An assessment of quota in gasoline consumption in Iran: an AGE approach

By:

Nooraddin Sharify

Paper to be presented at:
The 17th International Input-Output Conference, 13- 17 July 2009,
at University of São Paulo, São Paulo, Brazil.

An assessment of quota in gasoline consumption in Iran: an AGE approach

By:

Nooraddin Sharify[1]

Abstract

Because of high growth in gasoline consumption in Iran, it is supplied by quota. Although, it seems this decision leads to a considerable reduction in its consumption, it is possible it has some destruction effects on the economy. On the other hand, since the saved subsidies of the government are spent for investment in the country, it is expected it has some positive effects on the economy. This paper will assess the effects of the government decision in gasoline quota on trade balance and Gross Domestic Product (GDP) in Iran. An Applied General Equilibrium (AGE) model using a modified Social Accounting Matrix (SAM) for the year 2001-2 of Iran is employed as database. The result of the simulation demonstrated the quota on gasoline consumption leads to improve the trade balance but decline the GDP.

Introduction

The Islamic Republic of Iran had the highest growth of gasoline consumption during last decade in the world. As it is shown in Table 1, a comparison in the gasoline annual consumption growth rate reveals in contrast to Europe that had a negative growth rate, the gasoline consumption increased in the other regions. So the annual growth rate of the world was 1.75%, however the growth rates of the regions are very different from this level. The gasoline consumption annual growth in Iran was over 8.35% during last decade that is very higher than that of all other countries and regions in the world.

In addition to the high average growth rate, the gasoline consumption annual growth has an increasing trend in Iran. Although the gasoline consumption annual growth was 6.76% during 1996-2001 period, its annual rate increased to over 9.92% and 10.12% during 2001- 2005 and 2005- 2006 periods, respectively.

[1] Assistant Professor of Economic Planning, University of Mazandaran, Babolsar, Iran.
Email: nsharify@umz.ac.ir

Table 1- Gasoline regional consumption and annual consumption growth rate in Iran and other regions and countries

Thousand barrels daily

Row	Regions	1996	2006	G.Rate	Row	Regions	1996	2006	G.Rate
1	North America	9389	11106	1.69	8	Asia	4686	6986	4.07
2	USA	8167	9571	1.60	9	China	1140	1968	5.61
3	S. & Cent. America	1433	1497	0.44	10	Japan	1576	1816	1.43
4	Europe	4223	3632	-1.50	11	OECD	15968	17720	1.05
5	Former Soviet Union	892	999	1.14	12	Non OECD	5996	8399	3.43
6	Middle East	789	1252	4.73	13	Iran*	207	462	8.35
7	Africa	552	648	1.61	14	World	21964	26120	1.75

Sources: BP Statistical Review of World Energy, URL: http://www.bp.com/statisticalreview
*: National Company for Refinery and Distribution of Oil Product of Iran, URL: http://www.sci.org.ir/content/userfiles/_sci/sci/SEL/ayamidan/CS_06_6.html
Note: The G. Rate column is associated to annual growth rate of gasoline consumption during 1996-2006 period.

It is notable the gasoline price has increased to 19.93% annually during 1996 to 2006 period[2] in Iran that is higher than the annual inflation rate of the Consumer Price Index (CPI) in the country during the same period that was about 15.2%[3]. This is due to low base pricing as a result of high amount subsidies are spent on this product that led the gasoline consumption be inelastic to price policy[4]. Furthermore increasing in the use of private vehicles in the country is another factor that caused[5] the gasoline demand growth

[2] Calculation based on Energy Balance for the year 2006 (2007)

[3] Based on Central bank of I.R. of Iran, the CPI of the country for the years 1996 and 2006 are 85.2 and 349.5, respectively. Thus the annual growth of this index is around 15.2%. The Central Bank of I. R. of Iran, URL: http://tsd.cbi.ir/IntTSD/Display/PrepareToShow.aspx.

