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„Institutions in Transition –

Challenges for New Modes of Governance”

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Commodity Exchange and Institutional Changes

:Case of Iranian Agricultural Commodity Exchange

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Abstract:

In this study, an attempt is to figure out the institutional changes that initiate the agricultural commodity exchange (ACE). To assess the affecting factors, new institutional economics approach has been chosen. The framework consisting of four levels of social analysis introduced by Oliver E. Williamson is used to analyze the social environment, institutional rules, institutional arrangements and finally the agency level economics (Neo-classical economics). Regarding this framework, the institutional changes that have initiated the Iranian ACE is analyzed and its constraints to further improvement are discussed.

Key words: Agricultural Commodity Exchange, institutional economics, Iran

JEL codes: G1, O3, L1

Introduction:

As agreed by a majority of authors who have studied commodity exchange markets, the main objective of commodity exchange is to reduce the transaction costs of trade by gathering the sellers and buyers in a single place. In such environment competition would increase and an equilibrium price would be discovered. The price which is set up for a certain commodity is the true value of the good which has been brought up by the demand and amount of supply. Free and equal access to the market information causes a transparency in this type of markets. Besides, the standardization of commodities by market regulators (a third party) would decrease asymmetric situation considerably. In the case of well functioning, this approach of trade would reduce additional increase of commodity's price to which it may be caused by the

transaction costs. This situation is very close to the assumptions made by the neoclassical paradigm. Agricultural commodities exchange is more or less similar to other commodity exchanges except that not all agricultural products can be traded through this market. The tradable commodities are unified by several characteristics such as being mass, able to be standardized, ability to be stocked and low level of monopolization (i.e. highly competitive).

In 1996, Iran has applied to join the World Trade Organization (WTO). Since then, political decisions toward approaching the requirements of WTO accession was taken by Iranian governments. Between adjustments of tariff barriers and industry supports, establishment of commodity exchanges have been also remarkable. Finally, in the 3rd five year development plan (FYDP), 1998-2003, Iranian parliament has approved that commodities exchange can be created with the same legal framework of stock exchange market (which has been established in 1967). In 1999, Iranian Agriculture Ministry has been recruited to set up the Iranian Agricultural Commodities Exchange (ACE) in collaboration with Iranian Stock Exchange Organization and Agricultural Bank. Finally in 2001, the first Iranian ACE has been launched with 4 crops in the province of Gorgan -a large producer of cereal and legumes.

Despite the few years of Iranian ACE's performance, scientists argue that it has failed to reach the objectives that have been defined for it (Chizari, 2004), (Sabagh Kermani & Azizi, 2009). One of its objectives was to replace the role of state in organizing the agricultural trade market but the institutional environments have not altered in favour of this change (toward privatization). In this literature review the situation that has initiated the Iranian ACE would be assessed and the obstacles to its development would be listed.

1. Agricultural Commodity Exchange in the World;

Historically, it is reported that forms of rice futures trading existed in China 6,000 years ago. Aristotle, in his book of Politics, described the use of option call on olive oil trade. But, the first organized future market was established in 1730 in Osaka, Japan on rice exchange. In the US, organized trading boards for maize and cotton future trade were set up in Chicago and New York respectively but with a low trading floor, till in 1856, when the new management decided to establish grades and standards as well as a nationwide price information system (extracted from the UNCTAD report, 2006)

1.1 Cases in Latin America:

Latin America's largest and most important commodity exchange is the Bolsa de Mercadorias & Futuros (BM&F), in Brazil. In 1997 & 2003, it was ranked as the world's 4th and 11th largest future exchange respectively. This fall in the international ranking was mainly caused by the Brazilian devaluation which impacted on trading volumes (UNCTAD, 2006). Agricultural contracts exchange, especially coffee (100 million US dollar worth of trade per month), counts for a big portion of trade hardly comparable with main commodity future markets in New York and Chicago.

