

Structure-Conduct-Performance and Food Security

FEWS NET Markets Guidance, No 2

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INTRODUCTION

Traditionally, FEWS NET has focused on household access to markets and, as a consequence, regular price analysis and reporting has emphasized describing current price conditions – how affordable is food. But it is recognized that deeper market analysis can make a significant contribution to food security and early warning analysis.

Placing the analysis in the broader market system context and incorporating more elements of structure, conduct and performance such as trader behavior and market dynamics will allow FEWS NET to better anticipate market response, more fully define relevant scenarios, formulate expectations about the season as it unfolds and draw upon additional sources of useful market information to tell a fuller food security story. More comprehensive and forward looking analyses and reporting that incorporate markets and trade will furnish decision makers with the kind of information they need in order to make well informed choices

among the range of sound market and/or non-market responses. Deeper market analysis can also help orient the timing of humanitarian interventions, complementing and compensating for the markets rather than replacing them.

For example, traders make plans to import cereals using prices from several locations throughout the broader geographic region and even international markets at certain times of the year. They have strategies for dealing with production shortfalls in their typical market catchments areas. Gaining insights on these behaviors will help FEWS NET and its partners identify key market indicators to follow, analyze the implications of significant market phenomena and project likely supply responses and ultimate market outcomes that can have important food security consequences.

In order for FEWS NET to better incorporate market structure, conduct and performance into regular monitoring, analysis and reporting, some guidance materials and other tools such as assessment and interview guides are needed. This guidance is considered the first step in this process.

This guidance will:

- 1) Provide an introduction to the Structure-Conduct-Performance (S-C-P)¹ approach and how it applies to food security analysis and early warning;
- 2) Illustrate what can be monitored in order to assess various aspects of market structure, conduct and performance that can:
 - a. help describe and analyze market dynamics,
 - b. provide early indicators of evolving or future food security conditions and/or
 - c. inform decisions on response options in normal and/or emergency contexts
- 3) Provide examples of how S-C-P can be applied in FEWS NET country contexts.

¹ It should be noted that the traditional Structure-Conduct-Performance approach has been presented and slightly modified to specifically apply it to the food security and early warning environment of FEWS NET.

This guidance will be accompanied by additional guidance on how to collect data and information on S-C-P, prepare interview guides and some other complementary tools (e.g., template for development of trader surveys, steps for creating commodity network maps, guidelines to calculate market margins, etc).

APPLICATIONS OF STRUCTURE-CONDUCT-PERFORMANCE ANALYSIS TO FOOD SECURITY

Structure-Conduct-Performance (S-C-P) is an analytical approach or framework used to study how the structure of the market and the behavior of sellers of different commodities and services affect the performance of markets, and consequently the welfare of the country as a whole. Specifically:

- **Market structure** consists of the relatively stable features of the market that influence the rivalry among the buyers and sellers operating in a market. Some examples of market structure include the number of buyers and sellers of food commodities in the market, the number of sellers of agricultural inputs such as fertilizer and veterinary drugs, barriers to entry into the market and the nature of trading relations (vertical coordination mechanisms²) among market participants.
- **Market conduct** refers to the patterns of behavior that traders and other market participants adopt to affect or adjust to the markets in which they sell or buy. These include price setting behavior, and buying and selling practices.
- **Market performance** refers to the extent to which markets result in outcomes that are deemed good or preferred by society. Market performance refers to how well the market fulfills certain social and private objectives. These include price levels and price stability in the long and short term, profit levels, costs, efficiency and quantities and quality of food commodities sold.

Box 1 contains an illustration of the relationship between structure, conduct and performance.

Box 1: Example of S-C-P Elements

Consider a market that is characterized by only two sellers (**structure**) of a staple food commodity such as wheat in a small town in a country. This type of structure can arise for any number of reasons. For example, one might be that government licenses only two wheat sellers in an area, or that the cost of starting a wheat selling business is very high or prohibitive.

Given the situation of two traders, one could expect them to behave (**conduct**) in a number of different ways. They could collude³ and sell their products at a higher price or be willing and able to sell poor quality products. Or, they could price discriminate – charging prices according to the consumers' willingness and ability to pay (higher price to wealthier consumers, lower prices to low-income households⁴), a practice that tends to increase profits and revenue.

The expected effects (**performance**) from such a structure and conduct is that households would pay higher prices than if there are more than two sellers (more competition), and consumers would be offered poorer quality wheat than if there were more sellers in the market.

Early signals of potential food insecurity can be perceived by observing the market structure, conduct and performance (S-C-P). Understanding more about the S-C-P of markets provides insights on what about the markets is important to the determination of good food security outcomes (performance), and what indicators as well as the behavior of those indicators we should look for in order to determine whether the market is operating in a way that will likely have good or bad food security outcomes.

The way markets perform has important effects on food security. Crop and pastoral farming households, even while largely practicing semi-subsistence agriculture, depend on markets in many ways. For example, pastoralists sell animals, dairy,

² Vertical coordination mechanisms refer to the trading relations or ways in which transactions are conducted between market participants. Examples are spot market transaction, contracts, cooperatives, vertical integration and strategic alliances between or among farmers, traders, transporters, processors and consumers.

³ To collude means to conspire or to join together or join forces.

⁴ Because of lack of standardized units of measurements, poor households tend to purchase in small amounts, which costs them more in the long run than those households which buy in larger quantities.

beef, hides and skins on the market to obtain income. This income is used to buy food (such as maize and wheat flour) for home consumption. Also, many households sell part of the crop (usually cash crops, but also staple crops) they grow to obtain income that they use to purchase food and other basic needs (e.g., soap, salt, paraffin). Households in urban areas spend large proportions of their incomes on food.

While S-C-P was designed for more industrialized countries, a number of modifications have been suggested such that this paradigm can now be applied to market analysis in developing countries. This technical note provides an introduction to the S-C-P paradigm tailored to the FEWS NET context of food security and early warning analysis. The tables in this technical note have been compiled from a number of previous market research studies with emphasis on developing countries such as Holtzman (1986), Holtzman and Lichte (1995) and Pomeroy and Trinidad (1995). Additional literature covering more classical S-C-P is included in the reference list.

