

# **The Impact of Informal Institutions on Agricultural Production and Marketing: The Experience of Sri Lanka**

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## **Abstract**

Contrary to the conventional belief that agricultural development in developing countries primarily depends on the provision of formal institutions, many countries have recognized from their past experiences that formal institutions alone will not help to achieve agricultural development without positive support from their informal institutions. It is a generally known phenomenon that developing countries have introduced various types of formal institutions (organizations, markets, rules and regulations, technology, constitutions, etc.) without considering the importance of the informal institution in agricultural development. This was one of the main reasons that the growth rate of agricultural development, especially per capita food supply remains lower in developing countries. Therefore, it is important to achieve favorable support from the informal institutions (culture, attitude, ethics, customs, caste, political beliefs, mutual trust, leadership, etc.) to formal institutions to implement efficiently any type of development policy of the agricultural sector. The present study attempts to investigate how informal institutions are effecting achievement in agricultural development, particularly the growth of production and marketing of agricultural products with special reference to Sri Lanka.

## **I. Introduction**

Contrary to the conventional belief that agricultural development in

developing countries primarily depends only on the provision of formal institutions, many researchers in the recent past have argued that difference in the level of agricultural outputs cannot be explained by formal institutional factors alone. Although developing countries have introduced similar types of formal institutions (organizations, markets, rules and regulations, technology, constitutions, etc.) without investigating the role of informal institutions, their growth rate of agricultural activities, especially per capita food supply varies considerably in developing countries according to the contribution level of these two factors, formal and informal institutions. Therefore, it is assumed that total agricultural production not only depends on economic factors like capital, land, labor, and water but also the quality of both formal and informal institutions. However, the impact of these two institutions, especially informal institutions on agricultural production and marketing is not much studied.

Institutions might mean different things to different people and the academic literature is also not very clear on its definition (Acemoglu, Johnson and Robinson, 2004). Institutions are generally defined as the “rules of the game”, or “humanly-devised constraints that shape human interaction” (North, 1990: 03). According to this definition, institutions prohibit, permit or require a specific type of action, i.e. political, economic or social, that are important for reducing transaction costs, for improving information flows and for defining and enforcing property rights. Other scholars include in their definition of institutions organizational entities, procedural devices, and regulatory frameworks (Williamson, 2000: 595).

Institutions are categorized in various ways by different writers: market institutions vs. non-market institutions (Hu, 2007: 9), external institutions vs. internal institutions (Kasper and Streit, 1998: 28 extracted by Hu, 2007: 15), fast-moving institutions vs. slow-moving institutions (Roland, 2004), formal institutions vs. informal institutions (Laiglesia, 2006: 12). However, it is a commonly known phenomenon that agricultural activities are governed not

only by formal written rules but also by unwritten informal codes of conduct and constraints such as norms of behavior and conventions of a society. In this respect, institutions are classified into two major groups: *formal institutions* which are rules that are designed externally and imposed on society by an external authority (state) and *informal institutions* which are rules that evolve within a society. Formal institutions consist of state organizations: Ministry of Agriculture, Agrarian Service Center, Irrigation Department, Rural Banks; Government Policies (e.g. land reforms, tariffs, price controls, subsidies) and Marketing Facilities both for inputs and outputs. The informal institutions include Mutual Trust, Culture, Attitudes, Ethics, Customs, Religions, Caste, Political Beliefs and Community Leadership.

The basic argument for the role of informal institutions in economic activity is that it reduces transaction costs<sup>1</sup>. In most developing countries, particularly in their rural agricultural sector where the formal institutional architecture is either absent or in a poor state, the informal institutions gain prominence by playing a more active role in reducing any kind of transaction costs that engage in all the stages of their agricultural value chain. Therefore, the analysis of the role of informal institutions in the process of agricultural growth is necessary to understand how to overcome all the obstacles that have been placed in the rural agricultural sector of developing countries. Increasingly, economists as well as other social scientists have realized that the behavior and transformation of formal institutions is a function of

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1 According to the institutional economic theory, real-world decision makers will always function inefficiently relative to the hypothetical decision makers of neoclassical theory. The argument of the major cause for this inefficiency is based on the idea that transactions are costly. In the institutional economic theory, the concept of “transaction costs” was first discussed by Coase (1937) in his “The Nature of the Firm”. Coase’s argument is mainly based on the idea that cost of marketing transactions which primarily consist of information costs, negotiations and contract costs should be taken into account (Coase, 1960: 7). However, for this study, transaction costs include those of information, negotiation, monitoring, coordination, and enforcement of contracts.

informal institutional factors. For example, Southworth and Johnston (1967) notice that neither the technology nor the economics of industrial societies can be simply transferred to developing countries whose traditional cultures have been little touched by the ideas of modern sciences or of modern large-scale economic organizations.

In this study institutions will be defined as “a set of formal and informal rules of conduct that facilitate coordination or govern the relationship between individuals or groups”. The study mainly aims to explore the influence of informal institutions on agricultural production and marketing with special reference to Sri Lanka. In addition, it also attempts to review theories of informal institutions and their relations with agricultural production and marketing to provide a base for the survey findings. Then the study focuses on three main informal institutions, namely community leadership, mutual trust and farmers’ attitudes, and their impact on production and marketing of agricultural products in the study area.