Argentina has one of the world's oldest agricultural commodities futures exchanges, the Bolsa de Cereales dating back to 1854. The Argentinean commodity exchange experienced fluctuations from time to time as the governmental regulations changed. Argentina is a country with a highly literate population (97.2% of adult literacy, 2001 census) and an export-oriented agricultural sector.

1.2 Cases in Western Europe (former communist countries)

Several countries with economies in transition have domestically oriented futures exchanges. In Hungary, the Budapest Commodity Exchange (BCE), created in 1989, which trades in financial futures as well as grains and livestock, has been quite successful, ranking as the world's 44th futures exchange in 2004 (UNCTAD, 2006). In Czech Republic, Romania, Bulgaria commodity exchanges have been created after the collapse of communism legacy (Since 1990) and they are mostly focused on organizing trade for immediate physical delivery.

1.3 Cases in Africa

The idea of Zimbabwe Agricultural Commodity Exchange (ZIMACE) arose in the early 1990s, when the government committed itself to liberalize agricultural marketing which was under parastatal control for years. It became apparent that an organization was needed through which free marketing of agricultural commodities could occur (Masanganise, 2002). The first stakeholders of this organization were two private companies of Commercial Farmers' Organization and Edward & Co. Prices became market determined with the exception of the Grain Marketing Board (GMB) that continued to set floor prices for commodities.

Despite the constraints that smallholders face in trading through the ACE such as quantity offered, quality of produce and infrastructural shortcomings, since 2000 the government has embarked on massive land reform and resettlement exercise which has added more smallholder farmers. This institutional environment change in Zimbabwe has changed the institutional arrangements between brokers and smallholders. Since there are a number of conditions to trade through ZIMACE such as the volume of each transfer should be at least 5 tons for cereals and oilseeds, some smallholders who choose to trade through ZIMACE would not benefit fully from the equilibrium prices for as Masanganise (2002) has identified that some brokers can buy commodities which could be sold to end users like millers without going through the Exchange. These deals will not give the farmer competitive prices.

1.3 Iran

The Iranian AEC today exchanges 10 agricultural commodities. Not all of the commodities have experienced a good trade through the ACE. As shown in the table 1, the biggest shares of exchanged contracts belong to corn and oil cakes, which both are used as livestock feeding. In between, barley has also a considerable exchange. These exchanges are mostly traded in immediate physical delivery (forward exchange has a small portion of exchange).

Table 1: Iranian agricultural commodity exchange in 2007

Commodity	Commodity Volume exchanged (Tonne)	National production	% of national total Production	Exchange Value US \$*	N° of contracts exchanged	Share of total N° of contracts exchanged
Rice	115	1819990	0,01%	157796	23	0,04%
Barley	39025	1624515	2,40%	6943565	7805	12,15%
Pistachios	0	307036	0,00%	0	0	0,00%
Lentils	75	7813	0,96%	51067	15	0,02%
Corn	149800	1231665	12,16%	30305603	29960	46,63%
Sugar	245	***		101684	49	0,08%
Oil cake**	81910	***		25384126	16382	25,50%
Date	24500	507852	4,82%	3558333	9800	15,25%
Tea	500	150483	0,33%	206278	100	0,16%
Raisin	297,5	***		239653	119	0,19%
Total				66948105	64253	100,00%

Notes: * Iranian Rial currency has been transferred to US \$ with a exchange rate of 9000 Rials=1 US\$ (Average of 2007)

**Solid residue of oil seeds (soybean, colza and sunflower)

***Processed food that needs conversion rates for calculation, but national production of the primary products of these food are as following in tons; Soybeans: 83366, Colza:31205, Sunflower: 25777, Sugar Beats:5729105, Grapes:1415780

Source: Iranian AEC, section of research and development, National Annual Statistic book, and self calculations

Iranian Ministry of Trade has made an agreement with the organization of commodities exchange and Ministry of Agriculture to trade the imported commodities in the ACE. So commodities such as corn, barley, oil cake are mostly those which have been imported from countries such as Brazil, Argentine, Canada and they are delivered in the Iranian southern ports (mainly Imam Khomeini Port). For other local products (mainly date, tea, raisin, tea, pistachios and rice) there are provincial ACEs where local traders trade through these markets. As it's shown in the table 1 their share in the total exchange is considerably low (except for date).