MARKET STRUCTURE: APPLICATIONS IN FOOD SECURITY AND EARLY WARNING ANALYSIS.

Market structure consists of the relatively stable features of the environment that influence the behavior and rivalry among the buyers and sellers operating in a market. For example, if the market structure is characterized by high barriers to entry, (e.g., license fees and kinship ties), it may result in only a few firms or traders profitably maintaining business activities in, or even entering, certain markets. These few traders may engage in non-competitive behavior such as collusion⁵ and exclusionary or predatory⁶ price setting behavior. Such non-competitive behavior can result in higher profits and high marketing margins⁷ for traders. Concentration can also result in low producer shares⁸ for farming households. This can have a significant impact on the income and food security of producer households and on the purchasing power of households that depend on the market as the source of food. Table 1 summarizes the common elements of market structure and provides examples of how each element is relevant to food security analysis. The list can be long, and this note cannot in any way enumerate all of them. Also, some elements are interdependent and tend to occur jointly.

| Table 1: Elements of market structure and application to food security and early warning analysis. | | |
|--|---|--|
| Elements of structure | Examples from FEWS NET environment | Effect on food security and early warning |
| Number of buyers and sellers With few buyers and sellers, they may engage in non competitive behaviors such as collusion and price discrimination. | A few buyers of pastoralists' livestock. | Traders offer farmers low prices which reduces incomes of rural agricultural households. |
| | A few sellers of food commodities in the market | Retailers gain market power and increase food prices, which reduces the amount of food poor households can purchase with a given amount of income, therefore, making them relatively more food insecure than if prices were lower. |
| | A few sellers of agricultural inputs such as fertilizer and veterinary drugs | Traders overcharge farmers for agricultural inputs such as fertilizer which reduces their use of inputs and ultimately their yields and income. In the case of veterinary drugs, livestock farmers fail to buy vaccines, which could lead to animal diseases and deaths, reduced prices for livestock, lower incomes and increased food insecurity among pastoralists. |
| | A few transporters of agricultural products working between production areas and markets. | Transporters charge higher prices for transporting people and food commodities which reduces farmer profits, thus reducing household income. |

⁵ When rival companies and traders cooperate, overtly or covertly, for their mutual benefit.

⁶ Exclusionary or predatory pricing occurs when one firm lowers and maintains its price below costs until other efficient firms exit the market. Predatory pricing eliminates competition (results into monopoly power).

⁷ A marketing margin is the difference between the prices observed at different points in the supply chain when quantities are expressed in comparable units of a commodity.

⁸ A producer share in this brief refers to the percentage of the price received by the farmer over the price paid by the consumer for a commodity expressed in comparable units.

| Table 1: Elements of market structure and application to food security and early warning analysis. | | |
|--|---|---|
| Elements of structure | Examples from FEWS NET environment | Effect on food security and early warning |
| Barriers to Entry This refers to factors that restrict the participation of households or traders in the market | Farmers and traders lack access to credit. | Farmers and traders fail to market or store commodities to sell when prices are high, thus reducing returns. When farmers store and sell later in the season, seasonal price swings become less dramatic, leading to increased income and food security of both producers and consumers. |
| | Traders and farmers pay high license fees before starting to trade. | Small-scale traders and households are deterred from starting businesses or trading, which reduces their opportunities to earn income. High license fees deter farmers from delivering output to markets by themselves, which leads to higher prices and low household income. Traders attempt to push the costs onto farmers in the form of lower producer prices and onto consumers in the form of higher consumer prices |
| | Traders pay high export and import taxes. | With export taxes, the countries goods become more expensive to potential importers, and producers in the exporting country obtain less income from the sale of their surplus output. With Import taxes, traders and consumers in the importing country face higher food prices, sometimes food shortages. |
| | Traders control critical locations and assets such as stores and markets. | A few traders limit the participation of other traders in the market, and make households to pay high food and input prices. |
| Vertical Coordination/ Integration Farmers and livestock herders get less income depending on whether traders buy produce directly from farmers, middlemen, or transporters. | Farmers sell their products in terminal, spot or auction markets. | Farmers obtain efficient or competitive prices because many buyers and sellers converge in terminal, spot or auction markets. However, spot market prices tend to be volatile, therefore subjecting households to price and income risks when prices fluctuate due to changes in supply and demand for food commodities. In addition, farmers can deliver commodities to spot markets but fail to sell when there are few buyers. |
| | Farmers sell directly to buyers at their homes and/or farms. | Farmers get less income, but do not incur costs of transporting produce to markets. |
| | Farmers sell through contracts to traders. | Farmers obtain predictable prices and income, thus reducing food insecurity. Sometimes farmers get lower prices compared to those obtained when farmers sell on the spot market. Unlike selling on spot markets, however, if farmers deliver in contract arrangements, the quantities are specified in advance, implying that farmers have assured markets under contract sales. |
| | Farmers engage in group marketing, or are organized as cooperatives. | Farmers obtain higher prices and income due to increased bargaining power, and trading in high volumes. |

MARKET CONDUCT: APPLICATIONS IN FOOD SECURITY AND EARLY WARNING ANALYSIS.

