RICE VALUE CHAIN :
A STRUCTURATION THEORY APPROACH

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INTRODUCTION

The rice price in indonesia is determined on the open market, move naturally along the equilibrium law of supply and demand, but still BULOG intervenes through floor and ceiling prices to help promote some seasonal price stabilisation. One of bulog role together with the Central Statistical Office, is monitoring prices over many years. As Indonesia has a number of rice varieties available, the government task in controlling rice price fluctuations become more difficult. During harvesting period, there have been frequently oversupplies in rice market, and as the result, the farmer's rice did not absorb and sold well in the market. This make the rice price much cheaper (Timmer, 2005) at the farm rice price level. Thus, it is indicated that the rice price is fluctuating start at farmer level to end consumer.

SIGNIFICANCE

Rice production is an important sector in Indonesia development. The rice agricultural sector has a significant role to create food self-sufficiency, job opportunity, and to increase people's income, especially the peasants (Timmer, 2005). Thus, Government of Indonesia is planning to overcome rice defisit by opening rice field or creating other planting paddys' area. Timmer (2004) shows that the current political approach to stimulating productivity growth is through higher tariffs on imported rice, or an outright ban on imports. It means that the role of rice price policy in Indonesia to stimulate rice productivity growth is facing some difficulties. These will give significant affect on the stability rice value chains. The increasing of rice price in the market is suspected by external factors such as weather, the decreased of rice supplies and so on. Practically, the increasing rice price is lower than the cost of rice planting.

The issues which will be discussed in this study concerns the factors influencing rice price fluctuation in domestik market. Most of these issues were analysed using time series model to test hyphotesis about endogenous and exogeneous explanation of rice price fluctuation (Brorse, B Wade et al, 1991; Kajisa, Kei et al, 2004; Chirwa, Ephraim W, 2001; Lorie, Henri et al, 2006; Ismet et al, 1998). The result of this issues can not explain the price dynamics between actors related. Thus, in this study the price dynamics all related actors will analyse based on actors behavior on rice value chain using structuration theory. This study contributes to the better understanding of price fluctuations more sensible that is the interelation between conceptual theory with existing market conditions. Further, work on value chain analysis allows structuration theory to be more critically examined in this context and the potential connections with other theoretical frameworks to be explored.

RELATED STUDIES

This section analyse construct from three different theory and models namely value chains, structuration theory and institutional economics related with rice condition in Indonesia.

Rice Value Chains

The Value chains of rice has also created a significant impact in the domestic rice price. As we know from many literatures that providing rice product in time and at different places in the market is very important, especially in Indonesia. The facts that import rice is cheaper than domestic rice price has give a negative impact to the farmers. Thus, the performance of a value chains of rice is related to its structure and strategies of the actors operating these chains or channels.

Value chain analysis is the sequence analysis of related business activities (functions) from specific inputs for a particular product to primary production, transformation, marketing and up to final consumption. In other words, we can say that value chains is perfoming several functions i.e start from producer (rice producer or farmers), processors (farmer or trader), traders (retailer or wholesaler) and transporter (transportation and

storage are important functions in the rice channel distributuion system). Reffering to the description of the rice market in Indonesia, I would like to emphasize that there is some room for value chains based on informal collaboration concering exchange information and financial arrangement between farmers and rice traders and rice traders to others. This study will be applied for analyzing in more detail all types of agents/actors that perform different chains functions in the rice domestic market in Indonesia.

Table 1 Value Chains Research Development

Value Chains Theory Development	
Integration of Value Chains to other theories or models	
Lewis and Suchan, 2003; Chang Hung, 2004; Van der Vorst, 2002; Mardianto et al, 2005; Gumbira-Said, 2010; A.Gyau, 2008; Fischer and Reynolds, 2010; Revoredo-Giha and Leat, 2010; Li, Sheng and Liu, 2010	
My research position	- To have better understanding on behavioral issues of rice actors created by value chain analysis. - Integrating structuration theory as one of theoretical framework to value chain models, possible to contribute to that understanding.

Institutional Theory

The Institutions are the humanly devised constraints that structure political, economic and social interaction (North, 1989). There are two constraints namely *informal constraints (such as sanctions,* taboo, customs, tradition and code of conducts) and *formal constraints* (constitution, law and property rights). Institutions have been conceptualized in many different ways.

They are thought as guidelines for human action or appropriate behavior in society (March & Olsen, 1989). Thus Institutions can be seen as rules of behavior based on various important foundations, from culture and mental models to legislation and from social norms to political structures. These different conceptualizations and foundations have been summarized in three pillars that represent or support institutions: cultural-cognitive, normative, and regulative (Scott, 2001). Williamson (2000) has divided into 4 types or levels i.e. level one consits of embeddedness (informal institutions, customs, traditions, norm, religions) / social theory; level two consits of institutional environment

/economics of property right ; level three consits of governance / transaction cost economics and level four consists of resource allocation and employment / agency theory or neo-classical economics. In this study, attention will be paid to existing insitutions namely government institutions. It is crucial for government to set up and to define the rules that have to be respected by all actors in the market (value chains) This study will be paid to the existing institutions to portray the behavior of traders in the market.

Table 2 Institutional Theory Development

Institutional Theory Development	
Integration or modification of Institutional Theory to other models or theory	
Lutz, 1994; Williamson, 2000; North, 1989; Ray et al, 1979; Kwon et.al, 2007; Hartmann, Forhberg and Fischer, 2010; Chaddad and Rodriguez-Alcala, 2010; Hartmann, Hoffmann and Simons, 2010; Fischer et al, 2010; Revoredo-Giha and Leat, 2010; Chaddad, 2010	
My research position	Integrate and analyse the implementation of Institutional Theory on value chains of rice in domestic market.

Structuration Theory

Giddens (1984) argues that action and structure operate as a duality, simultaneously affecting each other. And he also defines structure as 'rules and resources recursively implicated in social reproduction; institutionalised features of social systems have structural properties in the sense that relationships are stabilized across time and space
This theory provides a analysis to explain the nature of social institutions and also a means to get better understanding of transformation conditions. Thus my research is using structuration theory as a sensitizing device to analyze and understand all factors related that may impact on rice supply chain. Giddens divides structural realm into three dimensions i.e signification, domination and legitimation to analyze the processess involved in the reproduction and changne of practices and social systems a package of social relations. These three structural dimensions are present to the actor as what Giddens calls "modalities" of structuration to be invoked in situation of interaction.
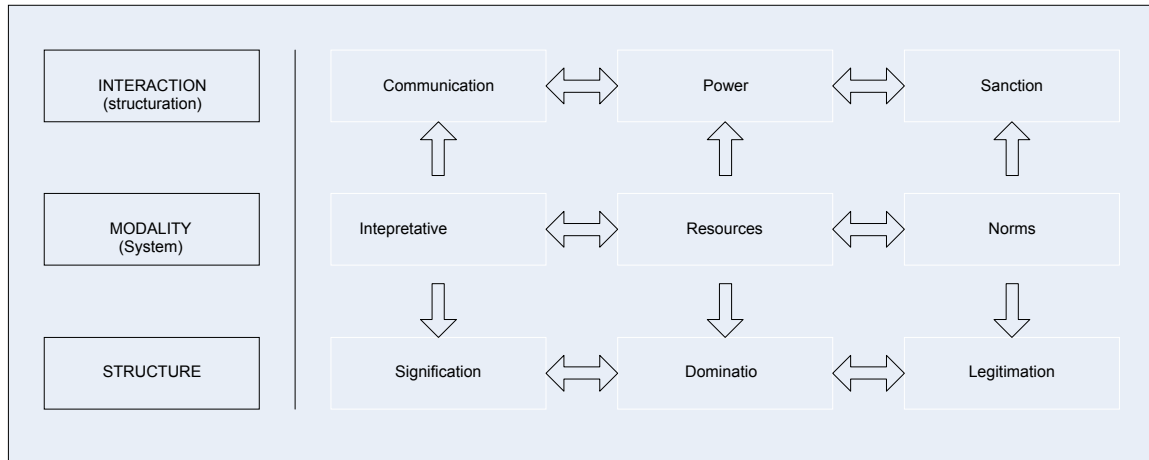
Figure 1 Key Analytical Dimensions of Social Practices (Giddens, 1984 : 29)

The core of structuration theory lies on the system concept. System describes as regular social practices or activities between people (regularly produced or reproduced by collecting social actors). Figure 1.1 structures describe as rules and resources that are organized as properties of social systems (resources are the modalities actors draw on to expert power over objects (allocative resource) or actors build control strategies; rules are responsible for the constitution of meaning and also carry possibility of sanctioning particular human conduct). Structuration is the process whereby social actors use structures to maintain or change systems. Moreover, the three dimensions of structure i.e Domination refers to how social actors exercise power over resources to apply their transformative capabilities (in rice supply chain, all actors related have power to decide their own behavior or activities on chains); signification refers to the way social actors make sense of the social world and exchange and communicate meaning of their understainding of social world with other social actors; and legitimation denotes accepted value standards for social behavior (i.e norms and rules).

Table 3 Structuration Theory

Structuration Theory Development	
Integration of structuration Theory to other theories or models	
Giddens, 1984; Chang-Hung, 2004; Lewis and Suchan, 2003; Lehoux et al, 2002; Gregor and Johnston, PACA, 2005; Bavorova and Hockmann, 2010	
My research position	This study suggest that structuration theory can be used to the study of rice supply chain behavior.