Iranian ACE has been established to solve some of the market imperfections which exist in the agricultural sector. In the 3rd part of this study, we would mention and discuss a few main reasons which result in the low amount of exchange for local commodities. The analysis of the reasons is based on the institutional economics theory. Williamson (1998) has categorized the institutional economics into four levels, respectively from the first to the forth are; Social theory, institutional environment, institutional arrangement, Neo-classical economics. In the following (2nd part) a theory of these institutional economics would be reviewed.

2. Reasons influencing the raise of ACEs:

2.1 Social Theory

Trade rules and customs have been developed through centuries in different parts of the world. Almost everywhere in the world traces of spot markets can be found, places where suppliers and buyers gather and determine a price through bargaining. Social norms, traditions and religion have had effects on agreements and the way the trades took place. Sales through fairs, trading by instalments and contracts for future delivery are ways of marketing commodities which are continued till today without any changes or some changes have occurred along with the changes in social norms and technological improvements. These changes have tried to increase the security of exchanges. While in the past, trades were mostly based on individual trust, through time methods of enforcements have been established. When the size of a society grows to a certain size where buyers and sellers no longer know each other, they seek ways to decrease their uncertainty in trade. Milan Zafirofski (2003) called the former situation as “communication network” by where he cites from Granovetter (1985) that according to the new economic sociology, social relations are fundamental to market processes, and elaborates further that these relations imply a microstructural concept of markets where informal and interpersonal relations such as face to face contacts, ties and interactions are established among actors of the market. In the case of agricultural markets, ties are made between producers, traders and consumers. But as societies have grown in size and transportation has become cheaper, these ties have been to some extent broken when new producers and traders from other regions have entered a certain market. This fact gradually brought up the need of some institutional arrangements that a third party would oversee the well functioning of the market. (further discussion would be left to the realtive section, 2.3)

2.2 Institutional Environment

Williamson (1998) defines the institutional environment as a product of politics which provide the rules of the game within which economic activity is organized. The judiciary system, public laws and bureaucracy of administrative activities shape up the institutional environment of a society which make constraints for members of society not to pass the limits which would create disorders in the society. With the same concept we may conclude that Exchange Markets are launched by states with predefined rules to bring discipline to the trades that take place in society. Institutions have change and develop to cope with problems that the society is facing. For example, the uncertainty in time of delivery and products’ prices of trades between the agricultural producers and processing firms can be reduced by contract farming by the function of intermediates. Larger private traders and banks are in the best position to become these intermediaries (Verangis & Larson, 1996), but in order to avoid exploitation of farmers (in extreme terms, monopsony) and a fair trade to take place, a highly competitive market place is advised. As mentioned by a study, prepared by the UNCTAD, in economies which to a certain extent are disorganized and markets are imperfect, the presence of an exchange market can impose discipline on the commodity sector. This is where the role of governments comes through.

In most Central and South American countries the commodity exchange has been introduced after the liberalization of markets of 1992. Liberalization brings structural changes in market and producers use few approaches to mitigate the risk and hedge the price decline. Thus, the exchanges in Bolivia, Costa Rica, the Dominican Republic, El Salvador, Honduras, Nicaragua, Panama, Peru and Venezuela were created mostly as a mechanism for the organization of domestic agricultural trade flows (UNCTAD report, 2006). These markets were to create a discipline in trades to discover an equilibrium price for agricultural commodities through the supply and demand of private firms.

But although these regulations are set by an authority, do they function in a same way in different societies which have their own institutional arrangements?

2.3 Institutional Arrangements

The rules of the game have been already set up in the governmental level (institutional environment); this level deals with the play of the game (as named by Williamson, 1998). Institutional arrangements deal with the governance structure of an agent. Issues such as contracting and the transaction costs are discussed in this area.