## II. Methodology of the Study

**Data Collection:** The data used in the analysis were collected from two types of sources: a literature survey (secondary data); and a field survey (primary data). Secondary data were collected from government and non-government publications and unpublished reports kept by community organizations and leaders in the survey villages. The field survey was carried out in the *Kandalama* South Canal *Grama Niladari* (GN) Division<sup>2</sup> in *Dambulla* electorate in Sri Lanka during May and June in 2009 (see Appendix A).

*Kandalama* village, the study area, can be divided into two major parts:

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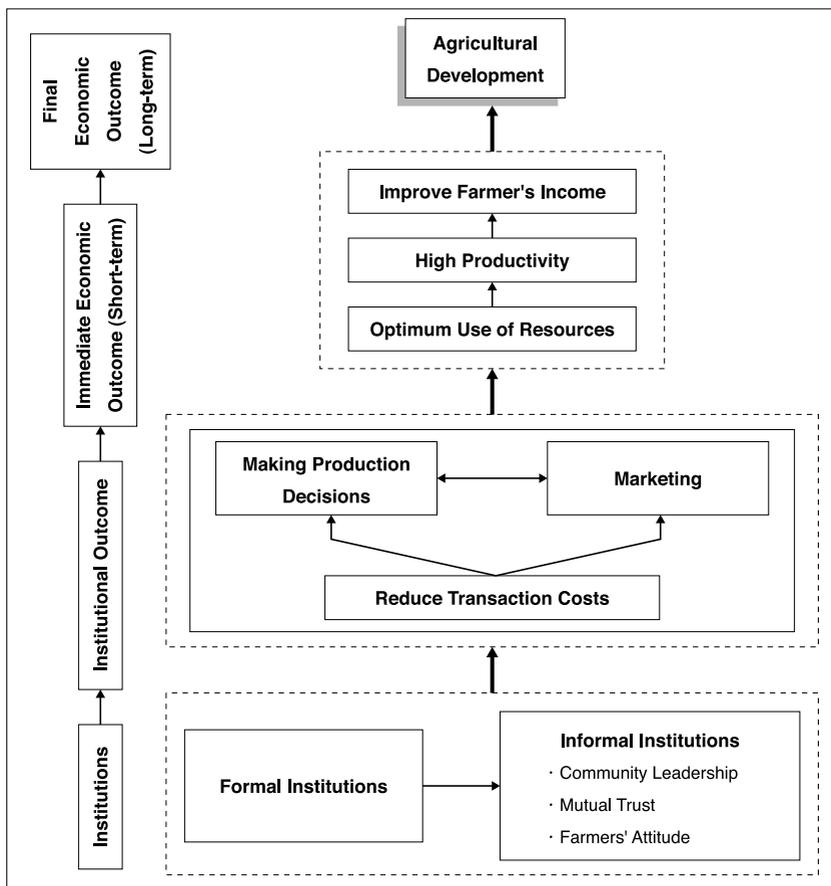
2 GN division is a smaller unit of local administration which comprises one or more villages. It was controlled by a village administrative officer called *Arachchi* in Sinhala language until 1963, and since then this post changed into a village headman or so-called *Grama Niladari*.

Old *Kandalama* Colony and the Expanded Village. Old *Kandalama* Colony was selected for the field survey because it is the core of the traditional village of *Kandalama*. The Old *Kandalama* Colony consists of two main blocks: the 40th Block and the 25th Block. In the survey, 141 households (out of a total 247 households) were selected using random sampling for the interviews which represented the above two blocks. Collected data will be analyzed using the Statistical Package for Social Scientists (SPSS version 17.0).

**Methodology of Analysis:** The study has hypothesized that the agricultural development of the country can be achieved by focusing on the institutional outcome of the reduction of any kind of transaction costs that engaged in the process of decision making and marketing of agricultural products used as a foundation for the subsequent discussion. Figure 1 demonstrates the structure of the model.

According to Figure 1, outcomes of this bottom-up approach are considered to be the results of the behavior of individuals within both the formal and informal institutional contexts. The formal institutions are mainly formed by the government to facilitate its top-down administrative activities. The informal institutions are identified as an intangible resource of the farmers' community itself which has an influence, directly or indirectly, on farmers' decisions and their marketing activities. Although there are various informal institutional factors which can influence the agricultural development in any country, this study mainly focuses on three main informal institutions, i.e. mutual trust, attitudes and community leadership. In order to understand the possible role of informal institutions in agricultural development in any developing country, it is important to examine how these institutions can reduce the higher transaction costs that are engaged not only in the process of farmer decision making where farmers decide on what crop to grow, how much land to allocate for each crop and arrange working capital finance, but also in the process of marketing products. This study identifies

Figure 1: Conceptual Framework



that the major cause of higher transaction costs is a lack of positive support from the informal institutional factors. For example, if there is no trustworthy relationship between farmers and traders/buyers or between farmers and government officials, it may be a major obstacle, particularly for farmers obtaining the correct information. As a result, farmers have to use time and resources to secure the correct information, otherwise lack of information and information asymmetry lead to inaccurate decision making and lower bargaining power. In addition to the information search costs, the

costs that relate to observing, negotiating, or monitoring some events are also considered as a part of transaction costs. However, this study suggests that the transaction costs dealing with information search, monitoring or observing, etc. could be reduced if there is positive support from the informal structure of the society. For example mutual trust accumulated through personal interactions in the community increases the strength of cooperative relationships and hence reduces any type of transaction costs. Thus, the conceptual framework assumes that if informal institutions support positively to reduce higher transaction costs in the process of decision making and marketing, it would help to get the optimum use of resources and hence high productivity. High productivity will increase farmers' income in the short-term and if it continues without fail, it would be possible to develop the agricultural sector in the long-term. However, this study is limited to analyzing the impact of informal institutions on farmer decision making and marketing of agricultural outputs, and it will not attempt to discuss the short-term or long-term economic benefits of institutional outcome in detail.