Market conduct refers to the patterns of behavior that traders follow and how they adjust to changing market conditions. Examples of market conduct include price setting behavior and buying and selling practices. For example, in an environment where there are many buyers and sellers, the market tends to determine the price. If one trader tries to increase his or her price, he or she sells nothing. This means that households buy food commodities and agricultural inputs at prices that equal to the costs of producing the last unit of the commodities (marginal cost). In contrast, if there are only a few sellers of food commodities in a market, these few traders can conspire and charge consumers higher prices, up to the level where consumers can afford to buy from nearby market at a lower cost. Table 2 gives some examples of market conduct.

| Table 2: Elements of market conduct and application to food security and early warning analysis | | |
|---|--|--|
| Elements of conduct | Examples from FEWS NET environment | Effect on food security and early warning |
| Pricing Setting Behavior | Traders jointly determine the price to offer producers (e.g. a | Prices offered to cattle herders are lower than those that would have prevailed in a competitive environment with many buyers. This behavior |

| Table 2: Elements of market conduct and application to food security and early warning analysis | | |
|---|---|--|
| Elements of conduct | Examples from FEWS NET environment | Effect on food security and early warning |
| Who sets the price? How are prices determined? | few buyers of cattle secretly negotiate and agree to offer herders lower prices). | severely reduces incomes of rural livestock herding households. |
| | Traders jointly determine the price to charge consumers (e.g. a few sellers of veterinary drugs collude and charge livestock farmers higher price). | This behavior increases costs and reduces the use of vaccines and drugs, results in less healthy animals and higher mortality rates, poor quality livestock upon sale and consequently reduced incomes of rural pastoralists. |
| | Traders collude and pay lower prices to maize farmers. | Reduces incomes of rural agricultural households, causes maize growers to cut costs by limiting employment of farm laborers and reducing the use of inputs, which ultimately can reduce output. |
| | Government sets consumer prices. | If the price is set very low, consumers benefit through access to cheap food. |
| | Government sets producer prices. | When prices are set above prevailing market prices, and the process is handled well, agricultural households get more income, which increases their access to other food needs. Poor agricultural households that are net consumers could actually be worse off because they have to pay more for the food they access through the market. |
| | Traders demarcate trade areas/regions and offer different farm-gate prices to farmers in these different areas/regions for the same quality and quantity of agricultural commodities. | This process, known as price discrimination, makes traders underpay some farmers which results in reduced incomes. |
| | Traders charge different prices to different consumers especially if traders can differentiate between rich and poor consumers. | Overcharged consumers buy less food commodities and undercharged consumers buy more food commodities for a fixed amount of money. Thus the overcharged lose and the undercharged benefit. |
| Buying and selling practices | Consumer prices are not transparent or openly displayed. | Traders charge different prices to different consumers for the same commodity thus subjecting some households to higher costs and less food purchases. |
| | Producer prices are negotiated in private arrangements and secret bids. | Traders offer different prices to farmers when buying agricultural commodities. This difference in prices leads to less income for poor households. |
| | There are no grades and standards followed when selling and buying. | Traders tend to pay a lower price than the one that corresponds to the Fair Average Quality ⁹ (FAQ), resulting into less income for households. Farmers do not get price premiums for producing higher grade food commodities. |
| | There are no standard units of measurements in the market for volumes traded such as weighing scales. | Farmers are cheated when they go to sell in the market and thus get less income from the sale of food commodities. |
| | Farmers sell in small quantities and they do not engage in collective marketing. | Farmers do not gain higher prices and income due to lack of increased bargaining power and lack of economies of scale and size from trading in high volumes. |
| Other conduct | Consumers can return goods or services that are damaged or below standard. (i.e. goods and services are guaranteed). | High quality goods and services are more likely to be sold to farmers and consumers. |
| | Traders merge to form one large business. | Traders gain market power and start overcharging consumers, thus reducing the amount of food households can buy. However, it is also argued that when traders merge, they face reduced costs and gain |

⁹ Fair Average Quality (FAQ) refers to an average grade used in agricultural commodity trade.

| Table 2: Elements of market conduct and application to food security and early warning analysis | | |
|--|--|---|
| Elements of conduct | Examples from FEWS NET environment | Effect on food security and early warning |
| | | efficiency. Reduced costs and efficiency gains results into lower consumer prices for food commodities. |
| | Traders lobby politicians or city council officials to control markets or collection of market dues. | A few traders gain too much power when they control markets. They can start to charge higher taxes from other small traders and consumers, which reduces the amount of money spent on food by other households. |

MARKET PERFORMANCE: APPLICATIONS IN FOOD SECURITY AND EARLY WARNING ANALYSIS

Market performance refers to the extent to which markets result in outcomes that are deemed good or preferred by society. For example, regular and predictable availability of basic food commodities at affordable prices is generally considered a desirable outcome. Other desirable outcomes would be that traders do not obtain excessive profits, and that commodities meet certain sanitary and phyto-sanitary standards. In addition, prices paid by consumers should not be excessively¹⁰ above the cost of marketing, processing and transaction costs for a given commodity, and the prices received by farmers should cover their costs of production. Table 3 shows some of the market performance measures and their relationship to food security and early warning analysis.

| Table 3: Elements of market performance and food security and early warning analysis | | |
|---|--|---|
| Elements of performance | Examples from FEWS NET environment | Effect on food security and early warning |
| Price levels and stability | | |
| --in the long run | Consumer prices for staple food crops and livestock products are higher than normal during the same period of time in previous years. | Market dependant households with fixed amount of money have reduced access to food from the market. |
| | Stable and affordable prices. | Households that depend on the market for food, become more food secure. |
| --over space | The difference between consumer prices in two nearby locations differs by more than transport, marketing and transaction costs. | This spatial difference can indicate that areas with high prices are more food insecure compared to those where prices of staple food crops are lower. Factors that cause this include poor infrastructure, civil unrest and climatic conditions. |
| --in the short run | Consumer prices of food crops and products change very frequently over a short period of time in some areas. | This subjects poor households to uncertainty and possibly reoccurring price shocks because food becomes very expensive to buy and planning or budgeting for basic food expenditures becomes very difficult. |
| Profits (net returns) | Traders receive excessive profits or net returns from sales of food commodities. | This implies that traders are overcharging food commodities, compared to costs they incur, thus reducing the amount of food that poor households can access relative to fixed incomes. |
| Margins and costs | There are large differences between prices paid by consumers and prices received by farmers compared to marketing, processing and transaction costs for a given commodity. | This indicates that produce buyers or processors are underpaying households that produce agricultural commodities and/or overcharging households that buy food commodities for consumption. These two phenomena reduce incomes of agricultural households and food access for households that depend on the market as a source of food, exposing them to food insecurity. |
| Volumes (quantity) | There is a regular supply (volume) of staple food crops and livestock products entering the market. | No shortages of food crops in the markets. This is good for food availability. |
| | Quantity of food entering the market falls below the usual average. | Prices can increase, reducing the amount of food that households can access. |