The regulatory structures of ACE which govern exchange markets concerning the accounting procedure, the organization of trading and clearing facilities are pre-specified and almost uniform worldwide, but as Merton and Bodie (1995) have revealed the way these markets are performed, may differ regarding the institutional arrangements of each country. Social norms would also influence the acceptance of traders and suppliers to take part into the ACE, either to contact through the market or continue to trade traditionally.

As a focal point for trade in a sector, the concentration of buyers and sellers in one place reduces the transaction costs that would have been incurred in the search for a suitable counterparty (UNCTAD, 2006). Additional increases in a good's price which may occur in other markets because of transaction costs are minimum in these markets. Bick (1982) and Damodaran & Subrahmanyam (1992) as cited by Tsetsekos & Varangis (1998), address the information content related to the ACE, and that ACE increase the liquidity, i.e. assets would be converted with little change in their price. The time spent to gain information is decreased using digital casting in the markets. However, the amount of time that a trade may take to be accomplished would itself be accounted as a value added to the commodity. An estimated cost of time is taken into account at the time of future contracting. On the other hand, the longer a trade continues the more asymmetric information among the participants (Tsetsegog & Verangis, 1996). When a contract continues its length of time, price expectations increases and price deviations are common. To avoid these market failures, it is recommended by the mentioned authors to promote technology information and to impose more rigorous disclosure rules by the regulatory authorities.

Contracts which are possible over the counter (OTC) of the ACE have the same concept of conventional contract farming. Generally, three types of contracts are common for agricultural commodities in ACE, which are; Forward, Future and Option. Such contracts

convey the delivery of the goods to a future time. Although, immediate deliveries are also practiced in many countries and are also possible through repurchasing receipts of future contracts and receiving the stock from the warehouse.

Although elimination of various intermediary chains in agricultural commodities markets will be risky for the incomes of the people involved, stabilization of incomes might be more beneficial for the traders (Kourmanova, et al, 2008). A well-functioning exchange acts as an "island of excellence", and can extend high levels of performance and integrity attained in its core functions to other areas of commodity-sector activity (UNCTAD, 2006). The commodity exchange, beside the trading procedure, introduces a financing system where the financial institutes can provides credits to producers in an environment with a lower level of risk. As Tsetsegog and Verangis (1998) have revealed in their case study, derivatives exchange contribute to a development of financial infrastructure of a country by providing the links among cash markets, hedgers and speculators. The purchaser's payment for a derivative is a source to provide credit to those producers who have delivered their good to commodity exchange. Here, their receipt of deliverance to the warehouse functions as collateral to a loan.

2.4 Neo-Classical Economics

Neo –classical economics analyzes the situation of the market from the point of view of an agent. In this school of thought, a firm is assumed to act rational, thus it chooses the best option to trade. The factors that an agent would take into account while decision making are the prices offered by the market, the amount of risk, and the transaction costs that he may encounter by trading through that market.

It seems obvious that each individual would seek the best price to sell his products to gain higher benefits from the trade. If the prices traded in ACE are higher than spot market, it is expected that individuals would sell their produce in ACE. As it can be seen it table 2, for the coming cropping year (products mainly harvested in August) the guarantee prices are chosen higher than the ACE's May prices.

Table 2: Comparison of Guarantee & ACE prices

Crop	Guarantee Prices (cropping year 2008-09)	Guarantee Prices (cropping year 2009-10)	ACE Prices (Average 2nd week May, 09)
Wheat	2 250	3050	2350
Barely	1 650	2700	2063
Maize	1 750	2760	2775

Source: Iranian Ministry of Agriculture & Bahman Broker Company

Primary products such as agricultural commodities are known as commodities which their prices have high and continuous fluctuations (Sabagh Kermani & Hosseini, 2004). The same authors know instability of agricultural commodities as one of the main reasons to build future markets as organized markets which cope with price risks.

