The Effective Factors on Demand of Meat and Impact of Liberalization on Households Welfare in Iran

Andisheh Haghighatnezhad Shirazi, Saeid Yazdani and Reza Moghaddasi

1Department of Agricultural Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran
2Department of Agricultural Economics, Agricultural and Natural Resource Campus of Tehran University, Tehran, Iran

Abstract: This research studies the world meat market. Applying partial equilibrium trade theory in combination with welfare analysis the effects of trade liberalization rural Iranian demand increase. The research’s results indicate that: the total welfare changes for producers, consumers can be large; the end of the distorting policies improves welfare in the country; the increase in meat production because of the increase in production price; the rural Iranian demand growth delivers gains for producers and consumers; an improvement in the efficiency of the rural Iranian infrastructure leads to an increase in consumers’ welfare.

Key words: Welfare Analysis · Partial Equilibrium Trade Model · Trade Liberalization · Demand · Meat · Household · Iran

INTRODUCTION

Agriculture in Iran is the main sector of the economy. It contributes a major part of the country’s Gross Domestic Product and provides a living for a large group of the population by providing almost all domestic needs of staple food. Furthermore, it is until recently the main source of foreign exchange for the country. Therefore, any changes in international agricultural markets should have an enormous impact on Iran’s economy. In order to achieve and maintain national self-sufficiency in basic agriculture products, the post-revolutionary government of Iran in the 1980s adopted a variety of programs such as price support and input subsidies, as well as some food programs and border controls. Since 1990, within a national strategy of economic liberalization and the development of a more competitive and market-oriented farming sector, policy has been redirected toward abolishing subsidies. However, there are still markets—such as those in wheat, cotton, meat and rice in which government intervenes, apparently to protect both producers and consumers. Moreover, the government is still the largest economic agent in the country, controlling directly or indirectly nearly three-quarters of all economic activities, including international trade [1].

The Iranian government intervenes in the meat market by controlling the import to support consumers and prevent the increasing price. According to available information, the consumer price of meat is higher than producer’s price and the world price (evaluated with the exchange rate in the black market) is higher than domestic price at 1981 to 2000 but at the rest of period (2001-2007) consumer’s price is higher than world price.

After revolution in 1979, the government had total control over the meat market. Self-sufficiency was the goal and government intervention was justified on the basic of economic factors such as foreign exchange saving, increasing in production and political reasons such as heavy dependence on imports which could create problems at home in case of external shocks such as a large increase in prices, etc.

On the consumption side, government intervention started in the 1980s with a consumption subsidy and quota system to avoid the effects of increases in world prices. It means that temporary to reduce domestic price inflation and maintain nutritional status of low-income
groups during the war. This policy lasted until 2000, expanding consumption faster than production and preventing Iran from reaching self-sufficiency. This conflict between self-sufficiency and subsidizing started the real exchange rate. The second section the methods and data in the analysis are presented. The results are discussed in the third section and some conclusions are drawn in the last section.

MATERIALS AND METHODS

Economic impact assessment of research can be done through four approaches of (i) indicator, (ii) econometric, (iii) programming and (iv) economic trade policy analysis in the presence of complex surplus. This study adopts economic surplus approach given its relative simplicity for data. The data needed to calculate social gains fall into four board categories namely:

- Market data on observed price and quantities
- Agronomic evidence and costs of technology being adopted
- Economic parameters on the markets response to change (elasticity’s supply and demand)
- Research and extension costs incurred in obtaining the new technology.

The most fundamental data required for the impact assessment are the price (P) and quantity (Q) of the chicken that is affected production change.

An important step in economic impact assessment liberalization is the measurement of total social gain. In this study, this is done using economic surplus approach. This section describes the partial equilibrium analysis approach in agricultural trade liberalization as well as its constraints. Based on the partial equilibrium model outline in a close economy, the welfare effects of international trade liberalization in a meat market can be analyzed. Standard partial equilibrium and comparative static analysis is used Marshallian concept of economics surplus [6]. The concepts of economic surplus are derived from Fig. 2. In this study, the welfare effects of directing meat toward a market-oriented system are evaluated by applying a partial equilibrium analysis to the 1981-2007 data.