¹⁰ More on the subjectivity of performance measurements is discussed in the next paragraph.

| Table 3: Elements of market performance and food security and early warning analysis | | |
|--|---|---|
| Elements of performance | Examples from FEWS NET environment | Effect on food security and early warning |
| Product quality (including nutrition) and variety | The quality of food in the market is poor or below acceptable standards, which could have nutritional implications for households and particular members of households. | Households are not able to consume the right amount of food with the required composition of nutrients for productive health. |
| | Food varieties are limited or different from the types that are preferred or typically consumed in some parts of a country. | Households that don't access the food they prefer or a variety of nutritious foods become food insecure. |
| Food Distribution within market | Regular supplies to different markets in the country. | Access to food to all areas including those with vulnerable populations increases food security. |

Market performance requires having some benchmark measurements from which comparisons can be made in order to judge deviations from what society considers normal. Thus, determining market performance is subjective. For example, when would a price be fair? And fair to whom? For example, a trader who charges a higher price than the cost for a given quantity of a commodity can say that the market is performing excellently yet the consumer who pays the higher price can say the market is performing poorly.

GENERAL ENVIRONMENT AND MARKET STRUCTURE, CONDUCT AND PERFORMANCE

Economic conditions, public policy, and environmental characteristics affect the type of market structure, conduct and performance that emerge. Economic characteristics that affect demand and supply of agricultural commodities such as prices, incomes of the population, population densities, availability of affordable inputs and elasticities of demand and supply influence the structure, conduct and performance of the market. For example, areas which are sparsely populated with households that have low disposable income cannot attract many sellers of goods and services. The few traders who supply goods to such areas can charge higher prices than the costs they incur due to lack of competition.

The structure, conduct and performance of markets can be influenced by government policies such as subsidies, tariffs, quotas, price controls, and import and export taxes. For example, the number of traders who get trading licenses (barriers to trade), or the volume of goods and services that traders can import into a country (performance) can be determined by license requirements, import taxes and import quotas. Such government policies which restrict the flow of foreign trade into countries result into high consumer prices for imported food commodities.

Environmental issues, such as different climatic and agro-ecological conditions, result in different parts of the country growing different crops and raising or herding different livestock. Rainfall patterns influence the growing, harvesting and peak marketing seasons of different commodities in different parts of the country. Therefore, one can expect that some markets will be oversupplied with certain crops while other markets in different parts of the country are undersupplied because of the differences in harvest periods and peak marketing seasons.

COMBINING MARKET STRUCTURE, CONDUCT AND PERFORMANCE IN FOOD SECURITY ANALYSIS

Table 4 provides illustrations of how market structure determines conduct and performance with examples that are related to food security of producer households and households that depend on the market as a key source of food. There are many more variables and relationships that could be added to the table, but this should be sufficient to provide a good illustration of the main points. The last two columns are the most critical for measuring the effect of market structure and conduct on food security performance. It is argued that when the structure is competitive, agricultural and livestock households capture a larger share of the final consumer or retail price than under conditions with a more monopolistic structure. This indirectly means that under competition, farmers get more income, which they can use to purchase more food commodities from the market than under oligopoly or monopoly.

| Table 4: Structure, conduct and performance characteristics and effect on food security | | | | | | | | |
|---|---------------------------|--------------------------|----------------------------|------------------------------|-------------------------------------|------------------------------|------------------------|-----------------|
| Structural elements | | | Conduct Variables | | Food security Performance variables | | | |
| Number of sellers / buyers | Cost of starting business | Economies of Scale (EOS) | Ways of determining prices | Buying and selling practices | Net Returns to traders | Marketing Margins to traders | Producer Share /Income | Consumer prices |
| Many | Low | None | Market (open) | Spot markets | Low | Low | High | Low |
| Few | Medium | Medium | Collusion Discrimination | Contract sale Commission | Medium to High | Medium to High | Medium | Medium |
| One | High | High | Collusion Discrimination | Contract sale Commission | High | High | Low | High |

The last column suggests that under a competitive market structure, consumers spend less money on food purchases from the market than under an oligopolistic or monopolistic market structure. This means that with a fixed amount of money, consumers facing competitive markets can buy more food than consumers under oligopoly or monopoly market structures. Thus, competition improves the food security of market dependant households in both rural and urban areas, all other things being equal.

STRUCTURE-CONDUCT-PERFORMANCE SURVEY ASSESSMENT AND DATA COLLECTION METHODS

This section provides practical tools for FEWS NET representatives on where and how to collect information on the different elements of S-C-P from the field. Table 5 lists a number of typical key informants for market assessment and analysis. Tables 6 through 8 give the types of information to be collected on structure, conduct and performance, and provide suggestions of government departments and organizations from which the information can be collected. Each table includes indicators and/or key attributes to observe, a list of key questions and potential sources of data/ information. There should be no need to conduct a large-scale sample survey in order to obtain the information required for applying S-C-P concepts mentioned in this brief. Also, one should not attempt to collect all the information at once.

| Table 5: Key Informant List | |
|--|---|
| Private Sector | Individual rural and urban traders/assemblers (large-, medium-small-scale), transporters, processors, storeowners, exporters/importers |
| Civil Society Organizations (CSO) | Representatives from consumer groups, trade associations, farmer associations; village associations and leaders; opinion leaders; religious leaders; informal/unofficial leaders or authorities |
| United Nations Agencies | Food and Agriculture Organization (FAO), World Food Program (WFP) |
| Food Reserves/Agencies (government or parastal) | Managers of parastatal boards, grain marketing boards, strategic food reserves |
| Ministry of Agriculture (MOA) | Agricultural extension and marketing officers; international, national and subnational agricultural research centers staff; district/regional agricultural officials, market information systems (MIS) staff. |
| Ministry of Education | University lectures and researchers |
| Ministry of Finance (MOF) or Commerce | Staff in tax/revenue divisions in national and subnational offices |
| Ministry of Trade (MOT) | Staff in planning, monitoring and analysis units |
| Banks (national, parastal, private) | Agricultural loan officers |
| Non-governmental Organizations (NGOs) | Managers and technical staff of projects in agricultural development and marketing, credit and micro-finance |