### **III. Informal Institutions, Agricultural Production and Marketing: An Overview of Theories**

Farmers in both rich and poor countries rely on informal institutions to facilitate their agricultural activities, but these institutions are relatively more important in poor countries where formal institutions are less developed. Theoretically, as neoclassical economists assumed, if information is perfect so that transactions through the market are costless and agency contracts between farmers (principal) and government agencies (agent) are faithfully enforced the appropriate mix of these two formal institutions (market and state) provide an adequate basis for the developing agricultural sector to alleviate rural poverty (Hayami and Goto, 2005: 310). In developing countries, however, information is imperfect, and the degree of imperfection

is comparatively larger in the agricultural sector, resulting in pervasive market and government failures. In addition, market failures are not only not corrected but even enlarged by government failures. Such formal institutional barriers can prevent economic development and agricultural progress. These barriers are created by contradicting institutional frameworks, and by clashes between formal and informal institutions.

In economics, production can be defined as the result of a combination of production factors like land, labor, capital, etc. However, unlike entrepreneurs in the industrial sector, farmers do not have a good knowledge of combining the production factors according to market demand. In general, most farmers in developing countries where formal institutions are less developed grow whatever crop they want, without paying much attention to future market demand. The absence of positive support from informal institutions may constrict farmers for such irrational behavior. For example, if farmers have not built up a trustworthy relationship with traders and grass-root level agricultural development officials, it may be a major barrier to farmers acquiring future market information and hence their non-market oriented behavior. At the same time, if farmers and traders can make a trustworthy agreement like 'contract farming', where a trader provides seeds, inputs and agrees to buy output at specific price, it would offer farmers a great incentive to make their various decisions on the combination of production factors in an optimum way. Thus, trust is important when decision-makers rely on information from others under conditions of uncertainty.

The community leadership, appointed by the government authority or by the community, can also assist in reducing the transaction costs of their community members providing reliable information. For example, if an agricultural community has a leader to control irrigated water, he provides reliable information on when a water canal is open, how many days per week it is open and when it is closed. Then, farmers can decide when to cultivate

and what to cultivate without wasting time. Additionally, community leaders can reduce transaction costs through the correct information and services provided by the higher level of government and private sector that rural farmers are often unable to access. Therefore, the information given by community leaders helps farmers to reduce their transaction costs while not only saving time but also lowering risk and uncertainty.

Mainstream neoclassical economic theory<sup>3</sup> suggests that markets exist in which prices arise from the interaction of supply and demand, and that prices thus generated lead to the efficient allocation of resources in the economy as a whole and hence to maximum welfare. However, this happens under a very restrictive set of conditions which are rarely found in reality. For example, markets have to be perfectly competitive, which suggests that no individual agent is able to exert any form of market power over another agent; also, all agents must have complete and perfect information about the goods or services that are being traded. Under these conditions, neoclassical theory can demonstrate that the economy will arrive at an equilibrium set of prices that allows for the efficient allocation of resources. This theory has been extremely powerful because it suggests that markets are the most efficient way of allocating resources, and it was this theory that underscored the view that 'getting prices right' would enable economic development to take place.

From the point of view of institutional economic analysis, markets can be seen as institutions in themselves, which operate within a wide set of formal and informal rules and norms. According to Hodgson's (2008) definition;

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3 Neoclassical economists like Marshall, Walras, Stigler, Robbins, etc. focused the idea that the determination of prices, outputs, and income distributions in markets through supply and demand, often mediated through a hypothesized maximization of utility by income-constrained individuals and of profits by cost-constrained firms employing available information and factors of production, in accordance with rational choice theory (Antonietta Campus, 1987: 323).

*“Markets involve multiple exchanges, multiple buyers and multiple sellers and thereby a degree of competition. A market is defined as an institution through which multiple buyers or multiple sellers recurrently exchange a substantial number of similar commodities of a particular type. Exchanges themselves take place in a framework of law and contract enforceability. Markets involve legal and other rules that help to structure, organize and legitimize exchange transactions. They involve pricing and trading routines that help to establish consensus over prices, and often help by communicating information regarding products, prices, quantities, potential buyers and possible sellers”.*

This definition is helpful in clarifying that markets are both underpinned by wider institutions in the economy and in its clear recognition that they have their own structure of rules and norms that enable them to operate. In order to obtain a reasonable price, farmers need to be able to have access to both input and output markets that are non-discriminatory and non-exploitative. But when market participants do not rely on the basic norms of trust that guarantee a fair transaction, such market functions are not conducive to promoting greater well-being. If people are generally truthful and honest, it is easier to undertake contracts and conclude transactions because it is simply not possible to commit oneself to a written agreement every time one makes a transaction. In this way, institutional economic theory of marketing has led to the recognition that markets require a wide variety of institutions in order to work effectively. Hence, the transition to ‘getting institutions right’ is significantly related to the view that markets can work to allocate resources effectively while benefiting all market participants if they have a positive support from their institutional framework.

