

Gasoline Subsidy and Government Expenditures in Iran: An Empirical Analysis (1971-2004)

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ABSTRACT

The purpose of the present paper is to deal with the economic effects of gasoline subsidy on government expenditures in Iran's. To do so, we have used time series data for the period 1971-2004 and concentrated on the ordinary least square (OLS) method to estimate the relevant regression models. The results show that there has been a positive and significance relation between gasoline subsidy and government expenditures during the period under consideration. In order to alleviate the burden of gasoline subsidy on government budget, it is suggested that government emphasize on policies to reduce the gasoline subsidy which is mainly benefited the upper income bracket of the countries and move towards the guided subsidies. Also the economic liberalization and promotion of private sector introduced in Iran 4th economic plan needs more reliable support from all policy makers of the country.

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Introduction

In different economic systems, governments perform their duties through budget. Providing appropriate situation for stable growth, controlling the economic fluctuations in offering public goods and services and improving the income distribution are among government's the most important duties. In different political and economic systems, budget is utilized for fulfilling these duties.

Subsidization and taxation are two economic devices by which governments meddle in the markets. While subsidization refers to paying money to the cost processes, taxation refers to receiving money from income processes or flows. They affect on economy through alternating the relative prices. While the relative prices of subsidized goods decrease, those of the levied tax goods increase. Therefore, subsidizations affect national economy through budget deficit and increase in social costs. It seems that in some countries, due to lower prices of subsidized goods, consumers benefit these subsidizations; however, in reality, they incur loss because subsidizations are followed by rise in public cost, decrease in economic growth, budget deficit and consequently by inflation; moreover, in order to finance the subsidization, some governments are forced to ask for loan and create money; and as a result, economic stability is jeopardized. In some countries like, financing the subsidization relies on importing the tariff; as a result, instead of being affected by market system, the commercial regime and internal production and consumption are affected by government's stabilized prices. During recent years energy subsidization has had rising trend and the total subsidy in energy sector of the country in 2002 had been about 120573/7 milliard rials and after 2004 this amount of gasoline subsidy and other energy sector have increased. The annual per head energy subsidy for each Iranian people was about 1839684 rials while this amount of subsidy had been 9/7 times as much as the total subsidy paid for substantial goods (12367/8) in the same year. Near to 30/9% of the total energy

subsidy had been allotted to domestic section. The share of transportation and industry sectors from energy subsidy had been respectively 33/3 and 17/8 and also 18% of energy subsidy had been allocated to other sectors. The literature is divided between those who believe that energy security is a real issue in response to which governments have to devise policies and those who believe that energy security is "an empty concept used to perpetuate bad, self-serving public policy."¹ Even though there may be some truth in them, the claims of the first group do little to define the concept of energy security. Instead, they add to the confusion and raise more questions.² Energy security means continual and certain supply with sensible prices in energy carriers. Who use this word want to decrease, geopolitics, economical, technical, environmental, and mental threats on energy markets.

Review of literature:

Theoretical framework:

It was the German political economist, Adolph Wagner (1835-1917), that studied for the first time the growth in government costs. He found that as a result of industrialization of economic system and interaction of the function of the market's constituent factors, urbanism developed, population in urban regions increased, some commercial contracts and rules came into existence and as a result some judicial and administrative constitutions were developed to control and supervise the above cases; therefore government's meddling in

¹ from a presentation by Vito Stagliano, deputy assistant secretary of energy for policy analysis during the first Bush administration at the energy and national security in the twenty-first century conference in 1995. The Institute for National Strategic Studies, National Defense University.

² part of the article was written for mees by Dr. Alhajji, president of the Ohio-based Energy Security Analysis, LLC.

economic issues became necessary and it increased the government cost growth

Like Wagner, Musgeriew (1969) emphasized the role of government variable in the process of economic development. Unlike Wagner, he considered the per capita income as a factor for economic development. He believed that "it is possible those factors that cause the economic industrialization and development, cause, too, the development or renovation of those expenditures.

The Peacock Wiseman theory (1961), known as the ratchet theory of government growth, is based on this assumption that temporary crisis situation causes the government expenditures to rise; and these expenditures, in comparison to those ones before the crisis remain in a higher level.

Bomoel theory, which is known as Scandinavian inflation model and Bomwol considers as a kind of disease, is based on this assumption that profit in public sector is much more less than the one in private sector while the wage increase in both public and private sectors is the same and it itself increases the price of public goods and services; and as a result the nominal share of public expenditures in total national gross production will increase.