Table 6 lists some questions that can be used to obtain information on market structure through formal or informal interviews.

| Table 6: Determining elements of market structure that affect food security and early warning | | |
|--|--|---|
| Structural indicators /attributes | List of key questions | Source of Data/ Information¹¹ |
| Buyer and seller concentration | <ul style="list-style-type: none"> • What is the number of buyers of agricultural commodities from local producers in a delineated area? • What is the number of sellers of agricultural inputs such as fertilizer and veterinary drugs in a delineated area? • How many transporters of food commodities from production to urban areas exist? • How diverse are the sources of supply, and the opportunities to sell food products in an area? | Consumers Traders MOT MOA |
| Barriers to Entry | <ul style="list-style-type: none"> • Are there processors, traders or transporters who produce or transport large quantities that can serve a large share or the entire market? • Are there traders who have a cost advantage of conducting business over other traders? • Are there traders who control critical locations and assets such as seaports and stores in a way that limits participation of other traders in the market? • Are there some cultural practices that limit the participation (or lead to the marginalization) of some traders or a section of the population (e.g. women) in the market? • Are there cultural practices that discriminate against women in controlling and accessing credit and capital markets in a way that limits market participation? • Do capital markets function well? (i.e., they do not impede entry of potential entrants) • Can farmers and traders obtain credit to help them in marketing or storage such that they sell when prices increase, usually away from the peak of the harvesting period? • Are traders required to pay high license fees before they start trading? • Do traders pay export taxes? • Do traders pay import taxes? | Traders, MOT, MOA, NGOs, CSO, Traders Associations |
| Barriers to Exit | <ul style="list-style-type: none"> • Are formal or informal contracts used in land, labor and capital equipments transactions? • What is the duration of contracts between farmers and traders? • What are the procedures of terminating contracts between farmers/tenants and landlords, or between farmers and traders? • Do farmers invest in expensive and long maturing assets such as livestock and perennial crops? (Long maturing assets lack flexibility in the short run; farmers cannot switch to production of alternative profitable crops and animals). | MOA, NGOs Farmers Groups, |
| Vertical Coordination/ Integration | <ul style="list-style-type: none"> • Do farmers sell their commodities in terminal or spot markets? • Do farmers sell directly to buyers at their homes or farms? • Do farmers sign contracts with traders to supply at agreed prices in the future? • Are there arrangements where traders own or control more than one production stage? • Are farmers and traders engaged in any form of collective action such as cooperatives or marketing groups? • Do farmers deliver output to markets or do they deliver through middlemen? | Farmers, Traders, NGOs, MOA, MOT, MIS |
| Product Characteristics Differentiation | <ul style="list-style-type: none"> • Do traders offer different prices based on grades? • Do farmers sell perishable commodities? | Traders, MOA, MOT. |

¹¹ Abbreviations are in Table 5 above

Table 7 lists some questions that can be used to obtain information on market conduct through formal or informal interviews.

| Table 7: Determining elements of market conduct that affect food security and early warning | | |
|--|---|---|
| Conduct indicators | List of key questions | Source of Data/ Information¹² |
| Pricing Setting Behavior | <ul style="list-style-type: none"> Who sets the price? How are prices determined? Does government set consumer prices? Does government set producer prices? Does government buy farmers produce? Does government sell produce to processors and consumers? Do traders jointly determine the price to charge consumers? (collusion) Do traders jointly determine the prices offered to producers? Is price determination based on a standard formula? Is the formula used to set producer prices known to producers and consumers, and is it revised to reflect changes in production, marketing and transaction costs over time? Do traders engage in aggressive tactics such as predatory or exclusionary pricing? Do traders price discriminate among commodity producers or consumers? Is trade based on grades and standards? Do farmers get price premiums for producing higher grade commodities? Are standard measurements such as weighing scales used in market to measure volumes traded? | MOF, MOT, MOA, MIS, Reports, Traders, Farmers. |
| Buyer and selling practices | <ul style="list-style-type: none"> Are prices displayed? Is there any secret bidding of food commodities? How long and transparent is the bidding process? Do farmers engage in group marketing? Do farmers sell on the spot, auction or terminal markets? Do farmers sell by contracts? | Farmers, traders, MOA, MIS, MOT, NGOs |
| Other conduct | <ul style="list-style-type: none"> What are the sources of produce or livestock? Do some traders sell food commodities with their own brand names? Are some traders advertising their commodities? Can consumers return goods that are damaged or below standard? Are some traders merging to become one large business? Do some traders lobby politicians or city council officials to control markets or collection of market dues? | Traders, Farmers, MOA, MIS, MOT, NGOs |

Table 8 lists some questions that can be used to obtain information on market performance through formal or informal interviews. Secondary data such as commodity price series can also be used.

| Table 8: Determining elements of market performance that affect food security and early warning | | |
|--|--|---|
| Performance indicators/ attributes | List of key questions | Source of Data/ Information¹³ |
| Price levels and stability --over the long run --over space --in the short run | <ul style="list-style-type: none"> How do current food commodity prices compared with those in previous years during the same period of time? How have prices of food commodities changed in the recent past (days, weeks or months)? How do prices of food commodities vary across different markets during the same period of time? | Farmgate, wholesale and retail prices from MIS, MOA, MOF, Traders, WFP, FAO |
| Producer Share | <ul style="list-style-type: none"> What proportion (share) of price that is paid by consumers gets to farmers from the sale of comparable food commodities? | Traders, Farmers |
| Profits (net returns) | <ul style="list-style-type: none"> What is the profit margin from trading in a food commodity in a given area? What risks do traders face when they trade in food commodities in a given area? | Farmers, traders, NGOs, MOA, MOT |
| Margins and costs | <ul style="list-style-type: none"> What is the difference between consumer (retail) prices and farmgate prices of food commodities? | Farmers, traders, NGOs, MOA, MOT |