A case study which was done in Sri Lanka by Silva and Ratnadiwakara (2008) has found that there are significant costs attached to information

search and hence transaction costs associated with all stages of the agricultural value chain starting with the decision to grow and ending with the sale of produce at the wholesale market. The total transaction costs associated with all the stages were accounted for 15.2 per cent of the total cost and 11 per cent of those costs were information search costs. In the decision stage, information search costs included visits to meet farmer association officials and other neighboring farmers to decide on a crop to grow; costs of arranging finance where the farmers had to pay multiple visits to banks and other finance institutions to obtain application forms, completing them and finding guarantors. In addition, some farmers leased the land from others and this process had also involved quite a search for information. During the selling stage, it was found that the costs of comparing prices of different markets and traders accounted for most costs while finding transport to physically carry the produce to the selling market also incurred a fair share of information search costs. Their case study reveals that although a number of various formal institutions (divisional level agricultural development centers, state banks, wholesale markets, etc...) have been created to facilitate farmers in their agricultural activities, farmers' information search costs are still higher in Sri Lanka because of the lack of mutual trust between farmers and the other agents.

#### **IV. Impact of Informal Institutions on Agricultural Production: The Experience of the Study Village**

The production composition of the studied village is categorized into two major groups: paddy and vegetables. Since the fact that paddy, the staple food of the people in Sri Lanka, is produced mostly for consumption purposes, it was observed from the field survey that nearly 87 per cent of the farmers had cultivated paddy in the *yala*<sup>1</sup> season in 2008. Among them, there are some farmers who cultivated paddy to market since their attitude toward

net revenue from paddy tended to be higher than other crops. The other major vegetables cultivated in the study area were big onion, chilli, long bean, sweet potato, capsicum, tomato, okra, cucumber, gourd, and egg plant. However, the yield levels attained in almost all crops cultivated in the study area are much less than the potential.

It is important to note that most of the farmers in the study area do not consult with any agricultural development officers before they make decisions on the allocation of production factors for a certain crop. Particularly in the *yala* season when the available water resource is scarce for paddy cultivation, the *Mahaweli* officer<sup>5</sup> explains the advantages of crop diversification at the *kanna* meeting<sup>6</sup>. However, the survey reveals that many farmers do not trust this government official. They claimed that politically biased bureaucrats in the *Mahaweli* Authority of Sri Lanka ask farmers to grow less-water-consuming crops since they want to bring much water to another electorate which belongs to a powerful cabinet minister of the government. At the same time, the lack of trust between farmers and officials has also caused farmers to rely on the information given by the non-officials (mainly input-sellers) and depend on their trustworthiness, even though they neither have enough education nor experience of using inputs to advise farmers. For example, in the study area, more than half of the

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4 In Sri Lanka, there are two major cultivation seasons associated with two monsoons and they are known as *maha* season and *yala* season. *Maha* season is the main season associated with North-east monsoons effective during September – April in the following year. *Yala* season is the secondary season which is associated with South-west monsoons effective during the period between May to September.

5 *Mahaweli* Officer from *Madatugama Mahaweli* Block Office is mainly responsible for discussing the seasonal irrigation schedule prepared by the *Mahaweli* Block Office with the farmers at the *kanna* meeting, while introducing them to proper crops for the next season.

6 *Kanna* meeting is a type of cultivation season meeting which is usually held at the start of the cultivation season at the village temple in *Kandalama* village.

farmers who receive knowledge and information about new seeds and cultivation methods are consulted by non-officials like the private traders in *Dambulla* town, or the village boutique and fellow farmers. However, the high risk of such information given by the non-officials may lead farmers to take inappropriate decisions. Furthermore, distrust which causes uncooperative behavior by the farmers with governmental officials effects negatively on the decision making of both parties. The ultimate result would be excess produce and hence a low market price.

Another important point is that most of the farmers in the study area do not think about market before they cultivate. They usually depend on other factors when they make a decision on what crop, when, and how much to be cultivated. According to Table 1, about one fourth of the farmers selected vegetables because they usually cultivated them every *yala* season. Nearly 20 per cent of the farmers decided to grow vegetables for *yala* in 2008 because of the high price at the market when they were planted. In addition, about 17 per cent of farmers cultivated the same crops that the neighboring farmers cultivated in order to avoid risk of excess water utilization and agro chemical applications. Moreover, 13 per cent of the farmers who had cultivated vegetables for *yala* season in 2008 selected vegetables considering their high prices at the market in the previous year (the 2007 *yala* season). The main reason for farmers' negative attitude towards market-oriented

**Table 1:** Reason for Selecting Vegetable Cultivation, *Yala* Season in 2008

Reason	% of Farmers
Regular crop in every <i>yala</i> season	23.4
High price at the market when it was planted	19.5
Favorable weather conditions	7.8
Neighboring farmers grow the same vegetable	16.9
Low pesticide / fertilizer requirement	7.8
High demand at the market	7.8
High price at the market last <i>yala</i> season (2007)	13.0
Low water requirement	3.9

behavior can be identified as the lack of mutual trust among farmers, traders, and agricultural development officials.

As it is obvious from the data given in Table 1, 'negative attitudes of farmers towards market-oriented behavior' have been the major barrier for crop diversification. Most farmers, particularly paddy farmers, believe that it is not necessary to think about market before they cultivate, while claiming that none can predict the future prices under the situation where market prices are fluctuating daily. Some other farmers comment that it is difficult to acquire reliable market information through the current marketing system and they blame agricultural development officials for not being able to provide future market information. However, it is important to note that information from these three parties which include farmers, traders, as well as agricultural development officials is necessary to make a good prediction for future market demand. If there is no trustworthy relationship among these three parties, they may provide wrong information and it would lead to wrong prediction. The ultimate result would be the inefficient resource allocation and hence low farmer income.

