

Evaluation of Government Subsidies for Irrigation Water and its Influence on Tillage Costs in Iran (A Case Study: Kashan)

Mohsen Tarafdar

Faculty member of accounting department of Islamic Azad University-Kashan branch.(kashan- Iran).

Abstract: Nowadays, to support agriculture against other sections has been definitely accepted for theoretical and empirical reasons, in almost all governments. This study purpose is to evaluate governmental subsidies for irrigation water and its effect of tillage costs in Iran (case: Kashan). This study is an application –development in terms of objective and is a post- event in terms of the study design and descriptive in terms of conclusion. The study results show that Iran government has tried to reduce farmer's costs through selling inexpensive water from its investments and reduction of the electricity cost of water wells and granting cash helps or low interest loans. However, because of wide spreading nature of agriculture in Iran, government subsidies are not handled to the farmers sufficiently.

Keywords: Government Subsidies, Irrigation Water, KashanRegion, Tillage costs, Agriculture Section.

1. INTRODUCTION

After the Great Depression 1929 -1932 and provision of Keynes's perspectives, governments undertook a more active role in their country economy, one of which was to support Agriculture against other sections such as business and industry, through different ways like tax breaks and subsidies payment.

Today, governments support agriculture because of theoretical & empirical reasons. One of the theoretical reasons is that in spite of industrial production, agricultural crops are possibly endangered and damaged from external uncontrollable factors like flood, storms, pests, sudden temperature changes and ... because of wide surface of productions.

Another theoretical reason is the permanent reduction of exchange rate between crops and industrial products, against agriculture, according to well- known rule of Angle. According to the rule, relative price of a crop is reduced against industrial products and this will lead the farmers` loss.

Of the empirical reasons to support agriculture section is the U.S experience. The U.S, as the country which used most mechanized agricultural methods during the last century, through supporting the farmers, well showed that agriculture cannot grow without the government supports. During 1950`s and 1960`s it bought million tons of the excess grain crops from its farmers , which had no international market at that time , and poured them in to the sea in order to prevent price reduction of grains and farmers` loss.

Since 1970`s, the government supported the farmers by exporting the grain excess, when demand on grained significantly increased in international markets.

Since the early 1930s, governments of wealthier countries around the world have used a dizzying array of schemes to support and subsidize farmers. In poor countries, where a large fraction of the population is engaged in farming, governments have tended to tax and regulate agriculture. As incomes grew and the population on farms dwindled in such countries as South Korea and Taiwan, those countries` governments shifted from penalizing farmers to subsidizing them and protecting them from imports. These countries, along with JAPAN, now have among the highest subsidy and protection rates in the world. Forms of farm support also differ by country and commodity, and different forms have different impacts on agriculture and the rest of the economy¹.

2. LITERATURE REVIEW

Alston and James (2002) have criticized farm subsidies and believe it impose net losses on society, often called deadweight losses, and have no clear broad social benefit².

Johnson (1991) and believe farm subsidies impede movements toward more open international trade in commodities and thus impose net costs on the global economy³.

Gardner (1992 as a Supporter of farm subsidies has argued that such programs stabilize agricultural commodity markets, aid low-income farmers, raise unduly low returns to farm investments, aid rural development, compensate for monopoly in farm input supply and farm marketing industries, help ensure national food security, offset farm subsidies provided by other countries, and provide various other services⁴.

Balali and etal (2008) in a study in Iran believed that during the recent decades, government subsidies to the farmers have led the farmers in Bahar region of Hamedan province to dig wells and expand agricultural lands, however this led to carelessness on ground water resources⁵.

Foster et al (1986)study the distributional welfare implications of a subsidy for irrigation water for California rice producers. They argued two important policy conclusion of the results are that unsubsidized producers bear part of the cost of a subsidy through lower prices and that consumers (taxpayers) may gain by sponsoring increased production through a selective subsidy⁶.

Imperial irrigation district draft updated June 2009 (2009) argue water management strategies. This report discusses the Imperial Irrigation District (IID) is developing the IID Integrated Resources (IID Plan) to provide a roadmap for developing new water supplies and to better manage existing supplies. It mention that one of these strategies is economic incentives. Economic incentives include financial assistance, water pricing, and water market policies intended to influence water management. Economic incentives can influence the amount of use, time of use, wastewater volume, and source of supply⁷.

3. STUDY QUESTIONS

Purpose of the study is to answer the following questions;

- 1- In which fields does the government in Iran grant subsidies for irrigation water?
- 2- How do the subsidies to the irrigation water influence the farmers cost reduction?
- 3- Are the subsidies assigned sufficiently to the farmers?

4. STUDY METHOD

Study method contains all the tools and stages of collecting systematic information and the way of their rational analysis to reach to a certain purpose, which is generally to discover the facts. This study is an application- development one in terms of objective and descriptive in terms of conclusion and will answer the questions as well. Also the study is a post- event in terms of the study design and has been conducted through librarian documents and literature and also interviews.