Empirical Framework:

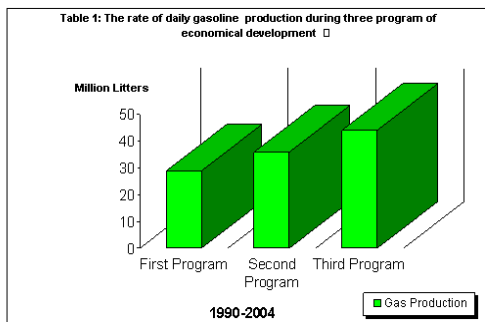
The government's economic duties including stabilization, distribution, and allocation have been mentioned in this paper budget deficit are the reasons for rise (for these reasons) the amount of government activities and have continued during country's second, third, and fourth economic development plans.

1 Daily gasoline production during first plan (1990-1994) increased significantly and, with the mean growth of 8/4%, reached from 20 million liters in the first year of the plan to 28,8 million liters per day at the end of first development plan.

2 Daily gasoline productions during second plan (1995-1999) Gasoline production reached from 28,8 million liters in the end of the first development plan to the level of 30 million liters in the last year of second plan and had the mean % growth of 4,6%.

3. Per day gasoline production during second plan (2000-2004)

With the annual mean growth of 2,8%, gasoline production reached from 36 million liters in second plan to the level of 42 million liters in the end of third plan.



Per day gasoline import during first plan (1990-1994)

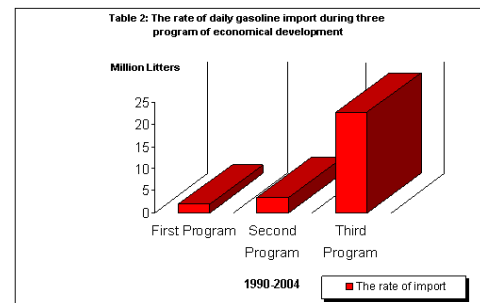
In 1982 gasoline import had been about 1/2 million liters. This amount reached into 5 million liters in the final year of imposed war. By nullification of gasoline apportionment in 1991 and supplying it freely, the gasoline consumption increased in such a way that its import reached from 0/9 million liters per day in first year of the plan to the level of 1/9 million liters per day in the final year of the plan; in other words, the import share in supplying country's need had been 3/9% and this amount increased into 7% in the end of the plan.

Daily gasoline import during second plan (1995-1999)

During second plan the gasoline import reached into 5/8 million liters. The import share in supplying country's need that was 6% in the end of first development plan reached to 8/7% in the end of second plan.

Per day gasoline import during second plan (2000-2004)

Gasoline import that in the final year of second plan had reduced into the 3/4 million liters per day, in the final year of third plan increased again into about 24 million liters per day. During the third plan import share in supplying country's need increased and reached in the last year of the plan into the level of 37%. In first year of third plan the import was 5/3 million liters per day that in the end of that year amounted to 24 million liters per day; it means that during third plan gasoline import had the growth of 349%.

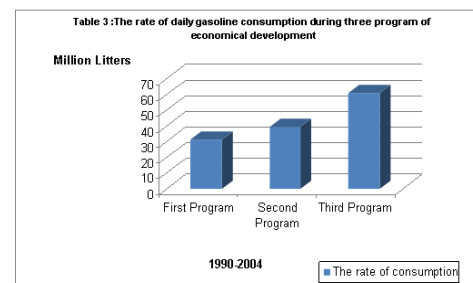


Daily gasoline consumption during second plan (1995-1999)

From the third year of second development plan the incremental process of gasoline consumption began again, even though gradually. Due to increase in the number of machines and their high consumption of gasoline, this process exacerbated in such a way that with the annual mean growth of 4/6% it amounted from 31/3 million liters in the last year of first plan into the level of 39/1 million liters per day in the last year of second economic development plan.

Daily gasoline consumption during second plan (2000-2004)

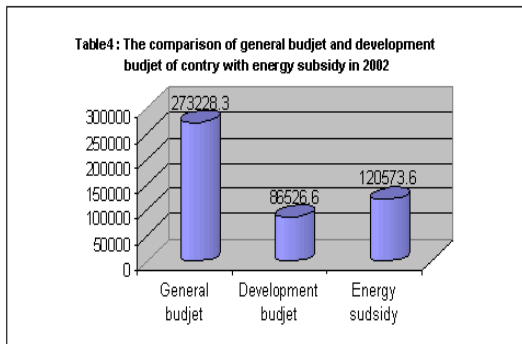
During third development plan, the annual gasoline consumption amounted to 9/2%. In comparison to the annual mean growth of second plan (4/6%) it had the growth of 100%.