'Contract Farming' which can be defined as an agreement between farmers and processing and /or marketing firms (including exporters) for the production and supply of agricultural products under forward agreements, frequently at predetermined prices, is one of the methods which is commonly used to strengthen coordination in the agro-food chain and to minimize the future market risk in both developed and developing countries. However, producing on a contractual basis is not a new phenomenon to the farmers in Sri Lanka. Even some farmers in the study area have practiced contract farming several times, however, they were unable to succeed in getting the benefits of the system. The success of the system is highly dependent on the mutual trust between two parties. This is because the basis of a contract farming arrangement is a commitment on the part of the farmer to provide a specific commodity in quantities and at quality standards determined by the

buyer and a commitment on the part of the buyer to support the farmer's production and to purchase the commodity.

**Table 2:** Factors Affecting Informal Institutions in the Decision Making of Farmers on Agricultural Production

Explanatory Variable	Dependent Variable		
	Trust in Agricultural Development Officials		Farmers' attitude towards market-oriented behavior (Negative=0, Positive=1)
	Trust in Agricultural Production & Research Assistant <sup>a</sup> (Bad=0, Good=1)	Trust in <i>Mahaweli</i> Officer <sup>b</sup> (Bad=0, Good=1)	
Age	-0.02 (0.01)	-0.004 (0.01)	-0.01 (0.02)
Education Level	-0.31** (0.14)	0.11 (0.15)	0.00 (0.16)
Land Size	0.05 (0.07)	0.04 (0.08)	0.04 (0.09)
Income Level	0.000004 (0.00001)	0.00001 (0.000006)	0.000003 (0.000009)
Land Ownership	0.05 (0.32)	-0.09 (0.36)	0.48 (0.36)
Constant	-0.80 (0.80)	0.31 (0.91)	-0.55 (0.89)

Link function: Probit

<sup>a</sup> Since the Agricultural Production and Research Assistant (APRA) appointed by the government is mainly responsible for the grass-roots level agricultural activities, he/she is considered in this study as one influential official in farmer decision making.

<sup>b</sup> The government officer appointed by the *Mahaweli* Authority of Sri Lanka is considered as the other influential figure in farmer decision making, since he/she is mainly responsible for discussing the seasonal irrigation schedule prepared by the regional *Mahaweli* block office with the farmers, while introducing them to proper crops for the next season.

**Regression Results:** The study used regression analysis while applying Ordinal Regression Method (ORM) with Probit link function<sup>7</sup>. This was expected to test whether there is any statistical relationship between the dependent variables that were used to represent “quality of informal institutions” related to the decision making of the farmers on agricultural production in the study area and measures (explanatory variables) of those

dependent variables (see Table 2). According to the regression results (Table 2), the coefficient of education of farmers is statistically significant at the 5 per cent level. However, coefficients of other all variables are not statistically significant. But it should be noted that these data reveal some level of relationship among these variables and such relationships always contribute to making better farmer decisions in the agricultural sector in Sri Lanka.

Moreover, even though the education of farmers is statistically significant, it is negatively related to farmers' trust in the Agricultural Production and Research Assistant (APRA). It means that educated farmers in the study area are not willing to listen to APRAs who have been appointed by the politicians. In spite of that, the positive sign on farmers' education reveals that educated farmers keep a trustworthy relationship with *Mahaweli* officers who were appointed under a proper procedure. This indicates that educated farmers in Sri Lanka are not ready to accept politically appointed government officials like APRAs. Therefore, policy makers must understand that education itself does not contribute to building up a trustworthy relationship between government agencies and rural farmers without paying attention to the weak points in political appointments. Moreover, the negative relationship between farmers' age and their trust in agricultural development officials indicates that elder farmers who have more experience in their agricultural activities are not willing to listen to the officials. This might be due to the fact that the view of elder farmers remains "we know more from our own experience and better than the young officials

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7 The population probit model with multiple regressors is  $Pr(Y=1 | X_1, X_2, \dots, X_k) = \Phi(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)$ , where the dependent variable  $Y$  is binary,  $\Phi$  is the cumulative standard normal distribution function and  $X_1, X_2$  etc., are regressors. The probit coefficients  $\beta_0, \beta_1, \dots, \beta_k$  do not have simple interpretation. It means that the values of the probit coefficients are difficult to interpret but the sign and statistical significance are not. The model is best interpreted by computing predicted probabilities and the effects of a change in a regressor (Stock and Watson, 2007: 392).

who have less practical knowledge". Furthermore, the positive signs on land size and farmers' income imply that the farmers with more land and higher incomes keep a trustworthy relationship with the officials. The negative relationship between the age of farmers and their attitude towards market oriented behavior reveals that elder farmers tend to grow whatever crop they want, without paying much attention to the future market demand. Moreover, the neutral relationship between the education level of farmers and their attitude towards market oriented behavior reveals that current education has no impact on farmers' market oriented behavior. Land ownership, income level and land size are positively related to farmers' attitude towards market oriented behavior. It means that farmers who have higher income and more lands under their ownership tend to cultivate according to market supply and demand.

## **V. Impact of Informal Institutions on Agricultural Marketing: The Experience of the Study Village**

The marketable surplus of both paddy and vegetable products depends on the household demand for consumption and demand in the market. Despite the fact that the government of Sri Lanka intervenes in purchasing paddy every year, particularly in the harvesting season through its formal marketing channel, the marketing of paddy in the study village is largely dependent on regional private marketing channels. Another significant characteristic is that a huge vegetable marketing centre called "*Dambulla* Dedicated Economic Centre (DDEC)<sup>8</sup>" plays the main role in the trading of vegetable produce in the study area.