1. Study population

The study population is the farmers of Kashan Region (a city in center of Iran) who were acting from 2008 to 2012 in this region including farming or gardening, according to the following properties;

- 1- Had been working during the mentioned time, continually.
- 2- Had cultivated more than 1 Hectare land.
- 3- Their documents had been available in agriculture organization of Kashan.

2. Data collection method in this study

In order to collect data, documents of agriculture organization of kashan, librarian literature and also interviews with the farmers and experts have been used.

5. STUDY FINDINGS

The forms of subsidy vary by country and commodity as well. The main forms of subsidy include: (1) direct payments to farmers and landlords; (2) price supports implemented with government purchases and storage; (3) regulations that set minimum prices by location, end use, or some other characteristic; (4) subsidies for such items

as crop insurance, disaster response, credit, marketing, and irrigation water; (5) export subsidies; and (6) import barriers in the form of quotas, tariffs, or regulations⁶.

In addition to theoretical and empirical reasons mentioned for supporting agriculture, this section (agriculture) has an important role in Iran economy as it provides 18 % of total GDP, 25% of employment , 85% of food requirement, 25% of non- oil exports and 9% of industrial materials, so the government has assigned subsidies to agriculture on irrigation water⁹.

a) Government subsidies for irrigation water in national level:

One of the subsidies which the government allocates to the agriculture section in a widespread level is the inexpensive irrigation water, provided from its investments, and sells it to the farmers.

In ACT 33 of the justice distribution rule, approved by Islamic Parliament 1983, it is stated that:

“ Ministry of power has to determine the water rate for household, agricultural and industrial uses considering to the way of extraction and consumption for each user throughout the country as follow and receive it after approval of economy council:

1- In cases in which water is extracted by the government and provided to the consumer, in an adjusted way, the water rate is determined considering the current costs such as management, maintenance, repairs, utilization and utilities depreciation costs and regarding to economical social conditions of each region and then is received from the user (farmers).

2- In cases in which water is not extracted by the government, it can specify tolls, regarding to economic and social conditions of each region and then receive it from the user¹⁰ (justice distribution rule of water, 1983).

To perform the above act, ministry of power has allowed district water companies to prepare agriculture water rate tariff by definition of the following parameters, in traditional, semi modern and modern networks⁹:

- 1) Average crop per hectare
- 2) In cases in which the crops have fixed prices, the criterion is the approved rate of the economy council.
- 3) Water requirement of the crop.
- 4) Crop unit price in the farm for the other crops.
- 5) Under cultivated area
- 6) Cultivation pattern.
- 7) Kind of the network.

By using statistic data literature published by ministry of agriculture and information on average crop per hectare and also considering the crop price in farm or probably the fixed and guaranteed prices of the crops, the agriculture prices of modern-semi modern –traditional networks will be obtained as follow, considering weight average of under cultivated area of the related crops:

$$\text{One m}^3 \text{ of irrigation water tariff} = \frac{\text{average crop function} * \text{water price portion} * \text{crop price}}{\text{optimal water consumption pattern} * \text{cultivable area}}$$

According to paragraph (a) of subsidies objectively law, approved by Islamic parliament Dec 2009, government is allowed to determine average water price for different uses

, regarding to the quality and extraction way in the country, in such a way that it equals to its cost until the end of the Fifth economic , social, cultural development five –year plan (2015).

In note 1 of the law it is stated that: “Government has to determine the water cost considering costs of supply, transform, distribution and productivity.”

In note 2 it is noted that: “Determination of preferable and stairway price for different uses of water, regarding to geographic regions, kind and amount of usage, is allowed” (subsidies objectively law).

Head of water section deputy of ministry of power, Mr. Daemi , in an interview with Mehr press , cited the finished price of agriculture water including supply transfer and distribution in modern and semi modern networks , 900 Rls per one m³ of water, this estimation related to May 2011. He added that receiving the water price in agriculture section from the users depends upon the crop per hectare. If they use modern networks, from 1 to 3 percent of the crop price will be received which is varied from 30 to 100 Rls. He noted that the government has to increase water price up to its finished price during the fifth five- year plan¹².

The cost of irrigation water will definitely become more than 900 Rls at the end of the fifth plan and therefore the current tariffs have increased with a higher rate than the cost, in order to be equal in 2015. This will force a heavy pressure on farmers, so the government will have to do proper actions against this condition and to reduce the extra cost pressure on the farmers. He also noted that:” there is no tariff for ground water and no cash is received”

It should be cited that the water tariff is now only received from agriculture uses which consume surface water resources and no tariff is received from ground water resources according to the law 2005.

Therefore, throughout the country, the fore mentioned formula is the base of irrigation water price receiving in modern and semi modern irrigation and drainage network in which water is supplied by government investments. In practice, water price received from the farmers varies from 30 to 700 Rls(each dollar equals 30, 000 Rls, so the price is between 0.1 to 2.5 cents). These prices are applied while the cost of each m³ of water in modern and semi modern networks is 900 Rls (30 cents) in 2011.The difference between cost of irrigation water 900 Rls per m³ of water and the received price from the farmers (between 30 to 700 Rls), shows the high subsidies which is provided by the government.

b) Government subsidies for the farmers in Kashan:

In Kashan district, about 60 percent of water resources consumed by agricultures, is supplied by aqueduct and springs. Wells are often located in desert regions and aqueducts are most located in mountaineer ones. Government provides subsidies for irrigation water through agriculture management of each city.