The integration model of value chain, structuration and institutional can be seen from Figure 2. In this study, structuration theory will be used to describe the interaction , system and structure among the actors in rice value chains. The roles and interest of actors begin from rice producer to rice consumer through rice market mechanism. The rice market mechanism reflecting the interaction of rice information, trader (marketing intermediaries actors) and government (Bulog, Ministry of Agriculture, Ministry of Public Works and Ministry of Trade and Creative Economy).
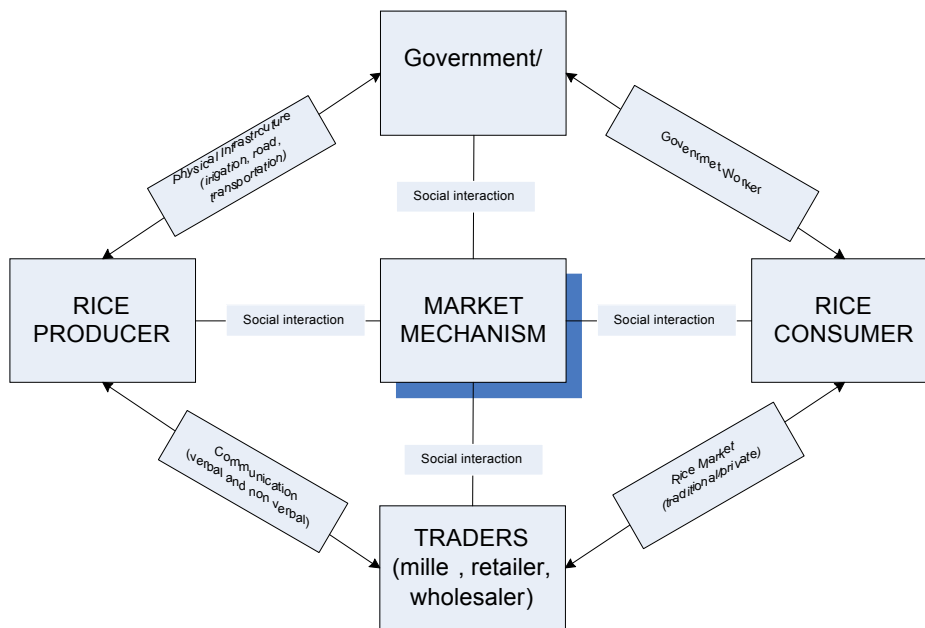

Figure 2 Structurationist Rice Price Model

STRENGTH AND WEAKNESS OF THE STUDY

Despite of rice is treated as political issue rather than economic issue; this study has several strengths. First, the study provides different views and analyse of how the functioning of rice value chain can be studied using structuration theory. This study will be able to describe price fluctuations phenomena more sensible. Second, the process analysis provides the better understanding on the mechanism of rice fluctuation. As the weaknesses, this study might has limitation (Holweg and Pil, 2008; Jones and Karsten, 2008) which is structuration theory is lacking in offering explanations for the influences of factors that are independent on the social structure (for example an outbreak of pest attacked – wereng and rat). In some circumstances this limitation can be overcome by applying adaptive structuration theory, but this will not use in this research.

PROBLEM STATEMENT AND OBJECTIVES

The rice (including unhulled and hulled rice) price fluctuating in local markets indicates brings some advantages and disadvantages to some parties. The rice phenomena shows that the increasing or decreasing of rice price depends on several situations such as rice stock at traders , the paddy productivity tends to grow stagnant, and traders ability in setting price process based on their experiences (Perdana and Avianto, 2012 ; Sutiarso et al, 2012; Dwidjono, 2011 and Natawidjaja, 2001; Doyle, 2005 and Marks, 2009). Moreover, as rice fluctuations. Based on Arifin's studies (2004), rice supply chain is important and strategic in controlling fluctuation of rice price in Indonesia. Therefore, hyphotesa of the research which will be discussed in this study concerns three research questions as follow :

Research Question 1 :

What determines rice prices fluctuations paid by consumers in comparison to those received at the farm level ?

Research question 1 explains the conceptual model of rice price fluctuations on rice value chains start from farmer (input production, planting and harvesting activities) to end costumers. Trading reflects marketing activities i.e buying and selling activities of

unhulled, hulled rice from farmers, miller, retailer or wholesaler in rice supply chains. Market is one of a meeting point where costumer meet and do transanctions to rice trader. In line with research question 1this research analyse :

1.1 How is the social interaction of rice value chains ?

This study focus on producer – trades - consumer interaction from a social network perspectives on rice value chains (in what way do consumer, traders and producer interact and come to an agreement on the price in rice value chain). Social interaction defines as a sequence of relations and mutual influences between different entities of a society (individual to individual or individual to group or group to group and group to individual) which has or no has connection with. This relations can be based on friendship, social relationship or political relations (Scott, 2001). The question start from both producers to end consumers networks how they express and exchange their concerns on rice value chains. Moreover, in rice value chains contain interaction flow of material, information, money and social relationships among others.

1.2 What are significant factors which are determining the rice prices over time?

This research question identifies factors which are determining rice prices based on time and place ; and further to describe and analyze factors that govern rice price setting in market, which include supply demand conditions, the influence of rice trade, the nature and extent of interactions through rice value chains, trading cost, the storage availability and the use of technology and innovation in rice farming

Research Question 2 :

What is the significant factors influencing rice supply chain actors behavior?

The rice supply chains actors behavior illustrate social interactions (how they interact, behave, communicate and exchange information) which involve such as competition , coordination and leverage among actors (Miles, 1992). Giddens structuration theory shows the constructs of structuration theory consist of interactions and the variable that operationalize constructs. Thus, this study uses structuration theory framework to analyse behavior of rice supply chain which focus on three concepts of Giddens structuration theory (structures, systems and structuration) interact with the three dimensions of

signification, domination and legitimation. Therefore, still in order with research question 2, a research question will be added :

1.1 *how the relationship of actors in the rice supply chain be explained through the lens of structuration theory?*

In this study, the processes involved in the reproduction and behavioral change of practice and social systems as a bundles of social relations (based on structures, resources and needs of structuration dimension) on rice supply chain will analyze. Moreover, research will analyse the conceptual and methodological rice supply chain frameworks be improved using structuration theory.

Research Question 3 :
What is significant factors related to the institutional economic theory provide recommendations to improve rice value chain system.
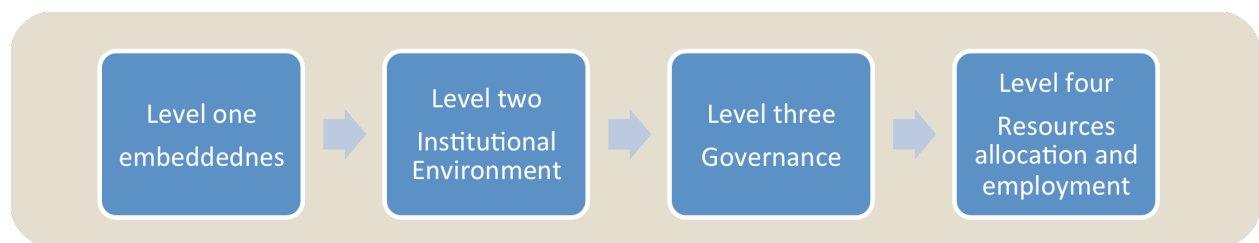
Fig 3 Institutional Economic Theory (Williamson, 2000)

Institutions are the humanly devised constraints that structure political, economic and social interactions (North, 1989). However, institutions do not only defines rules, but also implicitly determine the costs of transactions through the allocation of property rights and the influence of the organisation on rice supply chains channels. Williamson (2000) define and divide institutional economic theory into four level, start from level one (taboo, sanctions, customs, tradition) , level two (concerns with institutions that define rules of the game), level three (rules which are defined by the actors involved in a transactions (in rice supply chains) until level four (government coordinate internal allocation   or   transaction   inside   the   government   office/Bulog/Ministry   of

Agriculture/Ministry of Public Works/Ministry of Trade and Creative Economics). Williamson (1989) supported by North and Wallis (1994) said that transaction costs refer to all costs that are used to physically transform inputs into ouputs (distribution, negotiation, payment, distribution of risk, financing and enforcement of transactions). Related with research question one and two, the economic transactions costs (level three of institutional economics) become relevant and important to analyse in this study. Thus, three atributes to determine transaction costs in this study will be based on (1) the importance of asset specificity (2) the degree of uncertainty facing both actors (seller and buyer) and (3) the frequency of interactrion between channel members.

OBJECTIVES

This study on rice will re-evaluate the situation and condition of rice value chains which will be focused on the domestic rice market condition including all actors involved, like BULOG (the government), the private traders (importers, middleman and capital owners) and farmers and customers as well as part of rice community.

The specific objectives on research questions 1 are to identify and explain the determinants of prices in rice value chains. These study will address three tasks namely (1) to provide an analysis of rice price movements over time in retail prices paid by consumers in comparison to those received at the farm level; (2) to identify the costs and value adding factors which are determining rice prices over time and further to describe and analyze factors that govern rice price setting and competition, which include supply demand conditions; the influence of rice trade; the nature and extent of integration through rice value chains between producer and consumer and the use pf technology and innovation in rice farming and (3) to provide an analysis of strategies which will be benefited three related factors (government, traders,farmers as well as customers as part of rice community) and also to evaluate the issues related with the government policies concerning agriculture and or trading (regional development and interregional equity) in order to achieve a food self-sufficiency and at the end to be able to compete at international market.

The research question 2 is to analyse and to provide rice supply chain analysis through the lens of structuration theory. While the objectives of research question 3 has two specific objectives as follows (1) to provide better understanding on the mechanism of rice fluctuations (2) the information of transaction cost analysis will be of important for policy makers to examine competitive process among members in the rice value chain.

LITERATURE REVIEW (STATE OF THE ART)

The literature review defines and reviewes three basic theories and relevant literature of price fluctuations from value chain perspectives , structuration theory, and institutional economic theory.