The synthetic part of the model consists of two equations for each product: (i) supply and (ii) demand. Net trade clears the disequilibrium between domestic supplies and demands [7]. As The supply function is:
\[ In Q'_i = a_1 \ln P_a + a_2 P_{i-1} + \sum a_3 \ln P_{i-1} + a_4 Q'_{i-1} + a_5 \ln Z_a + e_i \]

Where, \( Q'_i \) is the production of product \( i \), \( P_i \) is the corresponding price and \( P_j \) the prices of other products (substitutes and complements) and \( Z_a \) are other deterministic variables [8]. \( P \) own price, cross price and income are the main explanatory variables in demand equation. The general form of the demand equations is follows:

\[ \ln Q'_i = \beta_1 \ln P_i + \beta_2 P_{i-1} + \sum \beta_3 \ln P_{i-1} + \beta_4 \ln P_{i-1} + \beta_5 \ln Z_a + e_i \]

Where, \( Q'_i \) is the demand of product \( i \), \( P_i \) is the own price and \( P_j \) the prices of other products (substitutes and complements), \( I \) income[8].

\[ \Delta M_i = Q'_i - Q_i + \Delta X_i \]

\[ \sum \Delta X_i - \Delta M_i = 0 \]

To compute the total welfare change, in the general case, it is formally necessary to calculate the integral under supply curve (producer surplus change or change in production welfare) and demand curve (consumer surplus change or change in consumption welfare) and the change in government budget [9].

Demand is from demanders, which include live in rural areas while supply is constituted by all producers.

\[ \Delta CS = \int_{P_m}^{P_a} Q'_i dp \text{Or} \Delta CS = \int_{P_m}^{P_a} Q'_i dp \Delta PS = \int_{P_m}^{P_a} Q'_i dp \]

Where:

- \( \Delta CS \): Consumer surplus change
- \( \Delta PS \): Producer surplus change
- \( Q'_i \): Demand in zone \( i \)
- \( Q'_i \): Supply in zone \( i \)
- \( P_m \): Producer prices
- \( P_a \): Consumer prices
- \( P_w \): World prices

A border price represents the cost to the economy of producing a good and enables the analyst to determine if the country is an efficient producer of that commodity. According to the logic of the border paradigm, it is a waste of country’s resources to produce a good for which it has little or no cost advantage [10]. Algebraically, the border price is defined as \( P_a = eP \) where \( e \) represents the exchange rate. The exchange rate reflects the opportunity cost of a unit of foreign currency to the domestic economy. The exchange rate is important especially where the official exchange rate is overvalued. The exchange rate employed to calculate the border price, should reflect the real economic cost of the domestic currency [11].

As indicate above, we can calculate producer and consumer welfare, change in government budget by applying partial equilibrium analysis, also, Monterio da Silva and Grennes[2] indicate that social cost, foreign exchange, domestic support expenditure (subsidy expenditure to support domestic price) on both side of the market, can be calculate.

The following constant elasticity supply and demand functions of meat were estimated in this study:

\[ \ln Q_c = \alpha + \alpha \ln P_{c_o} + \alpha \ln P_{c_i} + \alpha \ln Q_{a_c} + \alpha \ln m_{l_c} + \alpha \ln m_{s_c} + e \]

Domestic production was expressed as a function, which of producers’ price for meat, producers’ price of chicken as substitute commodities, lagged production, import and stock of meat are the variables in this function.

\[ \ln Q_c = \beta + \beta \ln P_{c_o} + \beta \ln P_{c_i} + \beta \ln Q_{a_c} + \beta \ln m_{l_c} + \beta \ln m_{s_c} + e \]

Consumption of rural areas was modeled as a function of consumers’ price in this area, the chicken price as substitute commodity, rural income, population growth of rural area, production (because people in rural area have consumption of their own production) and import of meat variables. A lagged consumption and production variable was also used in the demand and supply equation to achieve any permanent change which could have occurred at the meat market.

The welfare effects of the meat trade regime can now analyzed. Without state trading and at the black market exchange rate, the market would equilibrate at the world price \( P_w \), with domestic production at \( Q_i \), consumption \( Q_d \), and imports of \( Q_o = Q_i - Q_d \). With the regime, the domestic market price is higher than \( P_w \), with domestic production at \( Q_i \), consumption \( Q_i \), and state imports of \( Q_o = Q_i - Q_d \). Thus, trade regime caused achieve producers’ gain, with a value given by the area \( P_o ADP_c \).