In City of Kashan, Agriculture Management Office put two kinds of subsidies for agriculture either directly or

indirectly, related to the agriculture water:

I. Direct subsidies:

This Kind of subsidies is handled to the farmers as cash assistance and state facilities to establish utilities for pressurized irrigation. In order to convert traditional flood irrigation into modern pressurized systems, the government assigns 70/000/000 Rls to each farmer who owns more than 1 hectare lands, for each hectare of the land either it is garden or farming land, half of which, i.e., 35/000/000 Rls is as grants and the other half is as loan with 13% interest (while the bank system average interest rate is 24% for economic actions, this amount of interest rate is inexpensive). In the past years, the subsidies were lower and have been gradually increasing. In agriculture year(2012-2013) about 28 Billion Rls was paid by Agriculture Management to the farmers to equip about 400 hectares of farming lands for pressurized irrigation,14 Billion Rls of which were grants(none interest) and the rest was loans with 13% interest.

II. Indirect subsidies:

In addition to the above cases, government pays indirect subsidies to the farmers for agriculture divided into several parts:

1- *Help to construct water canals, storage reservoirs, reconstruct the aqueducts, piping and etc...*

Agriculture Management of Kashan has granted cash assistance to prevent water waste and to use it optimally by piping, canal building, water reservoirs and reconstruction of aqueducts. To do this, professional contractors have been consulted and contracted with to prepare the related equipment. 85% of the contract costs were paid from financial resources of the government and the left 15% is paid by the farmers (participation of farmers used to be in cash payments but now service and work are received from them instead). In agriculture year of 2012 – 2013, 22 Billion Rls was paid by Agriculture Office of Kashan to the farmers.

2- Payment of 7% interest loan

Agriculture Office of kashan has introduced needful farmers to the bank to utilize low interest loans (most of them are yeomen who own farming land or small gardens). Experts of Agriculture Office of Kashan introduce them to the bank to receive low interest 7% loans (regarding to the fact that now the interest rate for economic acts is about 24% and the loan is really inexpensive and in turn, the bank pays the balance to the other banks). Now, most farmers use these facilities to construct water reservoirs.

3- Very low cost of water wells electricity consumption

According to the Act of Islamic Parliament of Iran, at present electricity cost consumed by water wells is 8 Rls per KWh, while the households electricity consumption cost is about 400 Rls per KWh, so high subsidies are allocated to it for the farmers. This can play a very important role to decrease farmers` costs to extract and utilize ground water.

In addition to the above cases, experts of Agriculture Management provide free consultancy to the farmers about cultivation, harvesting and implanting. Kashan district farmers are most elderly and have low level education so using expert and scientific opinions in most cases such as optimal use of irrigation would be very useful to them. Regarding to significant subsidies which are paid by the government to the farmers in this region (generally throughout the country), irrigation water price is very low for water owners which makes inefficient use of water, so that irrigation water productivity is about 35% in Kashan Region. (An interview with an expert of water resources)

In this region, water owners are allowed to extract about 3000 hour's water from the wells and the allowable flow for which is varied according to its permit in most cases. By ending the quota of 3000 h water, the water owners receive extra quota without paying when referring to district water management organization and their water meter will be recharged so they can extract more water from groundwater resources.

According to the experts of Kashan Water Resources Office, about 2.5 times more than the quota, i.e. 7500 hours is removed from the wells every year which applies a big damage to the ground water resources of Kashan.

6. CONCLUSION

Regarding to the study findings and to reply the discussed questions, it should be noted that the government emphasis to help farmers in agriculture gardening, is based on inexpensive irrigation water which is acquired through the government investments, so that the water cost contains only 1 to 3 percent of the total crops. In addition to these supports, cash assistances and grants or very low interest loans are assigned to the farmers who use well and aqueduct water, they own or rent.

Also, low interest loans are assigned to yeomen to do infrastructural affairs like water canal or reservoir construction and aqueduct reconstruction. However, because of expansion of agriculture activities in the district and low allocated credits, loans and grants are not sufficiently provided to the farmers and only 10% of irrigation in Kashan has been converted into pressurized irrigation. Therefore, direct and indirect helps of the government to the farmers play an important role to reduce farmer's costs and increase their profit and have encouraged them to continue their activities.

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AUTHORS PROFILE



First name: Mohsen
 Last name: Tarafdar
 Date of birth: 10/8/1963
 Education: PHD of Economic Sciences.(2009- 2014) in Armenian National Agrarian University (Yerevan- Armenia).

Thesis topic: Economic value of irrigation water in Iran (case: Kashan Region).
 Occupation: Faculty member of accounting department of Islamic Azad University- Kashan branch.(Kashan- Iran).