Food Supply Chain

Food supply chain is defined as a set of interdependent companies that work closely together to manage the flow of goods and services along the value-added chain of agricultural and food products, in order to realize superior customer value at the lowest possible costs (Folkerts, 1997). Food supply chains links a system of highly varied processess performed by actors with complex relationships. This chains reflect the actors behaviors in the food supply chain in order to manage the distribution flow of food supply chain. The maintenance and development of relationships, networks and interactions in food and agriculture chains with different stakeholders or actors is as important value as the attraction of relationships, networks and interactions (Lindgreen et al, 2008).

Agriculture Value Chain
An idea of "value chains" introduces by Michael Porter (1985) introduces has received thought in agricultural sectors in recent years due to a number of economic factors response and customer trends affecting agrifood enterprises. Many researchers, organization and companies defines value chains differently. Generally, these definisitons employ terms such as "parternships", "alliance" and "collaboration" among actors related and focus on adding value to increase market share or to satisfy consumer demand (Keyser, 2006). Value Chain (GTZ, 2008) defines as (1) the sequence of related business

activities from the provision of specific inputs for a particular product to primary production, transformation, distribution and up to end user for consumption; (2) a business model for particular commercial product using a particular technology and a way of coordinating production and marketing; (3) the set of enterprises that performs these functions i.e the producers, processors, traders and distributors of a particular product. Keyser (2006) supports GTZ definition by stated that a value chain is a mutually beneficial partnership among all players involved in the production of a product in which each partner contributes and shares knowledge, information and contributes expertise to improve (differentiate) the final product to better satisfy consumer demand relative to the chain' competitor. Value chain must efficiently "add value" to the product for the benefit of all involved in the chain;value that is determined by the perceptions of the consumers The value chain must efficiently "add value" to the product by an interdepent value chain partnership to benefit of all actors involved in the chain;

Distribution Channels

There are many definitions about marketing for agricultural products. Agricultural marketing is a consecutive events or service done for moving (distribute) an agricultural product from the producer to the customer (Ratya, 2004; Mubyarto, 1995; Ade Supriatna, 2002; Agricultural Marketing Series, GS -1146). Distribution influences almost each aspect in our daily life. It means that there are two or more parties want to exchange something for another thing, it can be said that there is a distribution process. Distribution begins from the need of prospective customer or buyer. For instance, when the farmers decide to sell the husk paddy ready to be harvested to other related parties, there is a distribution activity such as the exchange of husk paddy with rupiah as the profit to other related parties. The farmers' need is the money and the need of other related parties as the merchant is the harvested husk paddy.

The growth of economy sector since 1970 gave consequences towards the effort to increase efficiency and effectively of agricultural product distribution. The distribution activity is said to be effective in terms of prosperous economy. Because, it hards to do as generally as producers and customers are often separated by time, place, information and

value. These separation appears the gap among distribution activity once distribution process or exchange products occur.

Cannon et al (2008) said that there is a macro distribution function of universal functions of distribution to handle the gap. The function covers purchasing, selling, delivering, storage, standardize and judgment, financing, risk taking and market information (Beckam and Davidson, 1967). The function manner is done by and to whom can be different in many countries and valid to economic system (Lyon and Thompson, 1993). Indonesia agricultural product, buying function means seeking and evaluating product; selling function covers direct selling i.e farmer to vilage traders, farmers to penebas, famers to Village Cooperation (Koperasi Unit Desa), or farmers to milling owners (Arifin, 2004; Daan et.al, 2010; Natawidjaja, 2001; Kitano et.al, 1999).

Buying and selling activities are part of distribution function. These function relates to delivery and transportation activities. Distribution activities consist of several activities such as the movement of goods from one place to another places; storage function means involving goods storage to the need of the customers; standardized function and selection involve selecting agricultural production based on the measurement and quality; financing provides money and credit needed by the production process; storage and selling agricultural production (Arifin, 2004; Hoos, 1951). During the distribution activities, risks possible occur in every activity take place. It means distribution actors responsible to take over uncertainty risk.

Indonesian farmers generally risk taker, because the farmers are taking all risk when farmers decide to plant rice until the harvesting time (it is called failure harvesting process) and storage (the harvesting quality risk is broken unhulled rice) of product. But, when there is a transaction on the customers' level, so the risk that is faced by the farmer is purchasing price risk. The function of market information to inform rice price at the market (occurs during transaction process known as market price information), never went to the farmers. The farmer often get loss or even if they get small amount of profit,

the profit percentage for the minimum among all the related parties in the distribution channel (Dwidjono, 2001).

Actors in Rice Supply Chain

This study divides participant of actors in rice supply chain into three groups namely government, broker or trader and farmers.Analyzing of distribution channels are intended to provide a systematic knowledge of the flow of the good and services from their origin place to their final destination. The participant of distribution channels are someone or those who performs physical distribution functions in order to obtain economic benefits as follows :

Government (BULOG or state owned enterprise)

Bulog has a role to keep rice stock, rice availability and stability of rice price in the market. Bulog obligation is buying farmers rice using government buying price schemes. But, Bulog has no longer able to buy rice farmer production, because government buying price is not competitive compare to broker or trader or retailers (including wholesalers).

Broker or Trader

These agents are working for a profit (commission). They performed their job at all levels of distribution channel. They can start their activities from beginning (as capital provider for farmers) and until end customers. Typically, they work for percentage of different price of selling and buying (so called as profit margin). Broker or trader bring buyers and sellers together and assist in negotiations on a more ad hoc basis; but others may operate as auctioneers, on behalf of wholesaler or retailer (trader at village level, sub district and district levels). Mostly, purchasing or selling agents have a good relationship between buyers in Indonesia and payment done by cash. Only trader or broker who has sufficient capital or cash possible sustains cash transaction. Brokers or traders who have limit cash flow are working part time as "ojeg" or building or road construction workers at sub district or municipality area.

Assembler or Transporter

Assembler or transporter links between rice farmers to broker, traders or retailers. Transporter collects smaller amount or lots of rice production (rice crops) by his own capital from villages or sometimes he was hired by sub district retailer to deliver rice crops to other province market (example to Pasar Induk Cipinang Jakarta). It can be said transporter is the first link between the farmer and other middleman (retailer or trader).

Retailers

There are different functions of retailer namely retailer at villages or sub district area and retailer at provinces area (pasar induk). The main activity of retailer at sub district or villages is buying rice crops in certain quantity from farmers and sell to wholesaler. Retailer at province areas will buy wholesale rice and sell to consumers (warong, kiosk etc) at convenient locations and times in various forms and quantities. Sometimes, retailers also travel to assemble in rice production areas. At harvest time in particular, when the villages in the neighborhood of the market hold surpluses, retailers prefer to purchase directly from the millers.

Wholesaler

Wholesaler concentrates the various loads and put rice into large or uniform units. Most wholesalers warehouse are located in provinces area. Wholesaler calculates price formation based on qualities (rice grading) and type of rice. Wholesaler also provides information to suppliers (farmers, rural assemblers) and assumes to a varying degree the risks associated with the transfer of property rights attached to the goods and services being bought and sold. Sometimes, he provides and facilitates mass and specialized storage operations, transportation and in general, subsequent distribution operations which is involving retailers. The distinction between wholesaler and retailer is wholesaler concern with the activities of those persons which sell to retailers and other merchants and commercial users, but do not sell in significant amounts to end consumers. But, sometimes rural assembling traders accumulate rice production areas to sell to collecting wholesalers, who carry the commodities to large towns. Once he arrives, he will sell to distributing wholesalers, who in turn sell to retailers.

Millers

Rice miller or processors have a very important role in the distribution (value chains) channels. They transform unhusk paddy to mill rice. The quality of rice in the market depends on the quality of rice (paddy) processing. In some areas, miller owners are also rice trader/ wholesaler. They buy paddy or unhusked paddy directly from the farmers or rural assemblers, after milling they sell the milled rice to wholesalers or retailers.

Rice Farmers

Rice agricultural sector is believed to be a sector that is able to absorb quite a large number of workers. The number of human resources involved in agricultural sector from the production activity, postproduction (rice milling process, storage, transportation) up to rice distribution in the market will absorb more workers. Sidik (2004) states further that the absorption of unskilled workers in the village sector is potential to decrease the population density in the city on condition that it is supported by the agricultural policy which is pro farmers so as to be able to increase agricultural production. Indonesia farmings are using a simple technology start from planting period until harvesting. The availability of paddy land area is an important asset for farmers and also a key determinant of farmers wealth as farmers household is a net buyer or seller of rice (Timmer, 2004).

Structuration Theory

Giddens' structuration theory concept of actors and structures allows intepreting social interaction between actors in distribtuion rice channels. Thus, related to the study of price fluctuations among actors, Giddens' structuration theory use as theoretical framework in analysing behavior of actors in rice value chains. The heart of structuration theory of Giddens' lies on the concept of system in which system is described as practices or activities that are regularly produced or reproduced by collective social actors. To analyze the processes involved in the reproduction and change of practices, Giddens divides structural realm into three dimensions namely signification, domination and legitimation. These three structural dimensions are present to the actor as what Giddens

calls "modalities" or "system" of structuration to be brought into play in situations of interaction.