¹² Abbreviations are in Table 5 above

¹³ Abbreviations are in Table 5 above

| Table 8: Determining elements of market performance that affect food security and early warning | | |
|---|---|--|
| Performance indicators/ attributes | List of key questions | Source of Data/ Information ¹³ |
| | <ul style="list-style-type: none"> To which extent do profit margins reflect transporting, marketing, processing and transaction costs? | |
| Volumes (quantity) | <ul style="list-style-type: none"> What is the level of supply of agricultural commodities that are entering markets from production areas? What are the food stock levels in private stores and government food reserves? What are the levels of imports and/or exports of food commodities in a given area? | Traders ¹⁴ , MOA, MOT, WFP, Food Reserves, reports, |
| Product quality and variety | <ul style="list-style-type: none"> What is the quality of food commodities sold in markets? What is the nutritional level of food commodities on the market? How many varieties of food commodities are sold on the market? What is the perception of the population about the quality and varieties of food commodities on the market? | Consumers, MOA, MOT, NGOs |
| Equity (Distributional and Informational) | <ul style="list-style-type: none"> Is there a limit on the amount of food commodities households can buy? How is the maximum quantity that a household can buy determined? Who determines the maximum quantity a household can purchase? | Consumers, traders, MOA, WFP |
| Access to Market Information | <ul style="list-style-type: none"> Do consumers and traders have access to market information including prices, quantities, grades and standards of crops and livestock products that are sold on the market? | Farmers, traders, MIS, MOA, NGOs |

Table 5 provided a list of key informants from whom information for S-C-P analysis can be obtained. Reliance on more than one source is better. Availability and reliability of sources vary from country to country. There are advantages and disadvantages of each source of information that needs to be evaluated by the FEWS NET representatives as they collect S-C-P indicators. For example, agricultural extension agents can give good approximations of production levels in villages but poor estimates for marketed volumes in assembly markets. To obtain volume-traded information, it is better to contact trade association leaders or market masters, who keep records on traded volumes in markets. In case trade association leaders or market masters are contacted, the FNR has to use judgment, depending on the rapport that has been built, to evaluate if the traders are providing accurate data about traded volumes. This is important because traders tend to underreport data on volumes traded, profits and margins for fear of paying extra taxes.

Methods of collecting information include formal and informal surveys, rapid assessments, direct observation, use of email, fax, formal and informal meetings and personal visits. With the expansion of mobile technology, contacts in different parts of the country can be established with key informants who can provide information through telephone interviews. Other sources of information are published and unpublished reports from central statistical offices and ministries. Lastly, the level of cooperation between different stakeholders can increase and ease the flow of information. It is important that the FNR shares the published information with information providers, and occasionally invites them to meetings where there are other stakeholders. This can increase interest of key informants to provide more accurate and timely information.

CONCLUSION

This guidance has illustrated how placing food security and early warning in the broader market system context and incorporating more elements of structure, conduct and performance will allow FEWS NET to better anticipate market response, more fully define relevant scenarios, formulate expectations about the season as it unfolds and draw upon additional sources of useful market information to tell a fuller food security story. More comprehensive and forward looking analyses and reporting that incorporate markets and trade will furnish decision makers with the kind of information they need in order to make well informed choices among the range of sound market and/or non-market responses. Deeper market analysis can also help orient the timing of humanitarian interventions, complementing and compensating for the markets rather than replacing them.

¹⁴ Traders include retailers, wholesalers, importers and exporters

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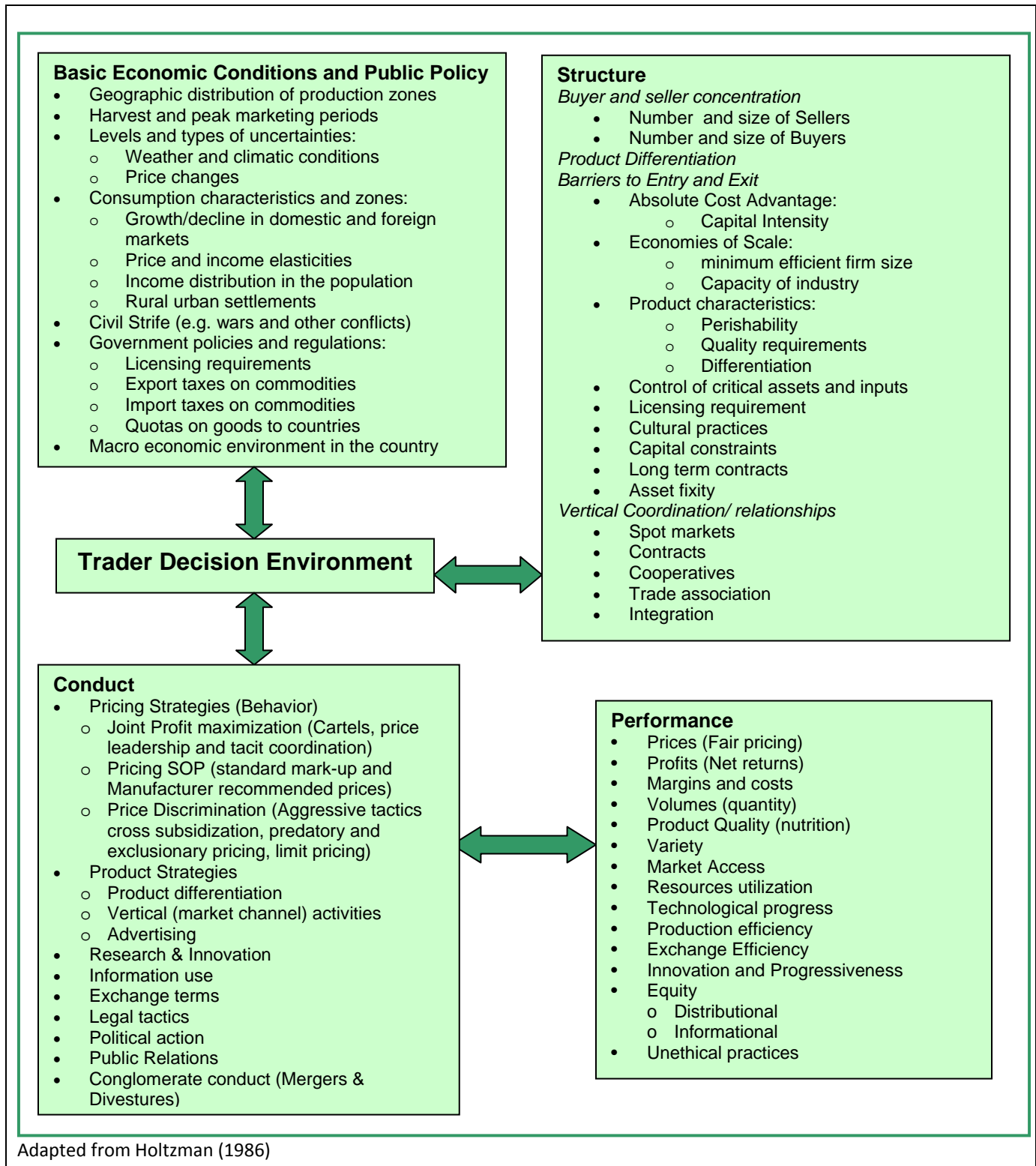
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ANNEX 1: ELEMENTS OF STRUCTURE, CONDUCT AND PERFORMANCE