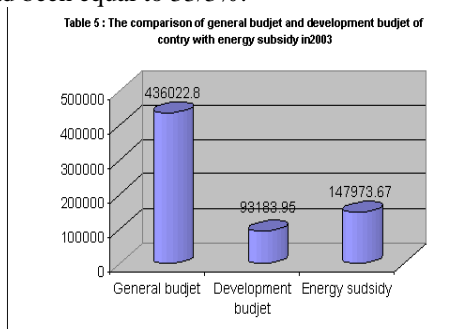
The gasoline import had a great impact on the country's exchange budget. All those mentioned factors challenged seriously the issues of increase in gasoline import and condition of budget procurement. In 2005 the gasoline consumption amounted to about 65/8 million liters. In 2005 and 2006 there was no executive operation to regulate and control it; therefore in these years were spent respectively 4/5 and 5 milliard rials for gasoline import. As a result in 2007 government has rationed the gasoline.

In Iran the mean economic growth is lower than gasoline consumption growth. The gasoline consumption has increased 4/4 times more than the national growth income has. So no more is it possible to consider the economic growth in the planning of gasoline consumption reduction; in other words, gasoline consumption growth is not an inevitable process; so it can be

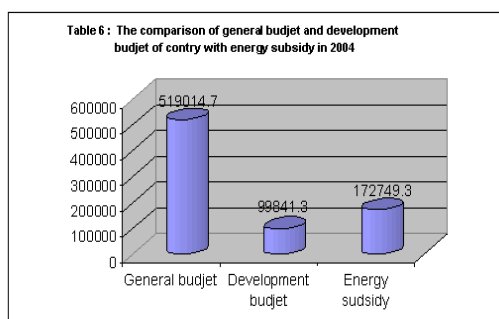
controlled. The gasoline consumption increase has not had any considerable impact on economic growth increase.



Based on diagram 4 it is concluded that in 2002 the share of energy subsidy from country's total budget was 44,1% ; the energy was 1,41 times as much as country's development budget (capitalized assets ownership); and about 29/5%, equivalent to 35535/6 milliard rials, had been allocated to the gasoline subsidy; and transportation share from country's total energy subsidy had been equal to 33/3%.



According to diagram 5, in 2003 total share of subsidies from public budget of country was equivalent to 33/94%. The gasoline subsidy in this year was 40523/6 milliard rials, i.e. 27/4% of the total subsidies. The total amount of subsidies was equal to 174973/67 milliard rials, equivalent to 1/59 % of the development budget. The transportation share was 54080/38, equivalent to 36/55%.



The diagram 6 shows that in 2004 the energy subsidy share from the total public budget of country was 33/3%; and the energy subsidy was equivalent to 1/7 times as much as the development budget (capitalized assets ownership). The gasoline subsidy in this year was equivalent to 28/8% of the total energy subsidy. The transportation share from the total subsidy was equal to 41/7%.

Tax revenues, concerning all direct and indirect, were equal to 96/677 milliard rials in the first 8 months of 2006; and in comparison to the received amount in the same period in 2005 they show the rise of about 30/8%; moreover tax revenues in 1384 show 59/4% growth in comparison to those in 2004. Government's total indirect taxes in 2007 have been respectively 349/7 milliard rials on import and 178/42 milliard rials on goods

and services while in 2005 they were respectively 35/954/1 and 14/596/7 milliard rials. Generally, tax revenues from 1988 until 2005 in Iran's government have had an instable and unbalanced growth in such a way that tax revenues growth have reached from 20/4% in 1987 to 7/8% in 1991 and then through a drastic fall they have reduced to 7/8% in 1992. Government total tax revenues in budget rule of 2006 have been anticipated to be equivalent to 176/306/3 milliard rials which is equal to 73/013/7 milliard rials indirect taxes and 105/22/6 milliard rials direct taxes. So in comparison to last year, government's tax revenues in 2006 show 32/5% growth. Therefore, through gasoline taxation policy, in addition that government will be able to reduce gasoline consumption; it can increase its income

Subsidy with tax revenues and current-development expenditures in Iran's economy during 1990 to 2006. The outcomes show that government spends very much on subsidy for gasoline consumption in the country.

Milliard rials

The ministry of oil –the international assistance of distributing of oil products in 2004

SGN: the amount of government's subsidy for selling gasoline in import price

GC: government's current expenditures

TT: government's tax revenues

GI: government's development expenditures

SGN1: the ratio of gasoline subsidy to government's current expenditures

SGN2: the ratio of gasoline subsidy to tax revenues in the country

SGN3: the ratio of gasoline subsidy to government's development expenditures (capitalized assets ownership)

The purpose of research:

The amount of daily gasoline import during 2004, 2005, and 2006 have been respectively 22/7, 24/8 and 29/5 million liters; they show the growth of equivalent to 9/2, 18/9 and .