On the demand side, trade regime in period 1981-2000, that consumer price was lower than world price \( P_w \), consumers as a group lose economic welfare equivalent to area \( P_{BH} \). However, in the period 2001-2007, that domestic price was higher than world price, consumers acceded gain equal to area \( P_{CH} \).
The area $ABQ_1Q_2$ represented the amount that the Iranian government gains by decrease of import (because of increased in production) on producer side.

On the demand side in period 1981-2000, Iranian government achieved benefit of trade regime, equal to area $BFCQ_2$. In contrast, in period 2001-2007, governments lose (area $FCQ_2Q_3$) because of decreased consumer price of trade regime (without considering consumer in urban area).

So, revenue of tariff on consumption side in period 2001-2007 equal to area $BFDG$.

So, they may be summarized as follow:

As fig. 1 show the producer price of meat below the world price and consumer price, although, consumer price until 2000 upper than producer price and below the world price, after this time, consumer price increase than world price. So to evaluate these production and consumption policies, the following measures can be derived from Fig 2 and 3.

In period 1981-2000 (Fig. 2), government intervention in the meat market in rural area in Iran to support consumer and producer, so, set consumer and producer price lower than world price, in this condition, the functional representation of the conducted welfare analysis is:

Producer welfare ($P_uADP_u$) =
$$\int_{Q_u}^{P_u} f(P_u, Q_u, St, lm) dP_u = \frac{Q_u}{1+e} \left[ \frac{P_u}{P_u} \right] P_u - P_u$$

Consumer welfare ($-P_uBH$) =
$$\int_{Q_u}^{P_u} f(P_u, P_u, ln_c, P_e, Pr, lm, Q_u) dP_u = -\frac{Q_u}{1+e} \left[ \frac{P_u}{P_e} \right] P_u - P_u$$

Social cost effect on production =
$$(P_u - P_u)Q_u - \frac{Q_u}{1+e} \left[ \frac{P_u}{P_u} \right] P_u - P_u$$

Social cost effect on consumption =
$$-(P_u - P_u)Q_u - \frac{Q_u}{1+e} \left[ \frac{P_u}{P_u} \right] P_u - P_u$$

Foreign exchange effect on production = $P_e (Q_u - Q_u)$ and on consumption = $P_e (Q_u - Q_u)$

Change in quantity produced = $(Q_u - Q_u)$ and in quantity consumed = $(Q_u - Q_u)$

Net trade after market liberalization = $(Q_u - Q_u)$

In period 2001-2007 (Fig. 3), government support (subsidy expenditure) of consumer meat market was abolished, so, set consumer price higher than world price and however, because of support in producerside by...
government, likewise before, set producer price lower than world price, in this condition, the functional representation of the conducted welfare analysis is:

\[ \text{Producer welfare (P}_A\text{DP}) = \int_{\infty}^{\infty} f(P, P_{es}, Q, l_{m}, St) \, dp = \frac{Q}{1+\varepsilon} \left( \frac{P}{P_e} \right) P_{es} - P_e \]

Consumer welfare (P_CH) =

\[ \int_{\infty}^{\infty} f(P, P_{es}, \ln c, P_{t}, St, Q_{d-1}) \, dp = -\frac{Q}{1+\varepsilon} \left( \frac{P}{P_e} \right) P_{es} - P_e \]

Social cost effect on production =

\[ (P^* - P_a) Q^* = -\frac{Q}{1+\varepsilon} \left( \frac{P}{P_e} \right) P_{es} - P_e \]

Social cost effect on consumption =

\[ (P - P_a) Q_a = -\frac{Q}{1+\varepsilon} \left( \frac{P}{P_e} \right) P_{es} - P_e \]

Foreign exchange effect on production = \( P_a (Q^* - Q_a) \)

on consumption = \( P_a (Q^* - Q_a) \)

Change in quantity produced = \( (Q^* - Q_a) \)

and in quantity consumed = \( (Q^* - Q_a) \)

Net trade after market liberalization = \( (Q^* - Q_a) \)

Revenue effect on tariff = \( (P_a - P) (Q^* - Q_a) \)

The data used in this study were gathered from Statistic Center [12], Agricultural Ministry [13] and Central Bank of Iran [14]. These include: consumption and consumer price, income and population of rural areas; production, domestic supply, import and producer price; GNP (Gross National Production).

