cholesky
One S.D. LOGGDC Innovation
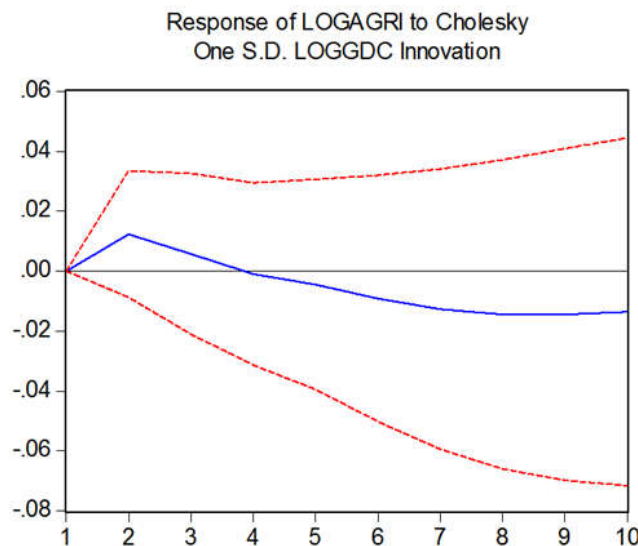
The effect of Shock on the variable of added value of agricultural sector on each of variables AGRI, GDC, CGE Using Impulse response function

By using VAR estimation, can be gained the Impulse response function, in the form of following diagrams and tackles to description each of them. Note that can be seen in the Impulse response function graphs, shows Variance Decomposition numerically, based on Cholesky (d.f. adjusted) One S.D. Innovations.

The Effect of an incoming shock logAGRI variable on LogGDC

If a shock, enter in the logAGRI variable, according to following shape and Table A10 appendix, its effect were positive and remains until three periods. So that, its effect in the first period is about 0% and in the second period is about 0.012% and in the third period, will be about 0.010%. And for the fourth period later in the effect became negative and this effect remains negative one percent.

The Effect of an incoming shock logAGRI variable on LogCGE

If a shock, enter in the logAGRI variable, according to following shape and Table A10 appendix, its effect were negative .So that, its effect in the first period is about 0% and in the second period is about -(0.012%) and in the third period, will be about –(0.014%) and until the end of the tenth period has negative value and approximately fixed equal to 1%.

order to approaching target variable to its desirable amount. In other words, these models can determine the method of adjusting control variable with regard to error deviation or imbalance in situation's variable. The last interpretation of ECM, by Granger and colleagues is presented based on accumulation's analysis. ECM, shows the adjusting system variables, in the short term (relating to imbalance) for achieving long-term equilibrium relationship. Indeed, if no mechanism are there, that variables with regard to imbalance (deviation from long-term balance relationship) be adjusted, such relationship in long-term doesn't establish between variables, so, integration needs ECM. Indeed, VECM model is a VAR model with restriction. These restrictions, in fact are phrase relating to the long-term relationship of Johnson. For analyzing long-term impacts of present variables in model, one Vector Error Correction Model (VECM) for this economic model has been estimated, to support, the impacts of variables in short-term and long-term are compared. Based on the obtained results of Test of Number of Co integrating Relations, the number of 2 to 3 co integrated vector are confirmed for VECM model. So we can say that at least one co integrated vector is used in the estimation of the VECM model. Consequently, the VECM model is estimated, that the estimation's results based are as follows:

$$\log AGRI = 0.321 \log GDC + 1.189 \log AP - 0.564 \log CGE - 0.029 \log TL + 0.352 \log K$$
$$\quad\quad (13.8) \quad\quad (14.14) \quad\quad (18.21) \quad\quad (6.63) \quad\quad (7.13)$$

RESULTS

In this section the results of long-term estimation and error correction relationships, that respectively, there are in Tables 2 and 3, has been analyzed.

Response of LOGAGRI to Cholesky
One S.D. LOGCGE Innovation
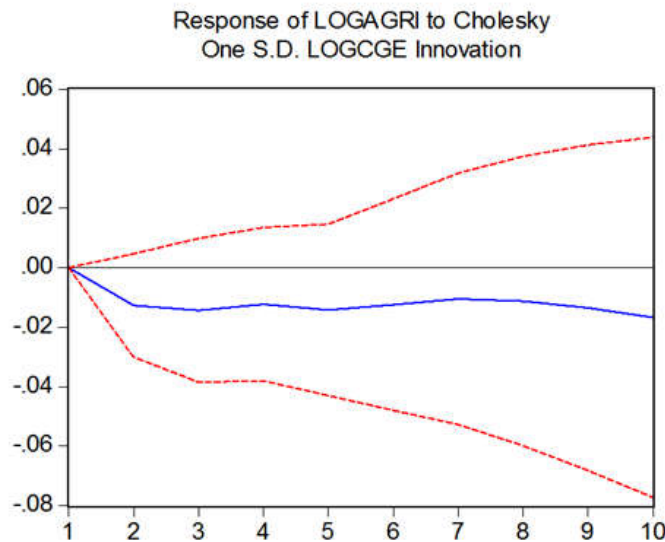
Dependent Variable	CointEq1	D(LOGGDC)	D(LOGAP)	D(LOGCGE)	D(LOGTL)	D(LOGK)
D(LOGAGRI)	-0.700	1.290	0.031	0.098	-20.890	0.167
Se	0.158	1.098	0.054	0.541	5.300	0.101
t	[-4.432]	[1.175]	[0.568]	[0.182]	[-3.941]	[1.646]

Vector Error Correction Model (VECM)

The concept of error correction mechanisms, first, has been used by Phillips in 1957. In his interpretation, the Error correction model, are methods of adjusting policy tool, in

Current government expenses

Johnson accumulative analysis results, is indicative of negative role of government expense on agricultural production. The current government budget is more related to

urban areas because much of it actually being spent on salaries and expenses of personnel and equipment. On the other hand, increased current government budget, in Iran, is inflationary, thus, practically, increased current expenses will cause negative impact on agriculture.

Government development Costs

Government development costs, possess positive impact on the added value of agriculture section. It Seems that, government expenditures in the field of enjoying agricultural section and also investment on the mechanization of agricultural living and also the development of communication ways, infrastructure, and also to facilitate irrigation and ... will lead to increased agricultural production in the long run. It should be noted that, all values coefficient at 99%level has been meaningful. At the end of this section, should be added that the results of error correction model shows that, in each time series, 0.7 from imbalances toward to long-term are corrected. Considering the results can be said: the adjustment speed in agricultural section from short- term toward long-term balance is relatively excessive.

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