[4] There are considerable studies that confirmed the gasoline consumption, at this situation, is inelastic to price or at least in short run. For instance, Akhani (1999), and Zarranejad and Ghapanchi (2007) in two different studies demonstrated the demand for gasoline in Iran was not elastic to price during 1974-1995 and 1967-2003 periods, respectively. Using an input-output analysis, Jahangard *et al.* (2006) declared the gasoline demand is inelastic to price. Khataie and Eghdami (2005) confidences there is a weak relationship between price and demand for gasoline in Iran. Ismaeilniya (2000), Chitnis (2005), Nazeman (1999) and Ahmadian *et al.* (2007) concluded the gasoline is not elastic to price in short and long run, but its long run elasticity is greater than its short run one. However, Sohfi and Paknejad (2001) has specified the short run demand for gasoline in Iran is inelastic to price, but the price elasticity in the long run will increase so it is possible to optimize the gasoline consumption by price instrument. Finally, Berkshly (1997) announced against this price level, the oil products including gasoline consumption is elastic to its price in the higher level. To this end, it was recommended to reach to the international price level during a- 15 years.

[5] Several other factors have also been specified to be effective in the gasoline consumption growth in Iran. The number of vehicles, the level of national income and the population growth rate have been specified as effective factors in consumption and demand for gasoline, whereas the size of its price has inconsiderable effect on the gasoline consumption and demand during 1968-2002 period in Iran (Aabounoori and Shiveh, 2006). Ismaeilniya (2000) concluded a one percent increment in the number and the usage of the gasoline vehicles in the country led to 0.3% and 0.13%, respectively, in per capita demand for gasoline during 1967 – 1998 period.

was very higher than the population annual growth rate during 1996-2006 period that is about 1.62%[6].

It should be mentioned about 57% of this gasoline is consumed by the households for their daily affairs. In addition, 40% of the gasoline is consumed by production sectors as intermediated commodities. The rest 3% of the gasoline is exported to the neighbor countries in which the gasoline price is more expensive than that of in Iran[7].

To control this high increasing demand, a level has been imposed on the subsidy for the gasoline by the parliament, recently. In addition, to prevent its price increment, it has also been decided to supply the gasoline in a fix price. To this end, a quota of gasoline for each vehicle has been specified[8]. In addition, although it was permitted to supply non-subsidy gasoline by the government[9], due to inflation effect of any increment in the gasoline price[10], it has been ignored[11]. So the government attempts to import the gasoline to meet the quota of the vehicles. To improve the transportation level the government planned to spend the subsidies that have been saved due to demand limitation, on infrastructure concern to transportation services[12].

---

[6] Based on census by the Statistics Centre of Iran, the population of the country was 60.05 and 70.50 millions people in 1996 and 2006, respectively. The Statistics Centre of Iran, URL.: http://amar.sci.org.ir/

[7] It is notable since there is not generally available an official data for the products that are exported as informal, based on a calculation using the Input-Output Table for the year 2001-2002 (2006) it is explored about 3% of the gasoline consumption is exported to the other countries. However, based on another calculation using data from Aftabnews (2006) reveals about 4.59% of the gasoline demand are exported to abroad informally.

[8] Based on the parliament decision, "the gasoline will be supplied in 1000 Rials for a Liter for a specify quota for each vehicle" (Khaneh Mellat, 2007)

9 Based on the parliament approval: "the extra gasoline on quota could be priced so the annual subsidy on gasoline would not increased over a specified level " (Khaneh Mellat, 2007)

10 Based on some research such as Jalal Abadi *et al.* (2006) a 10% increasing in the nominal price of gasoline leads to 3.7% increment in the inflation rate in the country.

11 Based on the president speech: "Specification a non-subsidy price for gasoline in this situation is not a good way", (Irna 2007), URL: http://www2.irna.com/fa/news/view/line-2/8604181905191656.htm

[12] Based on the government decision: "The unpaid subsidy will be spent for 700 Kilo Meters intra and inter cities rail road annually." (Islamic Republic News Agency, 2007), URL: http://www.iran-newspaper.com/1386/860319/html/economy.htm

It should be mentioned, since a part of the gasoline is used in public transportation, a special quota has been specified for this group of vehicles. However, it is expected a part of different kinds of quota may be transferred to the other people. Hence, although the total consumption and consequently the import of gasoline can be predetermined, the level of consumption by different group of vehicles can be varied.

Thus, the implementation of this decision affects on the macroeconomic indices of the country that can be considered through two aspects. In one side, it seems the limitation in gasoline consumption leads to some destruction effects on the economy. In the other side, it is expected, the expansion policy as a result of spending the unpaid subsidies in infrastructure investment has some positive effects on the economy. This paper aimed to investigate the result of these two contrary policies on trade balance, and GDP as macroeconomic indices.