The world prices of meat are calculated based on the dollar rate in black market. The time-series of exchange rates of dollar against Rials (the Iranian Local Currency in the black market) were obtained from the central bank of Iran (CBI).

**RESULTS AND DISCUSSION**

The ADF command in E-views 6.0 was applied to the data to test the stationarity of the time series in this study. All variables are not stationary in same levels (Table 1).

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF test</th>
<th>Variable</th>
<th>ADF test</th>
</tr>
</thead>
<tbody>
<tr>
<td>( Q^* )</td>
<td>-4.606059**</td>
<td>( Q^* )</td>
<td>-3.810541*</td>
</tr>
<tr>
<td>( P_a )</td>
<td>-3.050316</td>
<td>( P_e )</td>
<td>-4.587798**</td>
</tr>
<tr>
<td>( P_{es} )</td>
<td>-2.443528</td>
<td>( P_{es} )</td>
<td>-2.109716</td>
</tr>
<tr>
<td>( l_{m} )</td>
<td>-4.326902**</td>
<td>( St )</td>
<td>-4.098208**</td>
</tr>
<tr>
<td>( P_t )</td>
<td>-2.765360</td>
<td>( Q^* )</td>
<td>-1.961451</td>
</tr>
</tbody>
</table>

The null hypothesis has a unit root at 1% (**) and 5% (*).

Source: Calculated by the author

As Engle-Granger [15] and Sargan and Bhargava [16] indicate, we can be use variables that they are not in the same level of stationary, if the residuals are stationary and the variables have long run relationship [17]. So, we analysis Engel-granger and co-integration regression Durbin-Watson tests on the residuals of the models that regress, results gave in Table 2. As results show residuals are stationary so, we can use them just as they are.

All coefficients presented, have the expected signs. Autocorrelation was detected in two of the equations estimated. As Gujarati [18] indicates equations with lagged-dependent variable, autocorrelation was tested using the Durbin-h statistic. So, results of test shows no problems were detected (Table 3, 4). In the supply equations, the coefficient for supply elasticity is significant when lagged price of meat are used. The coefficient of lagged production and producer price of chicken are positive and significant. The coefficient of lagged import is positive as expected and significant. Also coefficient of lagged meat stock is negative, however not expressive.
Table 4: Estimated coefficient of meat supply function, rural area of Iran, 1981-2007

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(p_{m} )</td>
<td>0.26455E-01</td>
<td>0.15527E-01</td>
<td>1.7038</td>
</tr>
<tr>
<td>(p_{s} )</td>
<td>0.44931E-01</td>
<td>0.19001E-01</td>
<td>2.3646</td>
</tr>
<tr>
<td>(Q_{m} )</td>
<td>0.53017</td>
<td>0.10269</td>
<td>5.1629</td>
</tr>
<tr>
<td>(Q_{s} )</td>
<td>0.16213E-01</td>
<td>0.33378E-02</td>
<td>4.8574</td>
</tr>
<tr>
<td>(Q_{c} )</td>
<td>-0.33756E-06</td>
<td>0.23623E-06</td>
<td>-1.4289</td>
</tr>
<tr>
<td>Constant</td>
<td>2.5300</td>
<td>0.53983</td>
<td>4.6867</td>
</tr>
</tbody>
</table>

Durbin-Watson | 1.6358 | Durbin H Statistic | 1.1188 |

Source: Calculated by the author

The demand equation shows that the coefficient for meat price (demand elasticity) is significant and negative. Also, the coefficients of lagged price of meat and people growth are significant and positive. The coefficient of chicken price and income are positive but not significant. As mentioned before, people in rural area have consumption of their own production, so, the coefficient of this variable is positive but not significant. The coefficient of import is positive but not expressive.

In order to get elasticity’s of demand and supply for meat in Iran, during the period of analysis, different specifications for an aggregate domestic supply and a derived demand were estimated. Knowing that the relationship between quantities of demand, supply and the respective prices are bidirectional and simultaneous, but Hausman [20] test showed that the system is not simultaneous[21]. So, each equation estimates separately in non-linear form. The equations were estimated in logarithm form. Results obtained are presented in Table 3, 4.