### ***Dambulla* Dedicated Economic Centre**

The most important objective of the establishment of the DDEC was also to provide a reasonable price for farmers while protecting them from

cheating by the middlemen. In this respect, commission traders were expected to collaborate with farmers to increase farmers' income by reducing transaction costs by providing better information, better price and a lesser time for negotiation and enforcement. Commission traders are allowed to take a commission for every transaction as a charge for their service while the negotiations are performed openly in a transparent manner in the presence of the parties involved. In this respect, nearly 35 per cent of the farmers in the study area trust their commission traders saying that they always assist in improving the farmers' bargaining power. However, the real situation that exists in the market is that the commission traders handle farmers in a cunning way to win farmers' trust. Therefore, even though 35 per cent of the farmers said that they can trust commission traders, it is difficult to see a real trustworthy relationship between these two parties. At the same time it is important to note that few farmers who had provided quality products regularly have formed a good relationship (it is like an informal agreement) with buyers via their commission traders. Even though buyers do not visit the DDEC, they order commission traders over the phone to collect the produce that those farmers brought. Therefore, reducing uncertainty through personal relationships that establish trust becomes

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8 The *Dambulla* Dedicated Economic Centre (DDEC) which is located about 10 kilometers away from the study area was established in 1999 and today it is the Island's largest wholesale market for fruits and vegetables with reported sales of over US \$300,000 a day. The market has 144 trade stalls spread across the 12 acre market managed by commission traders who act as brokers in the transaction between the farmers and buyer. Farmers and collectors from all districts bring produce to this market and the same is then dispatched to every nook and cranny of the country; as many as a thousand trucks pass through the market at night. Trading starts in the evening at about 4 p.m. and goes on past midnight. Even a branch of the people's bank is open till the wee hours in the morning to settle accounts. However, in reality, farmers do not always get a good price and traders do not necessarily get the best quality of the product.

important, especially in the case where the formal institutional environment does not offer suitable enforcement mechanisms.

However, practically, it seems that buyers have more bargaining power at the DDEC. Buyers decide the price according to the supply at the market. They quickly understand the available supply of various products within a short time when they take 2-3 rounds around the market. Within the first 2-3 hours, farmers strongly reject buyers' offers. At this time, commission traders behave in a cunning way while encouraging farmers not to sell for buyers' offers. Commission traders know from their past experience the time when farmers get fed up with bargaining. When farmers become fed up, commission traders tell them that it is better to sell for the available price or otherwise you may have a lower price after time passes. Whatever the farmers' price, commission traders receive their commission. Therefore, the majority of the farmers in the study area claimed that the commission traders do nothing for farmers and some farmers criticized commission traders while alleging that they cheat innocent farmers.

### **Market Information at *Dambulla* Dedicated Economic Centre**

The dissemination of correct information on supply, demand and price among all market agents is a pre-requisite for a well-functioning market. If there is a lack of market information or/and information asymmetry, it leads to inefficient market functions and hence higher transaction costs. Information asymmetry supports opportunistic behavior by traders, particularly when distances between production areas and main consumer markets are greater. Information about consumer preference and prices on the main markets may not be readily available for (remote) farmers, and obtaining them may be very costly. Thus traders having this information can decide not to share it with farmers or provide farmers with misinformation (e. g. state lower prices than those in the main markets, or not provide information on consumer preferences with respect to grades or product

characteristics). However, Table 3 reveals that about 82 per cent of the vegetable farmers in the study area collected market information before they sell the products. Moreover, it was found that before coming to the market, nearly half of the farmers depend upon word-of-mouth from other farmers and expect to receive similar prices in the market. The 45 per cent of the rest who do not trust their fellow farmer's personally visit the DDEC. However, they have to bear additional observation transaction costs due to their personal observation at DDEC premises to collect market information from the commission traders. Thus it is quite clear that it is the information fed by the commission trader that the farmer receives and on which he bases his selling price decision. However, the reliability of the market information in the DDEC and the other distant markets is highly dependent on the trust between farmers and commission traders.

**Table 3:** Market Information on Vegetable Marketing

Market Information	% of Farmers
Gathering Market Information	
Yes	81.5
No	18.5
Source of Market Information	
Fellow farmers	50.8
DDEC commission trader	44.6
Media	4.6

### Marketing Problems

An attempt was made to recognize the marketing problems of the vegetable farmers which arose in disposing of their marketing surplus through the DDEC. This study has identified three main problems which seriously hampered the marketing of vegetable produce: the low market price for farmers' produce; time wastage at the DDEC; and transport difficulties. As shown in Table 4, non-availability or inadequacy of

opportunities to obtain reasonable prices is the first serious marketing problem for the farmers in the study area. As it was indicated previously, the lower bargaining power of the farmers in price determination in the market may have an impact on this problem. The absence of newly available market information is a major cause of the low bargaining power of the farmers in the study area. The asymmetry of information between farmers and traders has been identified due to the lack of mutual trust between these two parties.

**Table 4:** Major Marketing Problems

Types of Problem	% of Farmers
Low market price	76.2
Time wastage at the DDEC	15.9
Transporting problems	4.8
No problem	3.2

Time wastage appears to be the second most important marketing problem for the vegetable farmers in the *Kandalama* area. It was revealed from the field survey that farmers' average waiting time at the DDEC is about 5 hours, while some farmers had to wait for more than 10 hours. Many farmers complained that when the waiting time period increases, they gradually lose their bargaining power and hence products are sold at a low price.