Although this study failed to find any trace about studies on the effect of this policy in Iran, there are several similar studies in which the effects of quota on imports of commodities are evaluated on the economic indices for other countries. For example, Anderson (1985) Claimed quota systems on heterogeneous commodities are likely to all substantially to the inefficiency of protection. Dardis and Young (1985) examined the absolute and relative costs of the 1982 import quota for sugar in US. Based on their study, this policy was both inefficient and inequitable. The effects of quota for rice import in Japan on its price was studied by Fujiki (2000). Using a panel data of 36 Korean manufacturing industries over subperiods from 1966 to 1988, Kim (2000) demonstrated quota protection had a more significant impact than price protection measures on market structure of this country. The welfare losses attributed to the

Japanese beef quota was estimated by Yono *et al.* (2005). Finally, Neary (2007) demonstrated a simultaneous proportionate relaxation of quota with a proportionate reduction of tariff will increase welfare in a small open economy.

Irrespective to the results of these studies, a quota has been considered totally for import of one or some products in all of these cases. In fact, the market clearance is considered to achieve by price mechanism, implicitly. But the remark point of this study is investigating on the result the policy of considering a quota for all gasoline private vehicles that is carried out for some reasons such as fix price policy, equity distribution policy as well as a size for gasoline import and subsidy in the economy. In addition, a certain quota is considered for public transportation vehicles as well. However, although it seems the gasoline case of Iran would have essential difference with those of other studies, it has some similarities as well as some differences with other similar cases.

Although it seems this policy has several effects on the economy, this paper focuses to investigate the effects of predetermined gasoline import as well as quota for vehicles in a certain price by the government, and spending an specified unpaid subsidies for infrastructure investment on trade balance and GDP. To this end, an AGE model using a modified SAM for the year 2001-2 of Iran is simulated.

The rest of the paper is organised as follows. Section 2 does a brief theoretical study on quota. Section 3 develops an AGE model to investigate the results of this policy on our interest macroeconomic indices. Section 4 is allocated for data and calibration of the model. The results of simulation of the model are discussed in section 5 of the paper. Finally, the concluding remarks will ended the paper.

2. Theoretical Study

Households are accounted as the first main group of agents that consume the most part of the gasoline that is supplied in the country. In quota transaction among different groups of households, the quota analyses have been investigated in some microeconomics resources such as Tabibiyan (1989). Since the quota is limited for each vehicle, like currency income, it can be considered as a constraint in its owner decision. In fact, in a similar economy, there are two kinds of constraints for consumers: quota and income.

In an assumed economy with two commodities; gasoline and other commodities, x_1 and x_2 measure the size of their consumption, respectively. If E denotes the level of income and N the size of the quota of the gasoline for consumers, the constraints can be formulated as follows:

$$p_1.x_1 + p_2.x_2 \leq E \quad (1)$$

$$x_1 \leq N \quad (2)$$

where p_1 and p_2 refer to the price of the gasoline and other commodities, respectively.

Thus, these constraints can be shown as follows:

Thus, these constraints can be shown as follows:

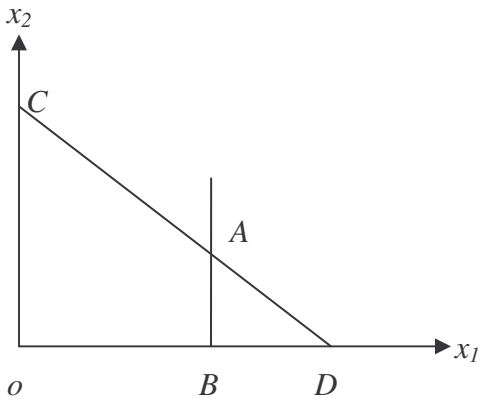

Fig. 1 The equilibrium of household

The vertical line *BA* denotes to the quota constraint, the diagonal line *D* to the income constraint of consumers, the size of *OB* is equal to *N* and *A* is located on the intersection of two constraints. It seems the consumers can be categorised into three groups:

The first group contains the people with higher income that the quota is not enough for their consumption. Thus, their equilibrium point is located on the domain [*B*, *A*) on the quota constraint in Fig. 1. Due to shortage in the supply of gasoline, a part of their income remains unused.

The second group contains the people with lower income that a part of their quota remains unused due to insufficient of their income. The equilibrium point of this group is located on the income constraint on the domain [C, A) in Fig. 1. Finally, the equilibrium of the middle income group is located on *A* in Fig. 1. In fact, all part of the quota and income of this group of people are used.