3. Initiatives for Iranian Agricultural Commodity Exchange

Why has Iranian ACE been started? Around the year 2000 what events, national or international, have happened that brought up the need to start an AEC in Iran? What were the Iranian government's expectations from the ACE, and to what extent have they succeeded to reach their goals?

Generally, three main advantages were considered by setting up and developing the ACE in Iran; improvement of economic structure, development of agricultural sector and improvement of export power (Sabagh Kermani, Azizi, 2005), (Chizari, 2004).

3.1 To improve economic structure

One of the main issues that threat the economic structure of Iranian agricultural sector, as mentioned by Sabagh Kermani & Azizi (2005) is that in the traditional market, producers' necessity to credits are not considered where that, orients producers (especially smallholders) towards the intermediaries who provide credits. Contract farming arrangements tend to be characterized by an unbalanced power relationship (Bijnman, 2008). This may easily lead to exploitation of the powerless by the powerful (Little and Watts, 1994, cited by Bijnman, 2008). The contractors in Iranian agricultural sector decrease the agricultural activities' potential profits by pre-purchasing the commodities for lower prices regarding the need of farmers in a certain time of the production period.

Such social environment called the necessity to have an organized structure which would introduce new relations between agricultural sector's actors. Obviously, in this new environment the actors in the traditional market can also be involved by complying with the rules of the game (Sabagh Kermani & Azizi, 2005).

Iranian constitutions, judiciary laws and bureaucracy procedures (institutional environment) where favourable to establish commodity exchange as the Tehran Stock Exchange existed since 1967. Only 3 years has been taken from the date that it has been decided to establish the ACE (1998 in FYDP) till the date that it has formally started its activity (2001). This can be explained by the fact that all fundamental institutions that were required, even buildings and required technology, have already existed. This 3 year period was mostly dedicated to set up institutional arrangements specific to Commodity Exchanges, i.e. decide which products to be traded and setting the regulatory structures which govern exchange markets concerning the accounting procedure, the organization of trading and clearing facilities.

To choose which commodity can be traded through the ACE studies have been implemented to assess the conditions of each specific produce. These studies assessed first of all information such as amount of national production and the portion which is imported or exported for each product category- legumes, cash crops, oil seeds and etc. Then characteristics of each commodity was assessed whether they are possible and beneficial to be traded through ACE. The characteristics which has been used as a criteria named in the studies of Chizari (2004), Sabagh Kermani & Azizi (2008) & Sabagh Kermani & Hosseini (2004) were the degree they are perishable (to measure the ability to be stocked), level of governmental monopolization and monopsony and the way it functions, price risk, ability to be standardized, value added to the national economy and their role in household consumption basket.

It is worth to mention simultaneously to the ACE establishment, Metal and Petroleum Exchange have also been launched. These two other commodity markets are known to have more success than ACE. The reasons that were counted for this success were that the government obliged governmental manufactories of metal and petroleum industry to trade only through commodity exchange. But for agricultural commodities the Ministry of Agriculture has itself became a competitor of ACE by becoming the larger buyer in the country.

Regarding the degree of governmental monopolization and monopsony for a product we may explain why trade of some of the commodities has not yet reached their optimum level. Iranian government, under its support policy, sets guarantee prices for all the crops that are traded through the ACE. It also purchases the produce through a governmental organization called "Rural Cooperation". A high percentage of Iranian farmers sell their produce to state. For some commodities which are known as strategic, policies are made in a way to stimulate production. One of the supports that has been chosen is price support which are relatively high and can be in some cases as same as the market price (e.g. Wheat).

There is a debate which argues that the state should sell the commodities purchased through the Rural Coops through ACE. Till today, the purchased commodities were kept in state warehouses and resold with a lower price either through coupons or to the governmental employees through consumers' cooperatives.

According to regulation 44 in Iranian constitution, governmental responsibility on different economic sectors should gradually be transferred to private sector if the country is self sufficient with educated experts in that particular field. It can be said that one of the initiatives of ACE was to move toward privatization. Although, it has been launched by the government but the brokers are mainly private institutes.