In social interactions, actors use intepretative schemes, resources and norms. By adopting structural dimension of structuration theory, the social interaction of rice price fluctuations will be structured by coordination mechanisms as illustrate in Figure 3.1 below
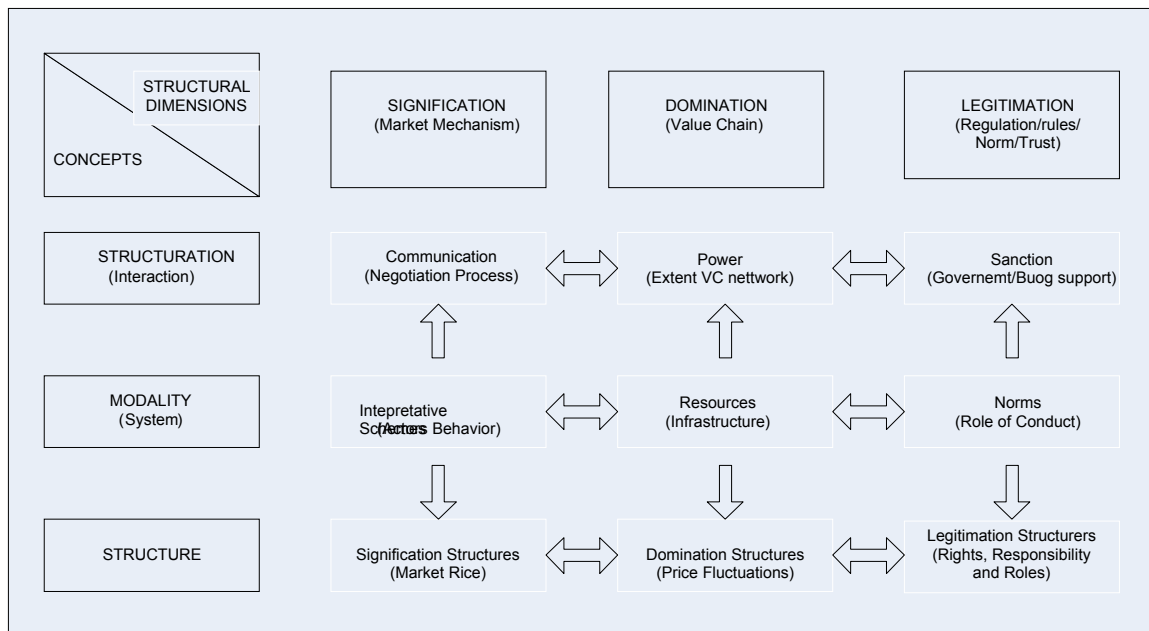

Figure 4 Construct of Structuration Theory (Giddens, 1984)

Dimensions of Structuration

All related actors of rice value chains are involved in structruation through three dimensions of interactions (domination, signification and legitimation) in social systems. First, they exercise power over system resources (e.g rice value chain). Second, they communicate and exchange meaning with other social actors trough market mechanism. Third, they perform social activities within accepted norms of behavior (e.g regulation, roles, norms and trust).

Domination (Value Chain)

In social system, domination refer to how social actors exercise power over resources to apply their transformative capabilities. In rice value chain, price fluctuations assist actors as decision makers by tracking how resources and related costs accumulate through the production process leading to price fluctuate valuation (price formation).

Signification (Market Mechanism)

Signification refers to the way social actors make sense of the social world and exchange and communicate meaning of their understanding of the social world with other social actors. In study of rice value chains, market mechanism is represented by market rice, actors/agent behavior and negotiation process. Market informations are the device through which actors communicate their understanding and interpretations of the economic impacts of price fluctuations on rice value chains.

Legitimation (Regulation, Roles, Norms and Trust)

Legitimate denotes accepted value standards for social behavior. This study considers rights, responsibility and rules; role of conduct and government or BULOG support. Controls, sanctions or incentives are aimed to ensure that rice value chains are carried of for legitimate purposes and provide sanctions only for activities that are carried on in accordance with the predetermined standards operating procedures, norm and regulation.

Structures: Rights, Responsibilities and Roles

Structure defines as an organization with right, responsibilities and roles (PACA, 2005). The household structures (including farmers, traders, and customer) are culturally determined as follows:

- Rights of household are including belonging or ownership.
- Responsibilities are including child care, production, and health, interaction with outsiders, savings and investment. It can be said as who will responsible for rice production tasks start from farm level to end customers?
- Roles for each family member mean head of household, decision-maker, caregiver etc.

These components can not be independent for each other but are integrated in a functional sense. Resources refer to who has access and to control over ownership, labor, capital, knowledge and time are important elements start from farm level to end customer. Needs refer to what is the impact on (time spent on each stage of rice production process. All related actors of rice supply chains needs are fulfill consumption for their family (nutrition); earning income to finance children education and health; and so on. The change in one component can have an impact on activity somewhere else in the system, plan or unplanned. Moreover, it is difficult to change culturally determined roles.

Institutional Theory

Institutional theory is a theory that studies how organizations can increase their ability to grow and survive in a competitive environment by satisfying their stakeholders (Jones, 2004). Institutions are a complex of working rules, are in a constant state of change and development. To some institutionalists, institutional economics is the study and analysis of economic situations. Institution defines rules and cost of transactions through the allocation of property rights and the influence on the organisation of distribution channels (Williamson, 2000). The important task of Indonesia government is to define the rules that have to be respected by the actors in the rice market and subsequently to enforce these rules in order to gurantee that the market is a level playing field. All contracts made by actors during transaction process differ in time and space and between types of intermediaries involved (Lutz, 2002). The existence of distribution channels should be able to coordinate contracts of selling buying activities among actors efficiently and should be flexible in the sense easy to adapt to new opportunities occurs in the market. Government is responsible in supervisory all transactions contracts among actors in rice market.

Rice Agriculture Organization

To increase paddy production in Indonesia, the government of Indonesia has set up three policies (Malian et al., 2004), as follows; (1) the bottom of rice price policy has been done by the government since 1969 up to now; (2) the subsidy policy regarding the

agricultures tools prices is to stimulate the farmers able to improve the quality of intensification program;(3) the import tariff policy is implemented as a response to strengthen the currency exchange rate in the world rice price in order to stabilize the domestic price in market and to protect the farmers. In addition, Malian (2004) and Amrullah (2003) noted that the important factors supporting the increase of paddy production during the period of five-year Pelita I until III, namely (a) the role of bottom price incentive and fertilizer subsidy contribute around 40%; (b) other factors like seeds, irrigations and improvement of farmers ability give contribution around 60% to the increase of paddy production.

Recently, weather anomaly and pest attack have constituted serious constraints of rice production target in Indonesia. Therefore, the effort to attain maximum production when there is sufficient supply is an alternative which should be taken by all stakeholders. The following information is about government actions occurred in year 2006 until 2008. The long drought season in 2006 has affected the delay of planting season. The planting season which should have been started in October was postponed to January because of very little water supply. Rice production in 2007 is a rice crop from the first period of 1 October 2006 to 31 September 2007. Planting season of October – December 2006 did not work optimally due to the climate shift. Therefore, the ability to meet the target to increase rice supply for 5% or two million tons are gone. In fact, then planting season from the period of October 2006 – April 2007 contributed 65% from planting width area. The government's chance to increase two million tons is only possible during the planting season of April – September 2007 which only contributed 35% from total soil area. This situation gave initation to do import take by government. The possibility to import rice can be agreed upon by many stakeholders in only government serious to handle the rice issues (Timmer, 2006) in terms of rice avaliability and price fluctuation.

Rice Distribution
Most agricultural production and distribution is characterized by seasonal level in which the variety between high and low period of rice productions are high. Consequently, the distribution system of rice is done by storage annual production inventory and allocating

along the year to maintain the availability of rice supply at the market. Bulog as government office has storage rice as part of rice safety service in *dolog* warehouse. The aim of keeping rice storage level through bulog is to help balancing the stock and consumption or balancing bulk harvesting period and scarcity period. There are two main reasons why the rice food products need to be saved : 1) Seasonal nature and transportation from production area needs time, thus the processing, harvesting, buying and selling. It means it needs time to deliver the rice from the producers to customers and for keeping so that the distribution channel is assurance on availability of rice stock; and 2) It needs carry over or buffer stock to the next season. The saving in the short run should be observed, because the rice quality that is storage more than one moth gives effect to the selling price.

Rice Cost Transaction

Transaction cost occurs from physical distribution cost like transportation cost and storage and involve exchange coordination among the actors related. Transaction cost covers expenses for getting and processing market information (Beckman and Davidson, 1967). In more detail, the transaction cost covers disappeared profit that is unreliable because making the appropriateness between the buyer and seller is not perfect and useful transaction is fail.

Rice Market Integration

Market agriculuture reform done in many developing countries are amied to manage the agricultural actors behavior. The Successful market reform is a reformation that is able to improve market efficiency, creates integration among the markets and evenly income for market actors (producers, traders and customers) (Mulyo Sidik, 2004; Yuli Haryati and Joni M Aji, 2005; Lyon and Thompson, 1993). The weakness of free rice market structure in Indonesia is the weakness of consequences from market integration, the information difficulty to access and rice trading stream that is spreading in Indonesia provinces. So, the successful of market reform process needs to be counted on how the price integrate and transmite among the actors in Indonesia rice markets.

Market integration analysis is conducted by the government gives benefits (Ratya, 2004) (1) by identifying the integrated market groups closely and understanding the price transmission level among different location in one country to reconstruct the government policy planning from rice market to actors (2) the market integration knowlegde helps in observing price changing (3) market integration model uses to predict price behavior among market (places) or areas (Schroeter and Azzam, 1991) (4) market integration identifies external structural factors that responsible towards market integration process, so the government able to determine rice distribution channel which gives an impact on national rice production performance to international market. Rice researchers noted that important factor in market integration is marketing infrastructure, governmental policy, the differences in production and shock supply.

Rice Policy

The Indonesia rice economy is regulated by Ministry of Agricultural and stabilized by BULOG. Rice price policy has been in place since 1969 (Mears and Affif, 1969) up to now. The four policy instruments during period 1960s and the mid 1990s were aimed to protect floor price and ceiling price through combination of : (1) monopoly control over international trade in rice (2) access to an unlimited line of credit (3) procurement as much as rice as necessary and (4) efficient government buffer stock management (Timmer, 2004 ; Mears and Affif, 1969).