It is a common practice for buyers to run down the quality of products in the bargaining process, in order to purchase goods at a lower price. However, the commission traders insisted that it is difficult to assure the quality of farmer products without checking all the containers one by one since farmers do not care about packing method and grading. It was also revealed from the field survey that almost all farmers in the study area usually used poly-sack bags as the common packing material for almost all types of vegetables (except for tomatoes). The main problem of this packing method

**Table 5:** Farmers' Attitudes towards Packing and Grading

Farmers' Attitudes	Percentage
Towards Quality Packing	
Quality packing increases market price	12.3
Quality packing does not increase market price	33.3
Since vegetables should be marketed soon, I do not care about the quality of packing	26.0
Price increases are not enough to cover packing costs	28.4
Towards Grading	
I do not care about grading	6.3
Grading increases market price	15.2
Grading does not increase market price	19.0
Price increases are not enough to cover grading costs	19.0
I have no time, because vegetables should be marketed soon	17.7
I can earn a higher income without grading	22.8

is that farmers used this material to pack over their capacity in order to reduce their transportation costs. It is interesting to note that though the Institute of Post Harvesting Technology and DDEC Management Board together have decided to provide plastic vegetable containers at a subsidized price of Rs. 75.00 (actual cost is Rs. 300.00), this is not familiar yet among the farmers in the area. The main reason, which was found from the survey, is those farmers' negative attitudes toward quality packing. According to Table 5, before using plastic containers, 88 per cent of total vegetable cultivating farmers predict that packing quality does not give enough incentive to increase market price. Moreover, 85 per cent of the farmers indicate their negative attitudes toward grading and standards while 23 per cent of them clearly claim that they can earn a higher income without grading. In fact, it is obvious that market forces in Sri Lanka also do not encourage quality of packing or grading. Particularly, consumers in Sri Lanka are not much responsive to quality packing or the quality of the products.

The main reason for the major problems regarding production and

marketing of farm products in the study area can be recognized as the absence of a powerful Farmer Organization. Even though *Mahaweli* Authority of Sri Lanka has created single purpose Farmer Organizations for each sub-canal in order to manage irrigated water resources, they are not powerful organizations. The Farmer Organization must be a member-based organization created by farmers to provide services that support the members' farming activities. Such a Farmer Organization can reduce transaction costs which are related to all stages in the agricultural value chain. For example, a major source of transaction cost in marketing can be recognized as the asymmetric information between farmers and buyers. A Farmer Organization can solve (part of) this problem, as it has better information on the quality and reliability of the producer. Having better information on the characteristics of the producer can be based on two sources. First, when the Farmer Organization is strongly embedded in a (local) community, the informal communication channels within this community can be used to collect information on particular producers. Second, because most farmers (and farmer families) are long-term members of the Farmer Organization, the latter has ample opportunities to collect information on the characteristics of the producer.

The most common complaint made by the commission traders in DDEC as well as the other buyers against farmers in the study area is that the quality of their products is very low. However, a well-organized Farmer Organization can support such producers to increase the quality of products if farmers are relatively uniform in productivity and quality. For instance, if there are large quality differences, the higher quality farmers will have less interest in allowing a Farmer Organization to negotiate contracts, or in selling collectively with lower quality farmers. Such a pressure within the community may push lower quality producers to increase their quality before they go to the market. On the other hand, policy makers propose that processing and exporting are very important to encourage vegetable farmers

in Sri Lanka. In the case of processing or exporting, the buyer requires large quantities of relatively uniform quality and then a Farmer Organization might provide gains in both organizing production and sale, but also collection, sorting and so on.

It is important to note that Farmer Organization is not a new phenomenon to the farmers in Sri Lanka. The village level Farmer Organizations set up so far has failed to achieve the expected results mainly because the level of participation of the farmers was very low. One of the major factors for the low level of farmer participation can be identified as farmers' negative attitude towards Farmer Organizations. Since independence, particularly after 1977 with the beginning of the Accelerated *Mahaweli* Development Pregame, government has focused on Farmer Organizations basically in order to facilitate water resource management at the grass-roots level. As a result, farmers' attitudes towards Farmer Organizations built up as a 'single-purpose government (*Mahaweli* Authority) created institution playing the role of water resource management' and not their own institution which helps to improve their socioeconomic conditions. Therefore, in order to develop powerful Farmer Organizations, the attitude of the member-farmers towards the role of the Farmer Organizations should be changed by empowering mutual trust among the farmers, giving more opportunities for members to make decisions.

**Regression Results:** Table 6 shows the statistical relationship between some selected dependent and independent variables related to vegetable marketing in Sri Lanka. Regression results of the analysis reveal that veteran farmers, educated farmers, as well as the farmers who cultivated many types of vegetables have a positive attitude towards collecting marketing information before harvesting their crops. However, negative signs indicate that rich farmers and farmers who cultivated more land area do not pay much attention to collecting market information before harvesting.

Rich farmers in the study area do not care much about market information since they have a close relationship with DDEC commission traders (the sign on the income level of farmers in trust in DDEC commission traders is positive). Nevertheless, it does not seem that farmers who cultivated more land area keep a trustworthy relationship with the DDEC commission traders, their attitude towards the availability of marketing bargaining power remains positive and therefore they harvest without gathering market information. Such a positive attitude implies that those farmers might have confidence in their ability to influence the market forces since they (farmers who cultivate more land area) usually harvest more output than the other farmers.