3.2 To improve the export potency

The third goal expected from ACE establishment in Iran is improvement of export power. This is expected to be achieved through standardization of products that are traded through the AEC. Stable and organized standards will lead to the production of products with quality standards able to compete in global market (Sabagh Kermani & Hosseini, 2008). Products are graded by ACE authorities according to their quality and size to be tradable even when the buyer doesn't see them from close. Standardization by a third party reduces asymmetric situation and though reduces the transaction costs of remote contracts. On the other hand, WTO accession requires some institutional environments that are possible to achieve through Commodity Exchanges.

Conclusion

Studying the procedure of ACE establishment in different parts of the world and their development, reveal that, ACE is a response to some economic requirements and its establishment is to bring a discipline to the national economy by its specific institutional arrangements. It can be said that in the recent decades with the collapse of state dominant economics in Western Europe, Latin America and some other countries around the world, Commodity Exchanges have been emerged to create competition and to reform the market structure and the distribution system. This is an accepted event and unavoidable necessity in most countries which have a transition from governmental economy to market based economy.

As mentioned before, one of the characteristics of a commodity which is traded in ACE is to have low level of monopolization. In the case that states intervene in price establishing, either through setting guarantee prices or international trade barriers, expecting a well functioning ACE is far out of reach.

In the case of Iran, it can be explained that the change in environmental institutions has emerged the establishment of ACE. Applying for WTO accession and regulation N° 44 are the two main ones. Despite this big institutional environment change, Iranian Ministry of Agriculture has not yet arranged new sets of policies that would coordinate with the changes and is functioning in parallel to ACE. When the guarantee prices set by the state are equivalent (in some cases even higher) to market prices, the best choice for most farmers is to sell their produce to state (especially smallholders).

Finally, it is concluded that Iranian Ministry of Agriculture, who itself is one of the stakeholders of the Iranian ACE, needs to change its support policies in a way that would not disorganize the market competition.

References:

- Bijman, J., (2008). "Contract farming in developing countries: an overview", working paper, Wageningen University
- Chizari, A.H., (2004). "Introduction to Agricultural Commodity Exchange in Iran", Iranian journal of Eghtesad-e-Keshavarzi & Tose' (Agricultural Economics & Development), 11th year, volume 43-44
- Kourmanova, A., M. Dissenova (2008). "A Study on Mechanisms and Potential for Agricultural Commodities Trade in Central Asia", Asian Development Bank, Almaty, Kazakhstan
- Masanganise, P. "Marketing agricultural commodities through the Zimbabwe Agricultural Commodity Exchange", 2002, Working paper / Friedrich-Ebert-Stiftung ;16), Electronic ed.: Bonn : FES Library,
- Merton, Robert, C. and Zvi Bodie. The Global Financial System: A Functional Perspective. Harvard Business School Press 1995
- Sabagh Kermani, M., Azizi, F. "Agricultural Commodity Exchange in Iran", 2005, Journal of Economic Essays, Spring-Summer 2005; 2(3):9-34
- Sabagh Kermani, M., Hosseini, M.A, "Analysis of commodity exchanges' effect on Iranian economy and agricultural sector", 2004, Eghtesad-e-Keshavarzi va Toswe', 11th year, volume 41-42
- Statistic Center of Iran, "National Annual Statistical book of Iran, 2008", 2008
- Tsetsekos.G, Varangis.P, "The structure of Derivatives Exchanges: Lessons from developed and emerging markets", 1998, World Bank Policy Research Working Paper No. 1887
- UNCTAD secretariat, "Overview of the World's Commodity Exchanges", 2006
- Verangis.P, Larson.D.F, "Dealing with commodity price uncertainty", 1996, World Bank Policy Research Working Paper No. 1667
- Williamson.O.E, "Transaction Cost Economics: How it works; where it is headed", De Economist 146, N° 1, 1998
- Zafirofski, M. (2003). "Market and society: two theoretical frameworks". Greenwood Publishing Group