Since September 1998, the role of Bulog to undergo its responsibility has changed. The changes role of BULOG became a state owned enterprise (Perusahaan Umum/ Perum) gave an impact on the dualism of Bulog role (as regulator and operator) to control rice supplies and rice price in the market (Dillon, 2003). This dualism has caused: (1) the inability of Bulog to control the rice price in the market (BULOG as a government regulator). In terms of price policy BULOG has to sets and defends HPP (previously it is called floor and ceiling price) regularly. For example, when the rice price is decreasing sharply at the market, BULOG responsible to buy rice at farmers. Contrary, BULOG are not goin to make any purchashes of rice when the price is increasing at the market. But, if the rice price in the market increases more than 25%, BULOG has to interfere and

stabilize rice price (so called Market Operation or Operasi Pasar/ OP) by importing rice. Today, as a government operator, BULOG has no longer as single rice importer (import monopoly has removed); therefore BULOG did not involved in the rice price policy formulation to control rice supplies in the market. This responsibility has taken over by Ministry of Trade and Creative Economy. Indonesia Government believes that trade liberalization is expected to bring about a better functioning of market when price is fluctuating sharply. The rice price stabilization policy is an important component of the overall Indonesian food and agricultural development plan. The rice price stabilization policy is evaluated and monitored by government office. This policy is implemented when domestic rice prices position below and above the world prices.

Rice Price Behavior

The price in general is determined by the relationship of supply and demand. In the reality, the price always fluctuates, and it is caused by three reasons (Doyle,2005 and Marks, 2009) namely (1) the ups and downs of demand (2) the ups and downs of supply (3) the experiment in setting price process. In general, there are five price fluctuation, namely (1) seasonal price variation (2) annual price variation (3) trend (4) the movement of price based on the season (5) random price movement and inconsistent. In Indonesia, the behavioral of agricultural product base on seasonal variety and seasonal price movement. The product pattern follows seasonal price variety.

Seasonal rice fluctuation occurs when the pattern changes is moderately in accordance to the supply and demand change due to climate and seasonal demand changes. The cycle of price movement arises when the rice (paddy) production begins. If rice production process is increasing, the price at market goes down and vice versa. This movement cycle is explained using Cobweb model. It is a theory that explains cycle from the pairs of certain quantity-price through the time path (Nerlove M, 1958; Athanasiou et al, 2008; Huang, 2005). Cobweb model is shown by three factors causes of the change of price and quantity cycle offered when the price is determined by (1) a time lag, there must be a decision to make about producing or realizing actual production (2) production plan from

producers based on the recent price or previous price (3) the recent price is the main function from the recent supply determined by the recent production.

The assumption of cobweb model are (1) the price is set up by the competitive market structure and producer is the price takers (2) the price is set up by the movement of a very short term supply level (3) production plan is based on the recent price (4) time lag is observed at least for once period of time that is needed to change production (5) the cycle depends on the same actual production with planning the same production (6) market clearing cobweb happens on the static supply and demand.

Concluding Remarks

The important role of actors in rice value chains reflected by new approaches adapted within academic researchers on food supply chain management. In the contemporary debate on alternative food networks it is concluded that the approaches were asymetrically focussed on production side of the food chains. Many price issues on agri-food are analysed using time series model to test hyphotesis about endogenous and exogeneous explanation of rice price fluctuation (Brorse, B Wade et al, 1991; Kajisa, Kei et al, 2004; Chirwa, Ephraim W, 2001; Lorie, Henri et al, 2006; Ismet et al, 1998).
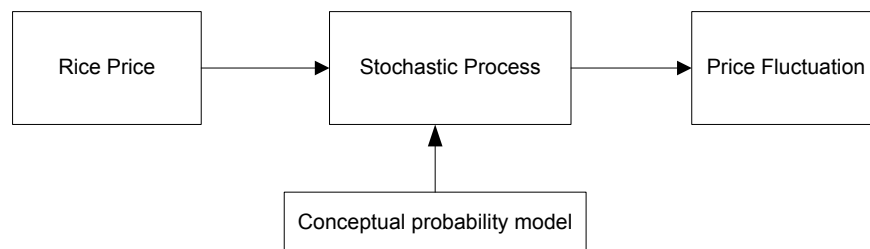

Figure 5 Quantitative Approach

The stochastic process in quantitative approach are less reliable to explain the dynamics interactions of price behavior between related actors explain a typical time series analysis, which considered the rice price fluctuations was a result from a stochastic process. Box, Jenkins and Reinsel (1994) stated that the stochastic process is defined by a

conceptual probability model which does not contain any information about actors behavior and interactions, in this context the rice price fluctuation is not only macroeconomics models.