Therefore, the first group require quota to increase its utility by unused income. In contrast, the second group can sold a part of their extra quota to the first income group. Thus, if the total consumption of the country as well as the public sector spending for subsidies remains constant, the quota can lead to a redistribution of income from the higher income people to the lower income of the country. In addition, in contrast the gasoline is distributed in a fixed price, considering the payment for the quota that is transferred from the higher income group to the lower one, it is expected the average price of gasoline that is reflected as its price index will increase.

Moreover, it is possible, a part of the quota for gasoline that is allocated for the second main group of the consumers i.e. the producers be transferred to the higher

income group of households or other producers. It is notable, with respect to the particular of the final consumers of gasoline, it seems the most stream of the quota transferring is concern with the producers to households. Thus although there is a quota for all vehicles in a certain price, executing quota for gasoline leads an increasing in the price index of this product for all groups of consumers as well as change in the level of their consumption.

3. The Model

An AGE model is employed. The general equilibrium approach allows a comprehensive framework for studying the role of quota system on the economy. The behavior of the agents of the economy is specified in the model. The model is closure with respect to the equilibrium of these agents.

The model consists of five blocks. In view of the level of disagregation, the model contains 23 products including gasoline. The other blocks comprise households group, government, saving/ investment and foreign sector are used as a one aggregate form.

The model is based on the neoclassical theory. The results obtained based on comparative static equilibrium. The relative prices and the volumes of demanded for all products, except the total demand of gasoline, are considered as endogenous variables. The total demand for gasoline is specified exogenously.

Products

The products of the economy as the composite commodities are provided through domestic and foreign sources. A nested Constant Elasticity Substitute (CES) function is employed where the imported and domestic products have an elasticity of substitution

that varies between zero and infinity. In addition, a small country assumption in which the country is a price taker for imported commodities is assumed.

$$Q_j = \phi_j[\delta_j.XD_j^{\frac{(\sigma_j-1)}{\sigma_j}} + (1-\delta_j).M_j^{\frac{(\sigma_j-1)}{\sigma_j}}]^{\frac{\sigma_j}{(\sigma_j-1)}} \quad (3)$$

Q_j refers to supply of product j, XD_j the size of product j that is produced domestically, M_j the imports of product j, ϕ_j the scale parameter of production, δ_j and (1- δ_j) distribution parameters of CES, and finally σ_j refer to the elasticity of these products substitution.

In the second nesting level, XD_j, the domestic product is constructed by primary factors and intermediate commodities. Since it seems there is no substitution between primary factors and intermediate commodities, a Leontief function is employed to specify the level of domestic product. In the next nesting level, the intermediate commodities are also combined based on a Leontief function technology. The primary factors including labour and capital contain capital, land and self employed labour endowment are combined based on a Cobb-Duglas function technology.

$$XD_j = \min(XI_j / A_j, \quad VA_j / va_j) \quad (4)$$

$$XI_j = \min(XI_{1j} / a_{1j}, \quad XI_{2j} / a_{2j}, \quad XI_{3j} / a_{3j}, \quad \cdots, \quad XI_{nj} / a_{nj}) \quad (5)$$

$$VA_j = \mu_j \times L_{0j}^{\varphi_j} \times K_{0j}^{(1-\varphi_j)} \quad (6)$$

XI_j denotes the level of intermediate commodities for product j, VA_j the endowment to primary factors in product j, XI_{nj} the value of product n that is available to produce product j. A_j, va_j and a_{nj} indicate to the share of intermediate commodity, primary factors and product n, respectively that is required as input in a unite product of j. L_{0j} denote the labour contribution value in product j, K_{0j} the value of return for capital in product j,

μ_j the scale parameter, and φ_j and (1-φ_j) the shares of these primary factors in value added.

Households

The households provide primary factors for production sectors. They receive different kinds of endowment for the contribution of their primary factors in the production process. They also receive transfers as non-contribution pensions by the government or abroad generally by a part of their family members.