The price elasticity of demand and supply to be used in calculating the welfare effects are -0.66708 for demand and 0.026455 for supply, coefficients imply that meat is an inelastic product on demand and supply side of the domestic market; however, producers are expected to respond to any change in the meat price more than consumers do. The small elasticity of supply obtained, indicated that any policy on production and consequently on welfare has small effect. The greater the elasticity of demand has high effects of policies on consumption and so on consumer’s welfare.

Based on these estimated coefficients, various aspects of meat market liberalization in rural area of Iran are now discussed. The annual estimated quantities of supply and demand (\(Q_{s}\) and \(Q_{d}\)) at current market prices and those estimated after abolition of government \((Q_{s}\) and \(Q_{d}\)) intervention are shown in Fig.2,3.

Applying the algebra in previous section, the estimated changes in supply quantities arising in period 1981-2007, but demand quantities in period 1981-2000 decreased and increased in time 2001-2007 (because of decline of domestic price to world price) from meat market liberalization in rural area of Iran. So, prices were used to estimate the welfare effects on three periods for consumer: before accepted liberalization law (1981-1988), period that consumer prices is lower than world price (1989-2000) and period that consumer prices of meat are higher than world price (2001-2007), on producer side, welfare effects estimated in period (1981-2007), that producer prices are lower than world price. Tables 5, 6 and 7 Shows the effects of Iranian meat policy on consumers in rural area and producer welfare, social cost, subsidy expenditure and foreign exchange saving.

Table 5: Effect of the Iranian meat production policy (Thousand tons and Million Dollars)

<table>
<thead>
<tr>
<th>Exchange rate</th>
<th>Subsidy expenditure</th>
<th>Change in Welfare</th>
<th>Social cost</th>
<th>Foreign exchange effect</th>
<th>Change in production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981-1988</td>
<td>6931.3(4021.7)</td>
<td>4850.6(1913.6)</td>
<td>2080.7(2153.1)</td>
<td>-180.4(83.1)</td>
<td>8.6(3.4)</td>
</tr>
<tr>
<td>1989-1994</td>
<td>24564.1(7530.2)</td>
<td>9971.1(1440.4)</td>
<td>14593.1(6349.8)</td>
<td>-417.8(98.1)</td>
<td>15.5(3.0)</td>
</tr>
<tr>
<td>1995-1999</td>
<td>72312.2(19763.4)</td>
<td>12245.4(692.5)</td>
<td>60066.8(19436.3)</td>
<td>-498.9(35.7)</td>
<td>18.7(1.6)</td>
</tr>
<tr>
<td>2000-2004</td>
<td>63732.1(28180.9)</td>
<td>9593.1(2113.3)</td>
<td>54139.1(26078.0)</td>
<td>-334.5(80.2)</td>
<td>12.1(2.4)</td>
</tr>
<tr>
<td>2005-2007</td>
<td>124589.1(20713.4)</td>
<td>13841.9(1185.3)</td>
<td>110747.3(19528.3)</td>
<td>-473.2(64.3)</td>
<td>12.2(2.2)</td>
</tr>
</tbody>
</table>

Parenthesis indicate standard deviation

The period 1989 until 2007 mentioned development programs.

Source: Calculated by the author

Table 6: Effect of the Iranian meat consumption policy (Thousand tons and Million Dollars)

<table>
<thead>
<tr>
<th>Exchange rate</th>
<th>Subsidy expenditure</th>
<th>Change in Welfare</th>
<th>Social cost</th>
<th>Foreign exchange effect</th>
<th>Change in consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981-1988</td>
<td>-1037.1(423.6)</td>
<td>-1190.1(603.3)</td>
<td>152.9(371.5)</td>
<td>-676.0(326.4)</td>
<td>-33.5(18.9)</td>
</tr>
<tr>
<td>1989-1994</td>
<td>-2762.5(2282.7)</td>
<td>-7158.4(6485.0)</td>
<td>4395.8(4219.6)</td>
<td>-3073.9(3875.2)</td>
<td>-115.5(146.3)</td>
</tr>
<tr>
<td>1995-1999</td>
<td>-1318.3(671.0)</td>
<td>-6623.3(3198.6)</td>
<td>5304.9(2541.8)</td>
<td>-915.3(657.6)</td>
<td>-33.7(22.9)</td>
</tr>
<tr>
<td>2000-2004</td>
<td>1211.9(899.6)</td>
<td>12301.4(9208.0)</td>
<td>-11089.5(8325.3)</td>
<td>664.7(468.9)</td>
<td>22.8(16.1)</td>
</tr>
<tr>
<td>2005-2007</td>
<td>2475.9(1397.7)</td>
<td>32950.6(20032.8)</td>
<td>-30474.7(18635.2)</td>
<td>1305.6(617.6)</td>
<td>32.9(14.0)</td>
</tr>
</tbody>
</table>