ANNEX 2: GLOSSARY

Absolute Cost Advantage – this means that at any given level of quantity produced, the incumbent firm has lower costs of production than the new firm. This is due to extra knowledge gained over time, endowment of natural rights, possession of patents, cost of capital to new firms and many other factors.

Barriers to entry – the degree with which firms can influence market prices so that they earn profits which are large but at the same time restrict the potential entry of rival firms into the industry. The major categories of barriers to entry are absolute cost advantage and economies of scale.

Capital constraints – the difficulty to obtain capital to start a business.

Capital cost – cost of purchasing or renting capital goods.

Collective action – the process of farmers jointly acting as a group in production, processing or marketing activities.

Collusion – the act in which traders jointly determine the prices at which they buy agricultural products from farmers.

Commission – a percentage of money that a trader or agent charges for conducting a transaction on behalf of a seller or buyer.

Commodity – something that is tangible, has value and can be exchanged. Commodities include food and cash crops, livestock, non-food consumer items and even labor.

Competition – a market structure in which there are many sellers of a product.

Conduct (market conduct) – the patterns of behavior that traders follow and strategies that they employ in adjusting to the markets in which they sell or buy.

Conglomerate conduct (Mergers & Divestures) – the act of businesses merging together and doing businesses that may or may not be related.

Contract sale – a transaction that specifies a price of a commodity and the date of delivery at a future period of time.

Economies of Scale (EOS) – the reduction in costs of producing an extra unit of output. Usually related to the minimum efficient level of output at which a firm can produce efficiently relative to market size

Effective demand – the desire to buy together with the ability pay for as good or service. Those who have a desire to buy but cannot pay the price or cost are said to have limited or no effective demand.

Elastic supply/demand – a commodity for which the percentage changes in supply/demand is proportionately greater than the percentage change in price. For example a one percent change in the price of the good or service leads to a greater than one percent change in the quantity supplied/demanded.

Elasticity – measure of a percentage change in one thing relative to a percentage change in another. For example, the price elasticity of demand is the percentage change in quantity demanded relative to the percentage change in the price.

Elasticity of demand – the percentage change in quantity demanded relative to the percentage change in the price. When the change in quantity demanded is related to the price of the commodity, we use the term “*own price elasticity*” of demand. When the change in quantity demanded is related to the price of another commodity, we use the term “*cross price elasticity*” of demand.

Elasticity of supply – the percentage change in the quantity supplied relative to a percentage change in the price of a commodity.

Equity – a situation in which resources are relatively distributed to all members of society.

Exchange efficiency – a situation in which all benefits from trade have been exhausted and it is not possible to do further exchange without reducing the happiness of another agent.

Exchange terms – terms under which goods and services are exchanged in transaction.

Expectations – what a market actor believes will occur at some point in the future, and that time frame is usually defined, e.g., expected sales price is the price a seller believes they will receive at a specified period of time from the present period).

Formal trade – typically large quantities transported by road, rail or ship which are inspected, taxed and reported in official statistics.¹⁵ Formal trade is typical legal trade.

Informal markets or (cross border) trade – small-scale transactions of a few bags or less of a commodity, which are exchanged outside of official channels and are typically undocumented, unlicensed and unregistered. Informal cross border transactions are often carried across the border on bicycles or head loaded. While each transaction may be small, the total or aggregate volume and value of these transactions can be quite significant. This term is also often used to refer to illegal trade, although, these two types of trade are not necessarily equivalent. This has led to some confusion in the literature. Therefore, it is important to define this term when it is used.

Innovation and Progressiveness – the process of devising better ways of production, processing and marketing, usually through research and development that increases the value of goods and services and avoids wastage of productive resources.

Joint Profit maximization – a behavior in which traders decide to cooperate in order to charge higher prices so as to obtain more profits. Examples are cartels (e.g. OPEC) and price leadership-usually the large producers.

Market – where buyers and sellers come together to trade. Markets can be viewed as social arrangements that allow buyers and sellers to discover information and carry out a voluntary exchange of goods or services. Markets are normally physical locations, but not always. Transactions can occur on the phone, over the internet, through intermediaries, etc. Commodities (e.g., crops and food), livestock and labor can be exchanged through markets.¹⁶ For the purpose of these lessons, the focus is primarily on markets where physical goods are traded.

Market actor – is someone who is active in the market such as traders, wholesalers, transporters, storeowners, consumers, etc. A market actor is equivalent to market participant.

Market chain (market channel) – a group of people or organizations that direct the flow of commodities from production to consumers. Market chains are usually vertical.

Market conduct – consists of the policies that participants adopt towards the market (and their rivals in it) with regard to their price, the characteristics of their product, and other terms that influence market transactions” Caves (1992). Also refers to the patterns of behavior that traders follow and strategies that they employ in adjusting to the markets in which they sell or buy.

Market margin – the difference between the price paid by consumers and that obtained by producers. Margins can be calculated all along the market chain and each margin reflects the value added at that level of the market chain.