As the quatitative model less capability to explain behavior and actors interaction, this study offers an alternative an usual food networks analysis was done by implemeting Giddens' structuration theory. The Structuration theory emphasizes on the role of actors behavior and their responsibility. The conceptual and methodological tools to investigate rice price fluctuation among actors in social interaction and behavior of rice value chains and how the institutional as well as market mechanism constructed are discussed and elaborated based on Giddens' structuration theory.

```
┌──────────────┐      ┌──────────────────┐      ┌──────────────────┐
│  Rice Price  │─────▶│ Actor Behavior and│────▶│ Price Fluctuation│
│              │      │   Interaction     │      │                  │
│              │      │ (think–decide–act)│      │                  │
└──────────────┘      └──────────────────┘      └──────────────────┘
                              ▲
                      ┌──────────────────────────┐
                      │ Giddens Structuration Theory│
                      │ (structure–interaction–system)│
                      └──────────────────────────┘
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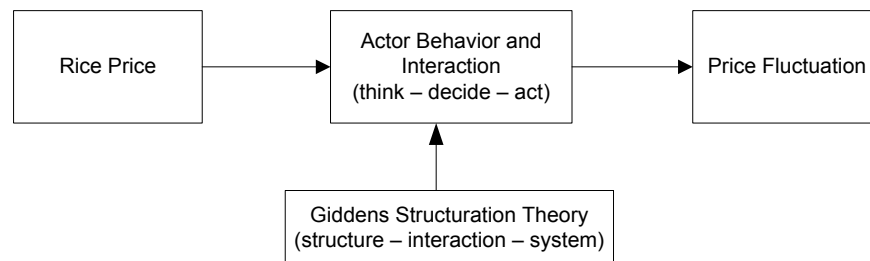
Figure 6 Qualitative Approach – Giddens' Structuration Theory

This study aims to analyse rice price fluctuation based on related actors behavior and interaction. It will complement recent study based on time series model (Doyle,2005 and Marks, 2009). Hence, the study gives contribution on better understanding of the rice price fluctuation more sensible, that is the interelation between conceptual theory with existing market conditions. Further, work on value chain analysis allows structuration theory to be more critically examined in this context and the potential connections with other theoretical frameworks to be explored.

Some studies have used structuration model for other context, and give more reliable result. Majunath et al (2011); Hoekstra (2006); Lewis and Suchan (2002) stated that structuration theory can contibute to better understanding the behavior and managerial issuess implemented in logistics research; social interactions, market mechanism and coordination among actors related. As the study related to rice value chains, analysing

actors chains will be of important. Several studies present about a conceptual framework for food value chains analysis (Cadilhon., Jean-Joseph et al., 2003; Taylor, David and Andrew, 2009; Reimer., Jeffrey J, 2006) are used to get comprehensive analysis as well as critical factors in the development of food distribution channels. How related actors think, decide and act to improve value chains performance, profitability and relationships are examined in this research. This conceptual food value chains describe that actors in food value chain analysis highlights significant opportunities to improve food value chains among actors.

Therefore, a comprehensive framework are proposed, including what are perceived among actors to be the critical factors in the development of rice distribution and rice price fluctuation: domestic legal and policy factors, geography, cultural and social norms, role of trust and collaboration among related rice value chain actors in Indonesia.

Conclusion

The conceptual research framework is developed using the case research method as proposed by Miles & Huberman (2008) and Yin (2003). Based on Figure 6, two research stages are implemented in these study. First stage is conducted to analysis rice price fluctuations phenomena, understand the processes and environment of "the current state" of the rice value chain, and also identify some key factors relevant to the rice price fluctuations through descriptive study. The phenomenon of rice price fluctuation is studied using a research framework as defined in Figure 8. Second stage is confirmatory study. The propositions are formulated to be tested in multiple case studies (Rao and Bargerstock, 2011). The confirmatory study takes into account to test the propositions matrix through the lens of structuration theory. The two stages within the research framework are outlined as follow:

First stage

First stage is intended to investigate rice fluctuation phenomena empirically (Yin, 2003) and interviewes, observation and FGD to related actors (farmers, trader, government and consumer) are conducted during data collection.

Descriptive study: RQ 1

Descriptive study is employed to figure out the rice price fluctuations within the rice value chains as described in Figure 7 indicates three components, namely rice price fluctuation, actors behavior and interaction, and rice market mechanism. In this stage, observations and interviews are conducted in order to get better understanding and to investigate with emphasizing on factors affecting price fluctuations and social interactions on rice value chains. All qualitative data collects in this stage are explained and analysed using CMO (Context-Mechanism-Output) pattern configuration (Pawson and Tilley, 2007). CMO is a contextual approach in which qualitative investigation in a selected of case studies promote a conceptual model. This conceptual model gives great importance to contextual factors in understanding causality in rice value chain (Pawson and Tilley, 2001; Gill and Turbin, 2001).

The COM helps reveal how interaction of an intervention in rice value chain in Figure 6 with a specific context triggers reactions (mechanisms) cause certain outcomes to occur. The CMO outcomes use to design data collection protocol (Yin, 2003). The protocol study is designed to help in formulating the research questions. This study is aimed (1) to get more information among actors interaction; (2) to identify social relationship of actors in rice value chains. and (3) to investigate selected variables to be analyzed further.

Rice Mechanism

| Input Production | Planting | Harvesting | Trading | Consumption |

Availability of Seed,fertilizer, Pesticide, land, Water irrigation

Planting and Monitoring

Collection, packaging,QC at village level, dryer and miller

Transportation, distribution , Warehouse, selling, grading quality,

Price Fluctuation on selling – buying activities

Capital Owner, Saprodi Shop and farmer

Social Interaction

Farmer

Social Interaction

Penebas

Social Interaction

Retaier or wholesaler

Social Interaction

End Consmer

Agriculture office, PU Department, all related government office

All related government office support Rice Agriculture Activities
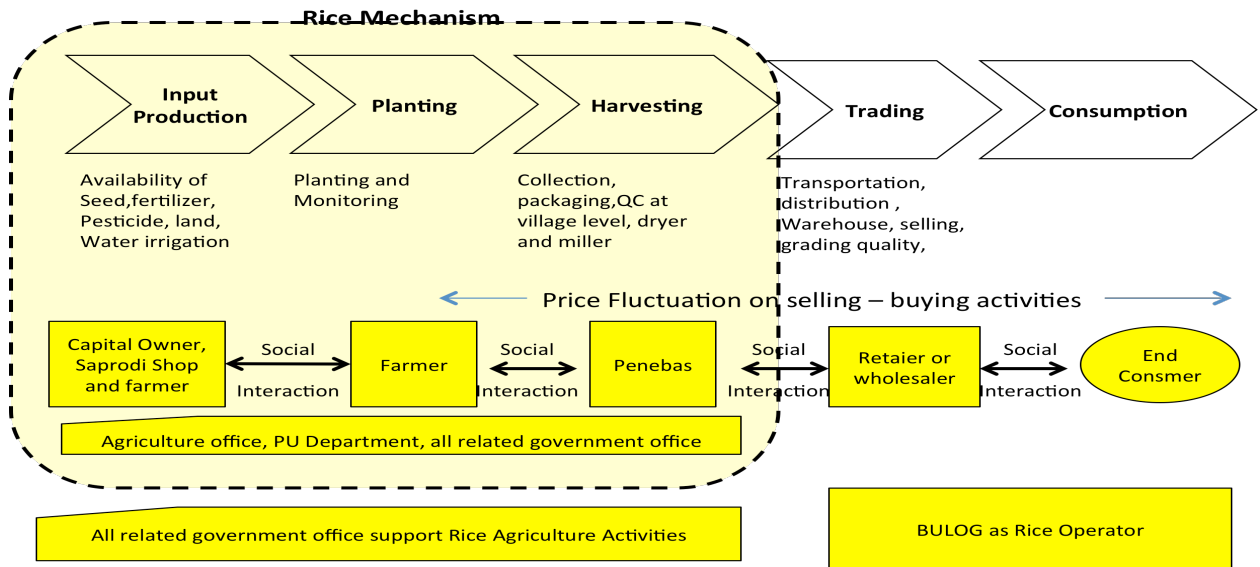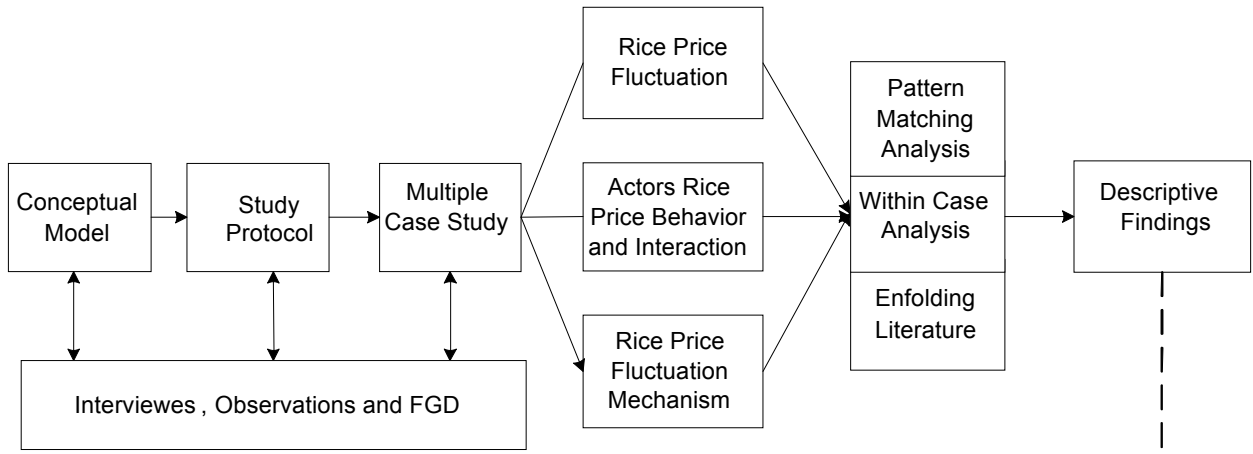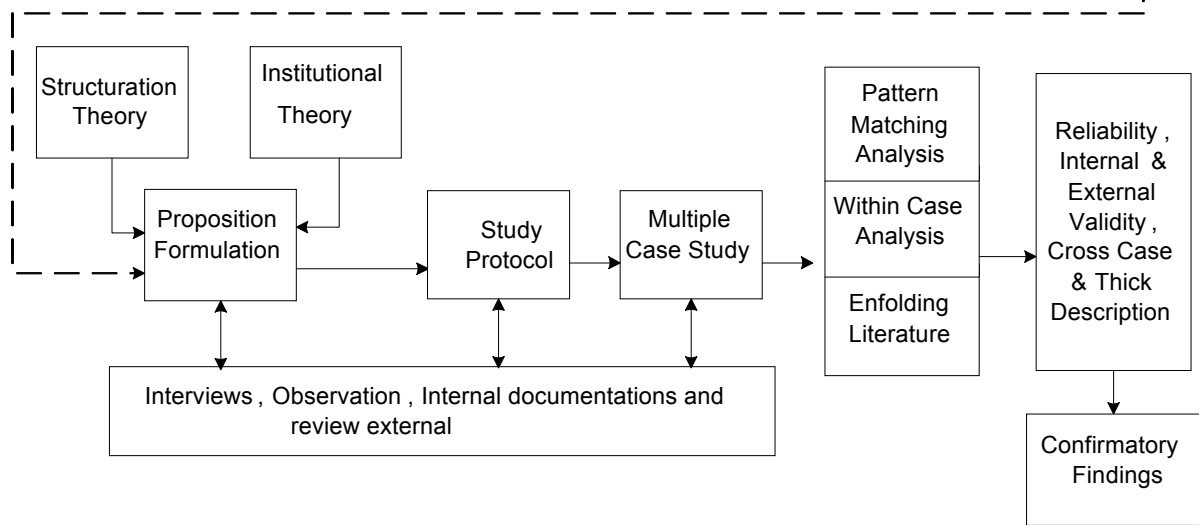
BULOG as Rice Operator

Figure 7 Rice Value Chain

(a) First Stage : Descriptive

(b) Second Stage : Confirmatory Study

Figure 8 Research Framework

Based on Yin (2003), some cases (with extreme or unique circumstances) were explored to describe rice price fluctuations phenomena, understand the processes and environment of "the current state" of the rice value chain, and also identify some key factors relevant to the rice price fluctuations. Therefore, gathering qualitative data is needed by conducting an individual in-depth interview. The strong point of in-depth interview is that it produces communication (more than spoken words) between interviewee and the researcher (Newing, 2011; Walliman, 2006). The interviews session will depend on the situation, thus semi-structured and informal interviews perform individually with several

informants (distribution intermediaries actors such as transporter, miller, retailer and wholesaler), consumers and rice producers. This study also conducts observation (watching what people do – non verbal communications, listening to what they say and asking for clarifications – verbal communication) during the resarch. This techniques is employed to check the behavior of actors of what they do, they say and they discuss (Walliman, 2006). The output of stage one is descriptive findings which is analysed using pattern matching analysis, within case analysis and enfolding literatur. Three main phenomena are studied in descriptive study as follows:

1. Rice Price Fluctuations reveal how rice fluctuate and convey among rice actors
2. Actors Rice Price Behavior and Interaction describes how actors interact and behave dealing and determining the rice price fluctuations in rice value chain.
3. Rice Price Fluctuation Mechanism identifies factors that govern rice price setting in market, which include supply demand conditions, government influence of rice trade, the nature and extent interactions through rice value chains, the storage availability and the use of technology and innovation in rice farming.

Second stage

Confirmatory study: RQ 2 and RQ 3

Based on descriptive findings in the first stage, nine propositions are formulated into a structuration matrix form (Rao and Bargerstock, 2011). Confirmatory study take into account to test the propositions matrix by applying the structuration theory; explains rice supply chains actors behavior and interactions (how they interact, behave, communicate and exchange information) which involve such as competition, coordination and leverage among actors (Miles, 1992). Table 6 is derived from a conceptual frame work of rice price value chain as shown in Figure 6 which indicates three components of rice value chains i.e rice price fluctuation, actors behavior and interaction, and rice market mechanism.

Giddens' structuration theory of actors and structures allow intepreting social interaction between actors (selling and buying actitivies) and also between consumption and production practices. Furthermore, the structuration theory explains the nature of

interactions, behavior and price transmision among actors in rice supply chain. Marc and Olsen (1989) stated that institution is a guidelines for human action or appropriate behavior in society. Institutions describe as rules or norms of behavior based on various important foundations, from culture and mental models to legislation and from social norms to political structures. Institution theory is employed in this study to express norms behavior and interactions among actors in rice supply chain.

The project will be carried out in the form of a *diagnostic practice-oriented* research project. Since the problem is to some extent obvious, it is important to implement a number of assessment criteria to clarify the rice value chain problem as of Figure 6 using Giddens structuration theory. Below is nine propositions that are developed from an intepretation of rice price fluctuation on rice value chain and contextual theory :

Table 6

Elements of Structural Dimensions and Propositions

Core Concepts	Structural Dimensions	Operational Variables	Propositions		
			Measure	Interaction of rice supply chain behavior	Institutional Relations
	DOMINATION (Value Chain)				
Structure	Domination Structure	Price Fluctuation	Price transmition	High	High
System	Resources/Facility	Infrastructure	Logistic support	Limited	Less coordination
Structuration	Power	Value Added	Cost and Benefit	High (low)	High (low)
	SIGNIFICATION (Market Mechanism)				
Structure	Signification Structures	Market Rice	Market Integration	Good	Good
System	Intepretative Scheme	Actors/Agent Behaviors	Information Flow	Good	Moderate
Structuration	Communication	Negotiation Process	Social interactions	High competitive	High competitive
	LEGITIMATION (Regulation/Role/ Norm/Trust)				
Structure	Legitimation Resources	Rights, Responsibility and Roles	Norm and regulation	Obey to the norm and implemnt the regulation	Clean institution

System	Norms	Role of Conduct	Standard and operating procedure	Observing and considering the SOP	Good institution.
Structuration	Sanction	Government/ Bulog Support	Sanction and incentive	Aware with the santions	Obey with sanction and incentive

DOMINATION

Domination Structure refers to resources over which agents use their power.

This study is analysing and explain how price fluctuate and transmite amongs actors related. The more price fluctuate, the interaction among actors will high as well as of the institutional relations (Kajisa and Akiyama, 2004; Chirwa, 2001; Lutz et.al, 1999). It is represented by transportation cost, first research proposition is stored :

Proposition 1 :