A part of their revenue is paid to the government as different kinds of direct taxes. They allocate their disposable income, the extra revenue from all kinds of direct taxes, on different commodities as current consumption or save for future consumption to maximize their utility. Thus, using a Cobb-Duglas function subject to their disposable income, their behaviors are formulated as follows:

$$\max \quad U(C_i, Sh) = (\prod_{i=1}^{23} C_i^{\alpha_i}) Sh^{\beta} \qquad \forall i = 1...23 \tag{7}$$

s. t.

$$YDISP = (1-ID)\times(w\times L_j + r\times K_j + ipc\times TSP + prow\times TRM) + ID\times(w\times fl + r\times fk) \tag{8}$$

where, C_i denotes the level of consumption from product *i*, *Sh* the level of saving for investment, *YDISP* the disposable income, *ID* the direct tax rate on income, *w* the index of labour wage, L_j the labour size in production of j^{th} product, *r* the index of capital rate, K_j the level of capital employed in production of j^{th} product, *ipc* the consumer price index, *TSP* the total non-contribution pensions to households by the government, and finally *TRM* the transfer to household from rest of the world (ROW). *fl* and *fk* measure

the foreign labour and capital stock contribution in domestic production process, respectively. *prow* the integrated price for international trade off, α and β measure the participation coefficients corresponding to different products and saving, respectively.

α and β are calibrated as:

$$\alpha_i = C_{i26} / YDISP \qquad \forall i = 1...23 \qquad (9)$$

$$\beta = 1 - \sum_{i=1}^{23} \alpha_i \qquad (10)$$

C_{i26} refers to the households consumption on different products and *DR* the direct tax on households.

Saving/ Investment

The saving of a country generally originates from three sources: households, government and foreign sector. As mentioned above, a part of the households disposable income is saved for investment. The government saving is included its investment in the country and the budget deficit that is financed generally by banking system. Finally, the size of the balance of domestic in fallow with out fallow to the ROW for products transaction, primary factors income and transfers reveals the foreign sector saving in the country or domestic investment in abroad.

In the investment side, it is generally assumed, all saving funds are invested so the investment is equal to saving. A part of these funds are invested in the country. The other parts of these funds are invested in the other countries that are shown by banking system balance. The saving/investment equilibrium condition requires that aggregate savings equals to aggregate investment.

$$PUBIN + Sh = pinv \times \sum_{i=1}^{n} Inv_i + Fi \quad (11)$$

Fi, shows the investment in the ROW, *pinv* the aggregate price index for investment goods, *PUBIN* the public investment value, and Inv_i the amount of products have been used for investment.

Government

The government as the head of the public sector collects different kinds of direct and indirect taxes from the primary factors and production process, respectively. It also receives for its capital contribution in domestic and foreign production process. In contrast, the government revenue is used for public services and investment. It also pays for transferring as different kinds of pensions to the households. The balance of the government payments with respect to its revenue reveals the budget deficit or surplus based on positive or negative value.

$$RD = ID \times [(w \times \sum_{j=1}^{23} L_j - fl) + (r \times \sum_{j=1}^{23} K_j - fk) + ipc \times TSP + TRM] \quad (12)$$

$$RIP = \sum_{j=1}^{23} (X_j - \sum_{i=1}^{23} a_{ij} \times P_i \times XD_j - r \times K_j - w \times L_j - prow \times M_j \times X_j) \quad (13)$$

$$DG = ngo \times \sum_{i=1}^{23} DGO_i \quad (14)$$

$$DP = RD + RIP + DPUBVA + FPUVA - ipc \times TSP - DG - PUBIN \quad (15)$$

where *DP* denotes the government budget balance, *RD* the direct tax, *RIP* the indirect taxes, a_{ij} the I-O technical coefficient, P_i the products price index, *DG* the government spending on products, *ngo* the price index for products are used by the government,

DGO_i the government consumption level on product *i,* and finally *DPUBVA* and *FPUVA* the public capital return from domestic and foreign products, respectively.

Foreign Sector

The foreign sector reveals the transaction of domestic economy with other countries. There is an imperfect substitution between domestic consumption and exported commodities. Thus a Constant Elasticity of Transformation (CET) function with small-open-economy assumptions is employed in which the economy cannot influence on the world price with its exports. The domestic labour and capital receive for their contribution in foreign production process. The transfers from abroad are generally paid to a part of households by their family.

A part of the products are imported from abroad. The foreign labour and capital endowment is another part of out fallow of the country. The extra value of the in fallow from the foreign sector compared with its out fallow to the ROW for products transaction, primary factors income and transfers are considered as the investment exports to the other countries plays the closure rule.

$$Q_i = \lambda(\mu \times Dd_i^{\frac{1+\sigma}{\sigma}} + (1-\mu)E_i^{\frac{1+\sigma}{\sigma}})^{\frac{\sigma}{1+\sigma}} \tag{16}$$

$$prow \times M_j + w^* fl + r^* fk + Fi = prow \times E_i + prow^* el + prow^* ek + Trow \tag{17}$$

Dd_i denotes the domestic demand for product i, E_i the exports of product i, σ the substitution elasticity, and λ and μ scale and distribution parameters, respectively. And finally, *el* and *ek* refer to the domestic labour and capital income from abroad, respectively.