Considering the increase in country's gasoline growth and also in its gasoline subsidization and expenditures, the main purpose of this paper is to study the impact of increase in gasoline subsidy on the increase in the government expenditures in Iran's economy.

Research hypothesis and question:

Is there in Iran's economy any positive and significant relationship between gasoline subsidy and government expenditures?

Research method, data collection, definitions and regulations:

This paper has used the time series data for the period (1971-2006) gained from statistical annals of Central Bank, the assistance of economic statistics of finance and economic ministry. The coefficients have been logarithmically assessed by Ordinary Least Square Method. Econometric models have been assessed by Excel and Eviews soft-wares.

Econometric models

After gathering the required data, those factors effective on the increase in government expenditures have been estimated and then analyzed and studied. In the end the results and some suggestions have been presented.

$$LGTT = \beta_1 + \beta_2 LGDP + \beta_3 LSGN + \beta_4 LCG + \beta_5 LTX$$

In this equation CG refers to gasoline consumption; GDP to gross domestic real process; GTT to government total expenditure; SGN to the amount of gasoline subsidy; TX to country's income revenue; G₁ to government expenditures ;G₂ to government development expenditures.

Table1: The survey of gasoline subsidy with tax incomes and current and development expenses in Iran's economy during 2000-2005

SGN3	SGN2	SGN1	GI	TT	GC	SGN	year
10.25	10.68	4.22	1766.3	1695.1	4284.8	18102.5	1990
7.74	7.80	3.52	2527.1	2765	5563.8	19565.1	1991
5.8	4.53	2.19	2948.8	3775.5	7807.9	17094.3	1992
2.09	3.72	1.11	7232.2	4061.3	13654.7	15107.7	1993
1.23	2.14	0.59	9583.6	5490.8	20010.1	11757.4	1994
1.17	2.11	0.53	13172.6	7313.2	28789.3	15394.9	1995
0.98	1.34	0.55	17202.7	12560.2	30571.2	16784.2	1996
0.9	0.66	0.41	20471.1	28018.2	44967	18381.8	1997
1.18	0.67	0.38	17424.7	30678.2	53945.6	20545	1998
1.21	0.77	0.44	25023.6	39060.1	68219.3	30259.5	1999
1.34	0.86	0.37	23559.8	36585.2	85847.3	31454.2	2000
1.83	0.83	0.33	21374.1	41786.1	104214.3	34759.2	2001
0.67	0.71	0.24	52776	50141.1	147572.3	35535.6	2002
0.71	0.62	0.14	57850.6	65099	281837.4	40523.6	2003
0.81	0.59	0.14	60982.9	84421	356806.1	49595.1	2004
0.82	0.61	0.12	63930.1	88526	463847.9	54443.4	2005

They have been processed by a logarithmic model and the obtained coefficients can be interpreted economically.

Empirical Results Econometric models

$$LGTT = 0.36LSGN + 0.19LGDP_{t(-1)} + 0.59LTX$$

(2.25) (2.72) (4.33)

$$R^2 = 0.99 \qquad \qquad \qquad DW = 1.76$$

Results and suggestion:

Based on the obtained results it is seen that in Iran the gasoline price that is determined every year through annual budget, is located in the low elasticity part of the demand coefficient. Therefore its increase in 10% or 100% has a small impact on gasoline consumption reduction and just reduces very little the consumption of this goods. So whenever government is to gain its objectives regarding reducing the consumption and its expenditures in country's economy it should supply the gasoline in its importing price. As earlier has been expressed the increase in gasoline subsidy during 1978-2006 has raised the public costs in comparison with produced costs and as a result government has encountered into a drastic increase in budget deficit. The low price of gasoline has increased its consumption. In fact, it can be conveyed that gasoline demand in Iran is without elasticity. This paper suggests the taxation on gasoline consumption, generally, as a useful solution for government income rise and for gasoline consumption reduction. Based on the obtained result in this paper it is expressed that government supply the consuming gasoline in two parallel and balanced markets one with the price announced by Persian gulf(without line) and the other with subsidy prices(with certain line length). The consumer also can, by considering his/her opportunity cost, choose the subsidy with a certain amount of waiting in line or the free price without line. In such a situation, for supporting the vulnerable classes against the inflation caused by this policy, it is possible to spend the main part of the difference in prices on developing the public transport fleet, reforming the road dangers and on solving the traffic problem. Therefore government should revise its policies in subsidizing the gasoline by considering the economic principles in reducing its expenditures.

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