Parenthesis indicate standard deviation

The period 1989 until 2007 mentioned development programs.

Source: Calculated by the author
Table 7: Annual effects of meat market liberalization, rural area of Iran 1981-2007

<table>
<thead>
<tr>
<th></th>
<th>Mean (Thousand Tons)</th>
<th>SD (Million Dollars)</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in quantity supplied</td>
<td>13.1</td>
<td>4.5</td>
<td>20.5</td>
<td>3.2</td>
</tr>
<tr>
<td>Decrease in quantity demand (1981-2000)</td>
<td>-56.5</td>
<td>86.6</td>
<td>-0.5</td>
<td>-407.9</td>
</tr>
<tr>
<td>Increase in quantity demand (2001-2007)</td>
<td>30.5</td>
<td>11.4</td>
<td>48.3</td>
<td>17.0</td>
</tr>
<tr>
<td>Change on trade after liberalization (1981-2000)</td>
<td>-70.1</td>
<td>87.3</td>
<td>-13.3</td>
<td>-423.5</td>
</tr>
<tr>
<td>Change on trade after liberalization (2001-2007)</td>
<td>18.9</td>
<td>12.9</td>
<td>38.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Increase in producers’ welfare</td>
<td>9235.2</td>
<td>3536.9</td>
<td>14954.9</td>
<td>2273.8</td>
</tr>
<tr>
<td>Decrease in consumers’ welfare (1981-2000)</td>
<td>-4287.5</td>
<td>4725.3</td>
<td>-163.2</td>
<td>-19924.6</td>
</tr>
<tr>
<td>Increase in consumers’ welfare (2001-2007)</td>
<td>22931.8</td>
<td>15676.7</td>
<td>55258.6</td>
<td>5698.6</td>
</tr>
<tr>
<td>Foreign exchange effect on production</td>
<td>-353.2</td>
<td>145.5</td>
<td>-69.9</td>
<td>-585.9</td>
</tr>
<tr>
<td>Foreign exchange effect on consumption (1981-2000)</td>
<td>-1422.0</td>
<td>2313.0</td>
<td>-12.7</td>
<td>-10820.6</td>
</tr>
<tr>
<td>Foreign exchange effect on consumption (2001-2007)</td>
<td>1036.2</td>
<td>491.6</td>
<td>1984.9</td>
<td>403.9</td>
</tr>
<tr>
<td>Subsidy expenditure on production</td>
<td>46549.1</td>
<td>41378.3</td>
<td>143854.1</td>
<td>2450.8</td>
</tr>
<tr>
<td>Subsidy expenditure on consumption (1981-2000)</td>
<td>-1574.8</td>
<td>1497.2</td>
<td>-33.3</td>
<td>-7178.9</td>
</tr>
<tr>
<td>Revenue effect on tariff (2001-2007)</td>
<td>5629.6</td>
<td>3476.9</td>
<td>12656.0</td>
<td>1695.7</td>
</tr>
</tbody>
</table>

Parentheses indicate standard deviation.
Source: Calculated by the author.

Table 5 shows the Iranian meat policy on producer welfare, subsidy expenditure, social costs and foreign exchange. Producer were subsidized from 1989-2007. The gains in producer welfare from 1989-2007 correspond to 17% of the total cost (aggregate of change in welfare and social cost). The foreign exchange was positive during the period 1989-2007.