In rice value chain, where the price is fluctuating, the the probability of social interaction of actors will be high as of transanction cost as.

Resources/Facility refer to the agents (actors) uses "facilities" to control resources through their transformative capabilities.

In rice value chains, infrastructures can be considered a"facility" through which agents exercise transformative capabilities over their activities. Facility includes logistic supports such as place (market), road (transportation), warehouse and infrastructures (irigation channels, seed – fertilizer – pesticide factory). In rice value chain, availability of facilities are important and crucial links start from planting until selling output (Arifin 2004; Amrullah, 2003; Malian et al., 2004). Therefore, second research proposition is :

Proposition 2 :
In rice value chain, where the logistic support is limited into availability and accesible of infrastructure, then causing less coordination among institution.

Power refers to the capability of agents to bring about transformative capabilities

In structuration theory, power represents the capability of agents with measuring cost benefit in rice value chains. The agents use their power over price fluctuation by applying appropriate operational strategies. With this understanding, the third proposition is :

Proposition 3 : in rice value chain, if the price fluctuation is high, the probability of cost and benefit occurs among actors behavior is considered high and institunal relations cost to maintain price fluctuation is also high

SIGNIFICATION

Signification structures refer to a code or mode to communicate meaning

In structuration theory, signification structures are described as codes or modes of coding to communicate meaning (Hoekstra, 2006). With this understanding, the fourth proposition is :

Proposition 4 :
In rice value chains where rice market integration among actors is good then the probability of institution relations to rice actors is also good.

Intepretative scheme refers stock of knowledge applied by actors in production of meaning/to get common understanding
Intepretative schemes are at the core of mutual knowledge that actors use to understand interactions. Actors apply intepretative schemes to signification codes to arrive at a common understanding in activity (Hoekstra, 2006; Cheng and Wu, 2005). With this understanding, the fifth proposition is :

Proposition 5 : in rice value chains where the information flows among actors is good then the probality of understanding communication directly by the government official will be better.

Communication refers to regular reproduction takes place across time and space through communication.
Applying communication in price fluctuation context, strategies to respond price fluctuations can be sustained only when the structural properties of price fluctuation are reproduced regularly within actors in rice supply chains (Hoekstra, 2006; Lutz et.al, 1999). With this understading, the sixth proposition is :

Proposition 6 : in rice value chains when the negotiation process among actors is competitive then the probability of institutional relations communication will become tight/intensive competition

LEGITIMATION
Legitimation structures refer to accept value standard of behavior in social system and appeal to the sense of what is right and what is wrong in social actors.
The concept legitimation in price fluctuation on rice value chains are consider rights, responsibility and roles accepted and implemented among actors and institutional (Hai, 2002). With this understanding, the seventh proposition is :

Proposition 7 : in rice value chains, if actors behavior and interaction obey to the norm and implemented regulation, then the probability having good institution will occur.

Norms refer to rules and behavior.
The concept of norms in rice value chains refers to the how actors behave and interact by considering role of conduct that implemented among actors(Hai, 2002). With this understanding, the eight proposition is :

Proposition 8 : in rice value chain, if the awarenees and level of consideration of role of conduct (standard operating procedure) among actors in rice value chain is moderate then the possibility of clean institution are occured.

Sanctions refer to a modes of reward or punishments that reinforces expected forms of behavior.

In rice value chains, government is reponsible in delivering sanctions and incentives for actors related (Arifin, 2004; Arifin, 2005). With this understanding, the ninth proposition is :

Proposition 9 : in rice value chains if actors in value chains aware on sanctions and incentives in their relationship, then the probability of government official obey in giving sanctions and incentives is good.

Based on Yin (2003) one or more cases selected to apply existing theories to situations where their applicability has not been tested. All data from descriptive study is collected to test propositions and to look for literal replication to support and confirm the findings of the research. The proposition directed and shaped the collection and data analysis in each case study. The basis of comparing some case studies is based on the development and use of an explicit theoretical framework. Therefore, the analytic generalisation approach can be drawn and similar results from individual cases are argued to reflect form of replication. The output of this stage is confirmatory study .

FURTHER RESEARCH

Yin (2003) states that research design is a logical sequence that connecting the empirical data to the research questions of the study and ultimately to its conclusion. Factors to be considered in a case study research design include a study's questions, the role of existing theory which is employed in the study, its unit(s) analysis, data collection method and data analysis procedure. As this research study conducts in two stages, thus further research design will be based on the research stages.

First Stage : Descriptive Study

During the first stage, once research problems are clarified using CMO pattern configuration, then literature studies undertake to identify important concepts and relationships among actors behaviors in rice value chains. The outcome is a conceptual model that provides a basis for the design of the data collection protocol which will be tested and refined. All theory relates with research question study in this stage are used to develop criteria for the selection of the case studies. Data in the form of interviews, field observations and documents are collected over the period of the study. Preliminary data

analysis is taking into account after each interview and in-depth analysis undertakes during fieldwork.

Case Selection

As unit analysis of this research is rice value chains, therefore the use of multiple case study is preferred. Case selection will be based on criteria that is used to select the case and how many cases should be studied. A case will be defined as an instance of a broader phenomenon or as part of a larger set of parallel instances. CMO employs in this study, therefore case selection covers three important components : context – mechanisms – output of rice value chains. For this study, all actors (farmers, traders, customer and government) in rice value chains are treated as important informants. The behaviors and interactions made by actors are the embedded units of analysis in this study. In relation to the level of uncertainty faced by actors is high primarily due to the influence of external factors. Important theoretical characteristics of the case study emerge during the investigation. An experienced rice value chains researcher, an "informal gatekeeper", short-listed 10 cases in rice fluctuations. Each is reviewed and four to six cases are selected and observed over period of this research. All informants will be contacted by telephone, visited and asked if they are willing to discuss their involvement in the study. A research outline and purpose of the study, the method, time frame and time commitment send to informants in preparation for a pre-study interview and preliminary briefing. Once they agree to be involved and permission is obtained to tape then interviewes execute.

Sources and Data Collection

In the descriptive study, research data is collected based on interviews and FGD with all actors relate with rice supply chains. Also observation of consumer and trader activities are conducted during this research. Monthly intervals use during this study based on argumentation that actors can remember their tactical decisions over this time frame. The semi-structured-interview or interview guide are most appropriate data collection method for studying rice price phenomena and actors behavior and interaction. During the research, interview and observation protocols are developed and used to guide and to ensure that all essential and important information regarding proposed research model

(research hypothesis and research propositions) are recorded and collected well. The observation activities are drawn according to verbal communications (what people say i.e discussed attributes indicating consumers, traders and producers related with rice price and rice demand. All topic conversation indicates type of relation and importance of social interactions and non verbal communication (i.e buying and sellling strategies including dominance in conversation, gestures and etc). Also, two observation technique conduct, being participant observation and detached observation are used during this research. Detached observation uses more than being participant observation, because it implies more objective and systematic way of observing.

In the case study research, the primary data (i.e interviewes with consumer, traders, government and rice producer) and secondary data (data given by the official government) are collected (see Table 4.3).

Secondary data is collected through observations and documents (Yin, 2003). For some importants issues, probing and active listening are used to obtain more information. Multiple forms of evidence possible to be used in this study as a form of triangulation to confirm findings. Any evaluations during this stage are identified along with the factors related with CMO pattern configuration. Interviews are required one to two hours to complete.

Table 7 Research Data Source

Methods	Source and Time Allocate	Context	Mechanism	Output
In-depth Interview	Rice Retailer (pedagang beras) at traditional market (private and public), warung (kiosk) and modern retail market	Buying and selling process	How a selling buying price is defined	Selling and buying price decision
		Location	Where does the source of rice	Buying location
	Time allocate : One to two hours per one informant	Rice Quality	How the quality and quantity is determined	Factors affecting quality
		Rice Payment	What is the rice payment mechanism	Payment pattern

		Risk	How does he/she consider the risk (finance and non finance risk)	Risk perceive (risk taker or risk avoider or indifferent)
		Competition strategy	Does he/she consider competition (barrier to entry and exit)	Competition interaction among actors
		Warehouse	How does he/she manage inventory	Inventory management
		Rice retailer / middleman	How many intermediares involved in his/her activities (selling and buying)	Amout intermediaries involved
		Information	How does he/she manage the information received	Information flows
In-depth interview	Rice wholesaler (central distribution market and rice distributor) Time Allocate : One to two hours per one informant	Buying and selling process	How a selling buying price is defined (price determination).	Buying and selling price decision
		Rice Quality	How the quality and quantity is determined	Factors affecting quality
		Rice Payment	What is the rice payment system	Payment pattern
		Risk	How does he/she consider and perceive the risk (finance and non finance risk)	Risk perceive (risk taker or risk avoider or indifferent)
		Competition environment	Does he/she consider competition and negotiation on rice price	Competition and negotitation interaction among actors
		Warehouse capacity	How does he/she manage inventory	Inventory management
		"lapak" or "pasar induk" player	How many agents or actors involved in his/her activities (selling and buying)	Amount of intermediaries involve