**Table 6:** Factors Affecting Informal Institutions in Vegetable Marketing

Explanatory Variable	Dependent Variable				
	(1)Farmers attitudes towards collecting market information before harvesting (Negative=0, Positive=1)	(2)Farmers' attitude towards grading (Negative=0, Positive=1)	(3)Farmers attitude towards quality packing (Negative=0, Positive=1)	(4)Trust in DDEC commission traders (Bad=0, Good=1)	(5)Farmers' attitude towards the availability of market bargaining power (Negative=0, Positive=1)
Age	0.02 (0.02)	0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Education Level	0.10 (0.20)	0.30 (0.21)	0.14 (0.22)	0.08 (0.17)	-0.15 (0.17)
Land Size <sup>a</sup>	-0.20 (0.34)	-0.01 (0.34)	-0.03 (0.39)	-0.04 (0.29)	0.34 (0.30)
Income Level	-0.000009 (0.00001)	-	-0.000003 (0.00001)	0.00002 (0.000006)	-0.000007 (0.000009)
No. of Vegetable Varieties	0.23 (0.22)	0.15 (0.21)	-0.17 (0.24)	-0.003 (0.18)	0.17 (0.18)
Constant	0.12 (1.30)	2.82 (1.36)	0.09 (1.41)	0.12 (1.06)	-1.90 (1.06)

Link function: Probit

<sup>a</sup> Total vegetable cultivated land area in 2008 *yala* season

The results also reveal that veteran farmers, educated farmers, as well as the farmers who cultivated many types of vegetables have a positive attitude towards grading. However, the negative sign on land size indicates that when the extent of cultivated land area increases, farmers may try to sell their vegetable production without grading. Moreover, although educated farmers are willing to use quality packing for their products, veteran farmers, the farmers with more land and high income, and the farmers who cultivate various vegetable varieties do not seem very keen on the quality of their packing method. It is also obvious from the regression results that farmers who cultivate more land and various vegetable varieties do not much trust the commission traders. The main reason for such distrust might be their positive attitude towards the availability of farmers' market bargaining power. When the cultivated land area and number of cultivated vegetable varieties increase, farmers may believe that they can influence market forces without the support from the commission traders. However, all the others: veteran farmers, educated farmers, as well rich farmers believe that they have less bargaining power at DDEC market.

## VI. Concluding Remarks

New Institutional Economic literature<sup>9</sup> has emphasized that formal

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9 In institutional literature, significant differences have been identified between the **Old Institutional Approach** associated with the names of Veblen and Commons and the **New Approach** developed by institutional economists such as Ronald Coase, Oliver Williamson and Douglass North. Redek & Susjan (2005: 996) have found two major differences in these two approaches: the old institutional economics rejects the hypothesis of a rational economic player in favor of one that places economic behavior in its cultural context (see Neale 1987 and Hodgson 2000). For new institutionalists mankind is still a rational chooser, but more focus is given to the role of institutions. Economists have taken these two different approaches to understanding institutions as they attempt to understand which institutions are relevant for growth and development.

institutions do not alone determine agricultural development in developing countries without positive support from their informal institutional structure. The study has found that the informal institutions negatively influenced the decision making of farmers on agricultural production and hence higher transaction costs. The decision making process of the farming community in the study area reveals that they have a negative attitude towards market-oriented behavior. In general, most farmers produce various agricultural products according to availability of land, labor and other resources rather than considering using such resources towards market demand of the country. Thus crop diversification has not been successfully practiced in the area as a means of increasing their agricultural income as well as a solution for water limitation. Even though agricultural development officials can intervene to change farmers' way of thinking, this seemed to be difficult in the study area since there was no strong trustworthy relationship between farmers and officials who represent agriculture related formal institutions.

In particular, regression results found that elder farmers who have more experience in their agricultural activities are not willing to listen to the officials, and educated farmers refuse to trust politically appointed officials like APRAs. Therefore, it is a common practice in the study area that most farmers select the crop/crops that they usually cultivated every year or follow their fellow farmers when they make a decision on what crop, when, and how much to be cultivated.

It is also interesting to note that the informal institutions have negatively affected agricultural marketing in the study area. Since vegetables as well as paddy surpluses of *Kandalama* farmers are mainly marketed through private sector marketing channels, the farmer-trader relationship is very important for the benefit of all parties. The survey discovered that the majority of the farmers in *Kandalama* village seriously suffer from an inadequacy of opportunities to obtain a reasonable price, mainly because of their lower bargaining power in the price determination. The absence of

newly available market information is a major cause of the lower bargaining power and the asymmetry of information between farmers and traders has been identified due to the lack of mutual trust between these two parties. Regression results also imply that, particularly elder farmers as well as farmers who cultivate various vegetable varieties and more land area do not much trust the commission traders in DDEC. However, the absence of a trustworthy relationship between farmers and commission traders in the study area has supported middlemen in extracting exorbitant profits. This has caused an increase in the price gap between the producer and consumer.

Furthermore, though government agencies have planned to increase the quality of products while reducing the post-harvest wastages via providing plastic vegetable containers at a subsidized price, it is not familiar yet among the farmers due to their negative attitude towards quality packing and grading. Such a negative farmer attitude, in turn, can be viewed as an opportunity for buyers to run down the quality of products in the bargaining process.

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Appendix A

Map 1: Layout of the Study Area