The consumer welfare effects of the consumption policy are shown in Table 6. Consumers were subsidized until 2000. The loss in consumers’ welfare from 2001 until 2007 was due to a reduction in consumption subsidies. Prices to consumers which were lower than import prices until 2000 become higher than import prices. Because of inelastic demand, social cost of the consumption policy was much smaller than those of production policy. However, the foreign exchange was large and negative for 1989-1999 periods, declining consumer prices during this period increased consumption and imports and had a negative effect on foreign exchange.

On average over period of the study, meat market liberalization causes increase domestic meat production by 13.1 thousand tons per annum, foreign exchange caused falling effect on production about 353.2 million dollars per annum, while the foreign exchange caused falling effect on consumption side about 1422 million dollars per annum, in period 1981-2000 that consumer price was lower than world price, however, in period 2001-2007 that domestic price was higher than world price, the foreign exchange effect increase by 1036.2 million dollars per annum. Totally, the foreign exchange effects on consumption decrease 784.7 million dollars per annum (without considering urban consumption).

Demand quantity decreased 56.5 thousand tons, because of domestic price increased in period 1981-2000, however, in 2001-2007, quantity of demand increased 30.5 thousand tons per annum, because of consumer price decreased. Totally, demand quantity declined 33.9 thousand tons per annum.

Thus, change on trade after liberalization in period 1981-2000, because of decreasing in rural consumption and increasing in production, changed an average of 70.1 thousand tons. However, in 2001-2007, because of decreasing consumer price, consumption increased in rural area, but, in producer side, production increased (as mentioned above) net trade after liberalization an average 18.9 thousand tons (without considering urban consumption).

Besides indicating the effects of liberalization on agricultural export and import, the four proposed WTO tariff reduction scenarios also assess the impacts on producer and consumer’s welfare as well as on government tariff revenue. In most developing countries, the agricultural sector is one of the largest employers in the economy while many household also spend a disproportionate share their income on food. Iranian consumers’ welfare in 1981-2000 lost 4287.5 million dollars and in 2001-2007 gained 22931.8 million dollars. On average from market liberalized and producers’ welfare gained 9235.1 million dollars in 1981-2007 if trade regime had been accrued.
Also when trade liberalization regime had been accepted, government expenditure on production increased by 46549.1 million dollars, because difference between producer price and world price had been increased, while expenditure on consumption side during 1981-2000 decline by 1574.8 million dollars per annum.

Therefore, if meat market liberalized, rural consumer and producer welfare increased and decreased in foreign exchange in both side, also in this situation, government budget decreased.

Although, this study results proved that meat market liberalization increased welfare in both side, but we should notice all points of liberalization include unsupported low-income rural consumer by government.

**CONCLUSIONS**

In this study, the recent changes in the Iranian meat policies were analyzed through measures of government intervention on nominal rates of production and on the welfare of producers and consumers. Elasticity of demand and supply of meat in rural area in Iran were estimated and used as a measure to examine the changes on producers and consumers’ welfare.

The price elasticity of supply and demand which calculated, indicate that the Iranian producers are more sensitive to price changes than consumers. However, consumption is more respond to changes in production. Increase in production cause an increase in demand for meat product.

Annual data for the period 1981-2007 were used to calculate a simple supply/demand relationship. Given the big changes in meat policies in that period, which affected directly production and consumption, it is necessary to develop models which could calculate such shock and improve the estimates of the elasticity.

The meat market liberalization in Iran result in diminishing of average domestic market price and generally increase rural area consumers’ welfare; also, growth in producers’ price cause an increase in producers’ welfare. Foreign exchange cost on the production side would decline due to decreased of meat import. It shows that produce of meat is more economical than meat import. On consumers’ side, foreign exchange cost have decreased from 1981 until 1999, because of increasing in consumers’ price and decline in demand of meat. However, foreign exchange cost has increased from 2000 until 2007, because of decreasing in domestic price and increasing in demand of meat. If the market had been liberalized the government budget would have been increased on producerside. However, it wouldbe increased from 1981-2000 on the consumer side and in the last period it would be decreased, but at the end it would be decreased 665.8million dollars per annum on the consumer side.

In order to improve the meat market situation in Iran, the following recommendation may be functional:

- Considering the low level of government activities, the role of the government in the meat market should be reduced. In the meanwhile, the government should buy and import amount of meat as stock in order to supply them in time to decrease the market shortage.

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