		Information	Does the rice information affect selling buying activities	Information flows
		Actor Interaction	Does he/she have a direct or indirect relationship or interaction with traders	Social interactions

		Trust and social Norms	How do they value their trust (social) relationship among related actors	Relationship based on trust and fairness
In-depth Interview	Rice farmer Time Allocate : One to two hours per informant	Buying and selling process	How a selling buying price is defined (price formation process including buying selling pattern).	Buying and selling price decision
		Rice Quality	How the quality and quantity is determined	Factors affecting quality
		Rice Payment	What is the rice payment system	Payment pattern
		Risk	How does he/she consider and perceive the risk (finance and non finance risk)	Risk perceive (risk taker or risk avoider or indifferent)
		Competition strategy	Does he/she consider competition and negotiation on rice value chain	Competition and negotitation interaction among actors
		Warehouse capacity	How does he/she manage inventory	Inventory management
		Broker at village area	How decision are made between broker and farmer ? (selling and buying)	Decision pattern
		Information	How does he/she manage the information How does the information affect selling buying activities	Information flows
		Actor Interaction	Does he/she have a direct or indirect relationship or interaction with farmers	Social interactions
		Trust and social Norms	How do they value their social relationship among related actors	Trust relationship
In-depth interview	Government agencies (bulog, disperindag, local government) Time Allocate : One hour per informant	Buying and selling process	How they manage selling buying activities among trader	Buying and selling price decision
		Legitimation Resources	How do they define role,rules, responsibility	Standard operating

			and norms related to rice	procedures and job descriptions
		Rice Price Control	How do they define and manage price fluctuation	Market Price Mechanism and Regulation
		Domestic Market Information	How they manage price information	Information System Management
		Distribution Channel	How do they explain about structure of rice distribution channel	Distribution (chain) pattern
		Managing actors interaction	How do they implement rules or regulations that coordinate market exchange	Rules of conduct
Focus Group Discussion	End rice consumer Time Allocate : three hour per informant	Price fluctuation	How do they perceive and receive the price How does rice price fluctuations affect selling buying activities	Buying decision process
Observation	- Traditional market (31 public market and 4 private market in Kota Bandung) - 3 – 4 modern retail market in Kota Bandung - 30 warung (kiosk) - 1 central market and 10 rice distributor (warehouse) - paddy field, miller, saprodi shop	- Interaction pattern - Warehouse capacity and inventory management - Cash flow (capital) pattern - Bargaining process		
Documents	- previous research studies - government official website (BPS, Deptan, Depdag, Dinas Pasar)	- Government regulation (- Related previous research findings - Published documentation (crops, area harvested, saprodi availability, bulog buying price		
Focus Group Discussion	- Serikat Petani Pasundan - Serikat Petani Karawang - Asosiasi pedagang beras kota bandung	Issue or topic discussion : Rice price determination; social relationship among actors; government rules or regulation		

	Time Allocate : Two to three hours	

Second Stage : Confirmatory Study

Case Selection

Based on descriptive findings in first stage, the use of multiple case study is preferred. Data from several descriptive findings are collected to test propositions and to look for literal replication to support the findings of the research. Informants as part of case study is traditional and private rice markets actors in a city or province.

Sources and Data Collection

In this stage, historical events are also studied using interview, research internal documentations and reviewed external literature such as internet and media are implemented periodically. During this research stage, the causality between factors are studied and analysed. The key of this research is how to analyze propotions more clearly and logically.

Table 8 Operational Variable

Dimention	Variable	Costruct	Indikator
Domination in Rice Value Chain	Price Fluctuation	rice price behavior	How price fluctuate and transmite among actors related
	Infrastructure	Logistic support	What the availability, condition and accesible of the infrastructure (irigation channels, roads, market, seed, fertilizer, pesticide, etc)
	Value added	Cost and benefit	How does price fluctuation will be costed and benefited actors
Signification (Market Mechanism)	Market Rice	The market price in certain period and considered by actors	How is market price integrated among actors
	Actors/agent behaviors	Ability to acces and intepret market information	How do actors able to acces and intepret price
	Negotiation process	Social interaction and communication	How do actors communicate, consider and perceive the risk

			(finance and non finance risk)
			How are competition and negotiation on rice value chain occured
Legitimation (regulation/ role / norm / trust)	Rights, Responsibility and Rules	Norm and regulation	What are the type of rights, responsibilitty and rules of actors
			How do actors value their relationship among actors
	Role of conduct	Standard operating procedure	How are the SOP followed and implemented by the Government
	Government agencies support	Sanction and incentive	What are the sanctions and incentives applied to the actors
			How are the sanctions and incentives governed by the official

Data Analysis and Data Management

The reliability and validity are conducted in this stage. For construct validity, there are three ways to guarantee construct validity during this study namely multi-sourced triangulation (data sources will be gathered from interview, internal texts from secondary data, external literature to ensure the multeity of data); construct evidence chains (will be based on interview and data analysis using causal map and time series research to make the data have the characteristics of continuity and logicality); in-depth interviews to key informant in order to make the data have the characteristics of continuity and logicality to ensure the phenomena. Internal validity in this stage will be done by analysing whether theory, proposition and research data matched to ensure internal validity of this research (Table 4.5) . External validity will be conducted by reporting the findings to rice value chains experts and had discussion with them (Table 4.6). Reliability will be constructed based on database comprising the recordings and documentation of interviews, external data and journal articles to increase reliability of this research (Yin, 2003).

Cross case analysis is employed to determine why different cases produced similar or different results (Yin, 2003). In this study, the use of tabular displays or matrices (Miles and Huberman, 1994) allowed the differences and similarities between the cases for

important theoretical areas to be quickly identified. Diagram of the processes used by the cases are used to compare and identify similarities and differences. The focus of cross case analysis in this study is to confirm whether the case of rice price fluctuations used similar behavior and tactical processs; also to identify areas in which they are different. Thick descripton will be used to describe the strong and weaknesess of this study.

Further expected results

This study is expected provide a number of contribution to theory and practice

Contributions to Theory

Most researcher in studying rice fluctuations behavior were using quantitative study such as co-integration model, law of one price model and etc. The development of rice value chains study through the lens of structuration theory is a key contribution of this study in analysing rice price fluctuations.

Contribution to Practice

This research provides evidence to the rice experts that structuration theory is valuable to create knowlegde about all social relationship of actors in rice value chains. Thus, the knowledge of analysing value chains using Giddens structuration theory is important for government to get better in understanding on rice price fluctuations from famers, traders and consumers perspectives to set up government roles and responsibility on rice price.

Value chains analysis and Structuration theory

Studies related to value chains and structuration theory			
Authors	**Objective**	**Method**	**Result**
Manjunath et.al 2011	- to determine how manufacturers' use of standard costing compares to lean accounting theory. - To determine why mature lean manufacturers may continue to use standard costing and variance analysis	- Descriptive study using research protocol	- 9 testable propositions for further resarch (these propositions is developed through the holistic lens of structuration theor)
Fernie and Thorpe, 2007	- To explore the process of change within organisa-tions in the construction sector related to the content of change called for by reformers such as Egan, Latham, Constructing Excellence and " the rethinkingconstruction" movement.	- Case study research by interviewing informants and practitioners as respondent research.	- SCM is found to be both synonymous with the concept of partnering and particularly problematic for organisations to implement within the constrution sector due to specific contextual factors.
Holweg and Pil, 2007	- To evaluate the applicability of three different theoretical lenses on the multi-factered interactions between information, physical flow, and the complex rationales driving SC evolution : resources based view – the concept of complex adaptive systems and adaptive structuration theory	- Multiply case study of three automotive supply chains - Data is analysed using intepretative paradigmatic approach	- Each theory has a separate realm of applicability and while complimentary in nature, provides distinct insight on the structural shift in the SC system.
Lewis and Suchan, 2002	- To introduce logistics researchres to structuration theory as a framework for understanding the complex behaviors that influence Advanced Information Technologies adoption in logistic research.	- Case study research by interviews, participant observation and analysis logistic data - Data is analysed by adopting the intepretivist framework.	- Structuration theory can contribute to better understand the behavioral and managerial issues created by information technology implementation in logistics research
Taylor, 2005	- To develop an innovative methodology to apply lean value chain improvement techniques to a complete supply cahin for a food product from farm to consumer	- Case study approach by conducting action research based on a UK case study involving farmers, a food processor and a major retailer	- Value stream analysis (VCA) highlights significant opportunities to improve SC performance, profitability and

			relationships.
Gregor and Johnston,	- To understand IOS in development of SC management in the beef industry	- Case study of SCM in the Australian Beef Industry - Data gathered in interviews, notes of meeting and telephone conversations from archival sources and surveys.	- Structuration theory can be used to explain IOS (interorganisational system) amongdifferent levels of analysis and external environment.
Hoekstra, 2006	- To explore ongoing changes and future practices of food markets in Vitoria. - To gain more insight in local food network in Vitoria by studying the process of social interaction and the construction of quality conventions between consumers and producers at the farmers market	- Case study at farmers market. - Data collection is gathered by conducting interviews, archive files and documents, group discussion and observation	- Social interaction is taking place in the consumer – producer encounters is coordinated by coordination mechanisms. - Market coordination is the principle mechanism used, in combination with domestic and reputation coordination

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