4. Data and Calibration

The nonsurvey SAM of Iran for the year 2001-2 was modified to employ as database of the model (Askari 2005). It was modified with respect to the latest survey based I-O table for Iran corresponding to the same year that elaborated by (Statistics Center of Iran, 2006). The result of modification process was a survey base SAM that is used as database of the model.

It is notable the modified SAM consists 6 accounts. It includes 23 products that display the relationship of these products to other part of the economy. It is also consist of 2 aggregated primary factors and one aggregated households group, government, investment/saving and foreign sector accounts.

The major parameter, prices and elasticities of the model was calibrated using the modified SAM for the years 2001-2. In addition, it was also required to specify the elasticity of substitution between domestic and imported products and the elasticity of substitution between domestic and foreign demand for products. These parameters were specified separately by econometric approach.

5. Simulation of the model

The model replicates the benchmark case for the gasoline quota policy. To this end, the gasoline policy of the government as well as the result of the above discussion in terms of implementation of this policy, are considered in the model. By comparing the results of simulation of the model with those of the benchmark date, the results of the gasoline quota policy are concluded.

Since in contrast to fixed price distribution of gasoline by the government, it is possible, the quota execution for vehicles leads to an increase in its price index for all

intermediate and final consumers as well as change in the level of their consumption, these variable are determined endogenously in the model. However, the total level of supply of gasoline as well as the level of subsidies that are spent on gasoline are decreased with respect to the size of the quota. Hence these variables are determined exogenously.

In addition, the level of public services and transfer to households are considered to be constant. To consider the government decision to spend the funds of subsidies that are saved in this policy for investment in infrastructure of the country, these funds are increased to the level of the public investment value of the country. Thus, the level of public services, government transfer to households and the increase in the value of public investment are specified exogenously. And finally, all prices, indirect taxes, GDP, public sector budget deficit are considered as endogenous.

Table 2 The result of implementation of the model 2001-2 Milliard Rials

Row	Title	Before Quota	After Quota	Changes	% Changes
1	GDP	733908	733178	-730	-0.1
2	Subsidies on Gasoline	2581	1991	-590	-22.86
3	Exports	153882	153274	-608	-0.40
4	Imports	125868	124043	-1824	-1.45
5	Trade Balance	28015	29231	1216	4.34

The results of implementation of the model are demonstrated in table 2. The results of quota execution on gasoline on some desirable variables could be compared with that of before ones:

Based on the results, quota on the gasoline leads to a decrease in GDP of the country. As it is shown, the GDP of the country will decrease about 730 milliard Rials that is about 0.1%. It could be due to some destruction effect of the quota that lead to some limitation in production and consumption of the country.

The other effect of the quota on gasoline is subsidies reduction. As the government decision, it would be spent on infrastructure concern to public transportation services. The results of the model implementation demonstrated the quota on gasoline causes to 590 milliard Rials reduction in subsidies that is over subsidies of considerable.

And finally the quota on gasoline led to a decrease in total exports of the country. It could be due to gasoline limitation effect on production. In addition, the quota on gasoline led to a higher amount reduction in imports. It causes 1824 milliard Rials reduction that is over 1.45% of total import of the country. Thus the trade of the country would improve due to quota execution.

6. Conclusions

The execution of quota was discussed theoretically. It was concluded, although the government attempts to fix the gasoline price on a certain level to prevent from inflation in the country, the gasoline price would not be fixed.

The result of quota policy in the country will decrease the GDP a little less that 0.1%. In addition, the quota policy has a considerable effect on the government subsidy expenditures. It is about 22.86% of total subsidies that is spent for the gasoline.

And finally the quota policy leads to a reduction on imports and exports of the country. In one hand this is due to the gasoline limitation. In the other hand it is due to reduction in the gasoline import. Thus the quota policy leads to an improvement on trade balance of the country.

References:

Abounoori A. and Shiveh H. (2006) An Estimation for Petrol's Demand Function in Iran 1968-2002, *Economic Research Review*, 22(3):205-228.