¹⁵ Evaluation of the WFP/FEWS NET Informal Cross-Border Trade Monitoring System (June 2005).

¹⁶ <http://en.wikipedia.org/wiki/market>

Market performance – “our normative appraisal of the social quality of the allocation of resources that results from a market’s conduct” Caves (1992).

Market structure – “the relatively stable features of the market environment that influences the rivalry among the buyers and sellers operating within it” Caves (1992). May refer to the number and size distribution of buyers and sellers, the degree of product differentiation and the ease of entry of new firms into an industry.¹⁷

Marketable surplus – the excess product which is made available after meeting producer needs (seed, home consumption, animal feed, in-kind labor payments and transfers). It’s important to note that many producers sell product without fulfilling their complete food requirements: they rely on the sale of product for cash income and resort to the market to access a portion of their food requirements.

Minimum efficient firm size – the level of output which corresponds to the lowest cost of producing a product relative to the quantity demanded in the market.

Monopoly – a market with only one seller or controlled by one seller.

Monopsony – a market with only one buyer or controlled by one buyer.

Niche market – a market associated with a special attribute of a product.

Oligopoly – a market with only a few sellers or controlled by only a few sellers.

Oligopsony – a market with only a few buyers or controlled by only a few buyers.

Own price elasticity – percentage change in quantity demanded of a commodity related to the percentage change in the price of that commodity.

Perfect competition – a market situation in which it is assumed that there are many sellers and buyers and the market determines the price of food commodities. Both buyers and sellers become price takers and not price makers.

Performance – the extent to which markets or traders do things that society expects – do they operate efficiently, provide a reliable source of food, supply food at reasonable prices, etc.

Price – the cost or value of a good or service expressed in monetary terms. Prices, in the purest sense, indicate value that has been added to a particular commodity. This value added can be changes in the form (e.g., production or milling), place (e.g., transportation), or time (e.g., storage) of a commodity. Price signals can carry information about cost of production, transportation, storage, perceptions and desires as well as, in some instances, distortions..¹⁸

Price – the cost or value of something expressed in monetary terms.

Price discrimination – the act of charging consumers different prices for the same product.

Pricing Standard Operating Procedure – Determining price by agreed formula, standard mark-up or manufacturer recommended store prices.

Product differentiation – the act of slightly changing a product so that you can convince customers that the product is better and charge a higher price. (E.g. one kilogram of maize flour in a nice paper bag compared to one kilogram maize flour scooped from a sisal bag). The maize flour can be the same quality but one is sold for a higher price.

¹⁷ Breimyer, Harold (1976). *Economics of the Product Markets for Agriculture*. University of Iowa Press.

¹⁸ Chopak, Chuck (2000). “An Early Warning Primer: An Overview of Monitoring and Reporting.” FEWS Project.

Production efficiency – the process of producing a commodity at the lowest average cost. There is no wasting of scarce resources that are used to produce the good. This would involve farmers adopting methods that maximizing output per unit on inputs used.

Public relations – how firms and business organizations treat and interact with their customers.

Purchasing power – the value of money, as measured by the quantity and quality of products and services it can buy. The amount of goods or services that one unit of money can buy.

Research & Innovation – The process of coming up with new and efficient ways of utilizing scarce resources to produce goods and services.

Resources utilization – minimal degradation of resources (e.g. soil, forests, water) in agricultural production and processing.

Retail market – a market where commodities are largely sold to end users, especially consumers. Per transaction volumes tend to be smaller, e.g., per kg or small bowl.

Retailer – traders, merchants or storeowners who tend to sell to consumers and other end users. Retailers usually sell in smaller volumes than wholesalers; their average transaction size is smaller.

Slow onset emergency – an emergency that builds over time and thus provides some early indication of the emergency that could be mounting. Droughts and continuous economic decline are all slow onset emergencies.

Spatial arbitrage – taking advantage of the price differential across locations or markets. The differential must exceed all costs in moving the commodity from one location or market to another.

Spot markets – physical markets in which farmers and traders converge to buy and sell products at a given period of time.

Structure – refers to the number and size distribution of buyers and sellers, the degree of product differentiation and the ease of entry of new firms into an industry.¹⁹

Structure-Conduct-Performance (SCP) – a framework or an approach to market analysis that is based on the premise that the structure of a market influences the conduct of its participants (buyers, sellers and other participants), which, in turn, influences the performance of markets. While the SCP framework is originally an outgrowth of Industrial Organization, a branch of economics, the approach presented here has been adapted to food security analysis.

Substitute (commodity) – a commodity that can replace another such as millet for sorghum. They are commodities or goods that can be used to satisfy the same needs, one in the place of another. When the price of one commodity rises, consumers will decrease their consumption of it and increase consumption of the substitute commodity. Wild and gathered products can be substitutes.

Supply curve – the description of the relationship between the price of a commodity and the quantity that sellers are willing or able to sell, with all other things being equal. For most commodities, there is a direct relationship between price and quantity supplied: a rise in price is associated with a rise in quantity supplied.

Technological progress – a process of coming up with better technologies of producing goods and services. Refers to the extent to which farmers and other food system or sub-sector participants adapt improved technical, management and institutional innovations which enhance productivity and profitability. In the marketing channel, this could involve improvements in storage, packaging and reduction in post-harvest losses.

¹⁹ Breimyer, Harold (1976). *Economics of the Product Markets for Agriculture*. University of Iowa Press.

Temporal arbitrage (seasonal arbitrage) – taking advantage of the price differential over time, usually over the agricultural season. The differential must exceed all costs associated with handling and storing the commodity.

Transaction costs – the costs associated with conducting a transaction. It includes costs associated with gathering information, signing, enforcing and monitoring agreements and formal and informal contracts.

Wholesale market – a market where generally traders sell to traders. Per transaction volumes tend to be larger, e.g., multiple 50 kg bags and even metric tons.

Vertical Integration – a process in which a firm controls two or more stages of production of related products.

Wholesalers – traders who tend to sell to other traders. Wholesalers buy and resell commodities. Wholesalers tend to work in larger volumes than retailers: their average transaction size is larger.