Aftabnews (2006) Gasoline, a Diplomatic or Economic Solution? dated July 4th, http://www.aftabnews.ir/vdcgxu9aky97t.html

Akhani Z (1999) Estimation of Fuel Demand in the Iranian Transport Sector (1977-95), *The Journal of Planning and Budgeting*, 4(2, 3): 129-153.

Ahmadian M. Chitnis M. and Hunt L.C. (2007) Gasoline demand, Pricing policy and social welfare in the Islamic Republic of Iran, *OPEC Review*, 31(2): 105-124.

Anderson J. E. (1985) The relative inefficiency of quotas: the cheese case, *American Economic Review*, 75, 178-90.

Askari M. (2005) Designing a Computable General Equilibrium (CGE) Model, The Economic Deputy of Plan and Budget Organisation of Iran.

Berkshly F. (1997) Energy policies in Iran (Subsidies for oil), *The Journal of Planning and Budgeting*, 18: 39-54.

Chitnis M. (2005) Price Elasticity Estimation of Gasoline Demand Using Structural Time Series Model Underlying Trend Conception, *Quarterly Journal of the Economic Research*, 5(3): 1-16.

Dardis, R. and Young, C. (1985), "The Welfare Loss from the New Sugar Programme", *The Journal of Consumer Affairs,* Vol. 19, 231-52.

Energy Balance for the year 2006 (2007) Energy planning office, Power Ministry I. R. Iran, Energy Affairs Deputy.

Fujiki H. (2000) Japanese rice market liberalization: a competitive equilibrium approach, *The Japanese Economic Review*, 51, 4, 492-518.

Infrastructural Studies Office (2005) Investigation in Inflation Effects of Increasing in Gasoline Price in Different Scenarios, http://www.majlis.ir/mhtml/modules.php?name=News&file=article&sid=276

Islamic Republic News Agency (Irna) (2007) dated July 9th,http://www.iran-newspaper.com/1386/860417/html/politic.htm

Islamic Republic News Agency (2007) The official news agency of the I. R. Iran, dated May 2nd, http://www2.irna.com/fa/news/view/line-7/8605020517232817.htm

Ismaeilniya A-A. (2000) Estimation of Fuel Demand in the Land Transport Sector and its Forecast During the Third Plan, *The Journal of Planning and Budgeting*, 4(10, 11): 3-40.

Jahangard E., Fahadi Kia A. and Mahjoub Khaljani H. (2006) The result of gasoline and jet fuel on road and air consumption and production cost, *The Journal of Planning and Budgeting,* 98: 3-42.

Jalal Abadi A., Shafiei A. Shah Hosayni S. (2006) Gasoline Price increment and the problems on the Government ahead (Inflation Case Study), *Parliament and Research*, 12(49-50): 241-271.

Khataie M. and Eghdami P. (2005) Price Elasticity of Gasoline Demand in Iran Transportation Sector and its Forecast to 2015, *Quarterly Iranian Economic Research*, 25: 23-46.

Khaneh Mellat (2007) The newspaper of the I.R. Iran parliament, dated March 6th, http://mellat.majlis.ir/archive/1385/BODJEH86/NEWS/news5.htm

Kim, E. (2000) Trade liberalization and productivity growth in Korean manufacturing industries: price protection, market power, and scale efficiency, *Journal of Development Economics*, 62, 1, 55–83.

Nazeman H. (1999) Economic Benefits in Gasoline Consumption Control, The Second National Conference on Energy, 747- 760. URL: http://www.civilica.com/Paper-NEC02-NEC02_047.html

Neary J. P. (2007) Simultaneous Reform of Tariffs and Quotas, *Review of International Economics*, 15, 1, 37–44.

Sohfi M. and Pak Nejad M. (2001) Estimation of gasoline Consumption Function and the Solusion for Decreasing its Consumption, Iran's Energy Publication, 5(10): 33-49.

Statistics Center of Iran (2006) Input-Output Table for the year 2001-2002.

Tabibyan M. (1989) Some Essays in advanced microeconomics, Pishbord Publication, Tehran, Iran.

Yano M., Takahashi R. and Mizuno H. (2005) Welfare losses from non-tariff barriers: the Japanese beef quota case, *The Japanese Economic Review,* 56, 4, 457- 468.

Zarra Nezhad M. and Ghapanchi F. (2007) An Estimation of Error Correction Model of Demand for Gasoline in Iran", *Journal of Trade Studies*, 42: 29-52.