Contractual governance in agro-industry institutions in Tanzania
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Chapter 3
Economic Organisation

3.1 Introduction

The essence of economic organisation is to explain why economic agents choose to organise their activities in the way they do. The agents can carry out any economic activity in various alternative ways. Thus, choosing one alternative among the others must have a reason. It is expected that rational economic agents choose alternatives that are likely to achieve efficiency. The efficient choice in business undertakings is the one that abates the magnitude of transaction costs at the lowest possible level. Each alternative, regardless whether it is efficient or not, thus has its transaction cost which is to be seen as the opportunity costs for the other alternatives. Obviously, the best choice is the one with the lowest level of transaction costs. This choice maximises social welfare and that of the agent if the cost is fully born by that agent. Thus, a failure to choose the best alternative, for whatever reason, e.g. because of the prevailing institutional framework, is costly to the society. In other words, such a failure is a feedback on poor performance of prior arrangements. Some of these prior arrangements may be associated with property rights, which can be non-existent, incorrectly defined, or simply unenforceable. Then negotiation, writing, signing and executing of contracts in markets will not occur, or may only occur at high transaction costs (de Sotto, 2000).21

Apart from the importance of well-assigned property rights, other institutional factors, equally important for the economic agents, hinder agents to attain efficiency. For example, the assignment of rights may not realise its economic potential because of a low level of education

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21 De Sotto (2000: 18-20) takes Peru as an example and explains how the legal system increases transaction costs in the market. In Peru, the cost of legal registration was 1,231.31 times the monthly minimum wage. Obtaining legal authorisation to build a house on state owned land took nearly 7 years, required 207 administrative steps in 52 government offices. This legal system is not that different from Tanzania. For example, land registration (title deed) must be done in Dar es Salaam. The people who like to establish businesses in the districts have to pay a lot of money to go to Dar es Salaam, only to register.
of agents, or a mindset, which obstructs them to internalise that potential. This will come up in the discussion on a model of farmers’ investment choices in section 3.10.

Institutions are referred to as the rules of the game (North, 1990; North, 2005). When institutions are referred to as being the rules of the game, North (1990) portrays economic agents as players in the field and who need rules to play the transactions game. Carrying out the transactions entails playing a business game, which allows competition among the players. These players need rules to play a fair game. In this light, property rights can be seen as the basic fundamental framework for the game: they provide the basis upon which players interact; contracts are built upon this foundation and can be interpreted as further explicating the rules of the game. For example, players do have the option to change rules by re-allocating part of the rights via contracts, i.e. alter the game.

As can be expected, institutions differ from one country to another, depending on an economic system governing the agents in that respective country. These institutions can either be formal (i.e. defined by law) or informal (i.e. unwritten but defined by cultural norms and values). In a Northian perspective, formal institutions are rules laid down in laws, which have universal coverage within a state (i.e. apply to every citizen), and are enforced via the state’s institutions (its enforcement agencies and courts). Informal institutions are vested in cultural norms and values within a specific group in a society. Informal institutions are not laid down in laws, do not necessarily have universal coverage within a state, and are not enforced via the state’s institutions (Buscaglia, 1999).

From primitive stages of markets to advanced ones, contracts are part of everyday life. Every transaction occurring in markets of goods or money involves contracts. Contractual agreements are, for example, in every ask, bid, sell, and buy. They may be expressed orally or in writing. However, there can never be contracts without either informal or formal property rights assigned to individual agents. The assigned property rights depend on the institutional frameworks prevailing in an economy. For example, in a majority of developing countries, such as Tanzania, two forms of property rights exist, formal and informal. Formal property rights support formal contracts (supported by law, or

URT (2005: 12); National Strategy for Growth and Reduction of Poverty (NSGRP). In V.P.S. Office (Ed.): Mkukuki na Nyota. The National Strategy for Growth and Reduction of Poverty (NSGRP, or MKUKUTA in Swahili) gives a definition of poverty, which is a lack of income, or a lack of education.
also called written contracts), informal property rights support informal contracts (not supported by law, or unwritten contracts). The formal contracts are considered more efficient than informal contracts, because they can be legally enforced in case of breach. Informal contracts cannot be enforced through the legal system and thus need to rely on informal mechanisms to prevent breach (North, 1990: 50).

This chapter introduces property rights theory, transaction cost theory, and agency theory. Underlying these theories of economic organisation are three assumptions central to explain behaviour of economic agents. These assumptions are opportunism, asymmetric information and bounded rationality. The assumptions will be addressed in the second section. The third section discusses property rights theory, which helps to explain the agro-industry of Tanzania as an economic system. The section on property right theory discusses the characteristics of property rights and the need for a good assignment of these rights. Next, transaction cost theory shows why different organisational alternatives add costs to the contracting parties. Section 5 discusses agency theory. The theory explains economic organisation through the lens of the principal-agent relationship and its associated problems. These problems are discussed in section 6. Section 7 discusses some remedies to these different behavioural problems. The behavioural solutions include instruments like screening, monitoring and bonding and collective action. Section 8 describes the contract learning cycle for farmers. Section 9 sketches the behavioural alternatives for farmers. This choice among alternatives is modelled in section 10. Section 11 provides a summary.

3.2 Behavioural assumptions

Within these theories of institutional economics, a set of common assumptions is used. These assumptions concern the nature of man (Jensen, 2000; Jensen & Meckling, 1976). From these assumptions, it follows that the costs of transacting cannot become zero. Man is opportunistic, bounded rational, and he is confronted, in his dealings with others, with an unavoidable form of information asymmetry. These three assumptions together give rise to (transaction) costs, which raises the question of economic organisation discussed above: from a societal perspective, it becomes important to choose that set of institutions that minimises costs.
Opportunism

Opportunism may occur at different stages in the contracting process. Opportunism increases transaction costs in the market (Williamson, 1985). According to Williamson (1985), when a party in a contractual relationship jeopardises the mutual interest in favour of his own interest, the party who does so is opportunistic. Williamson defines opportunism as “self-interest seeking with guile” (Williamson, 1985: 65). Opportunism includes not only the more obvious forms of cheating, but also calculated methods of misleading, distortion, disguise, deception, and confusion. Normally, parties enter into a contractual relationship to benefit from it. When both parties benefit from that relationship, that relationship is mutually beneficial. Such a mutual contractual relationship leads to the satisfaction of each party’s needs. Williamson (1985) explains the differences between a modern contracting man and an orthodox utility maximising man (the one espoused by neoclassical economics) in two respects. The first difference is the limited ability to receive, store, retrieve, and process information (or man is bounded rational, see below). The second difference is about self-interest. Whenever contracting man solicits any contract, self-interest drives his motives. This makes a contracting man a more troublesome kind than the fully rational utility maximising man (Williamson, 1985). He is troublesome because he discloses information in a selective and distorted manner, which helps him to maximise his self-interest. Calculated efforts to mislead, disguise, obfuscate, and confuse are thus admitted as a possibility in a contractual relationship.

Some studies on Tanzania show that opportunistic executives or employees of factories squander profits accrued to the company due to egoism (Brockington, 2007, 2008; Dyer, 2005; Ford, 2008; Werniuk, 2005). For example, Brockington (2007) found opportunistic local government leaders who squandered local government project funds. He describes the misuse of taxes, which might have otherwise boosted local government capacity to deliver services to citizens including entrepreneurs who in turn would pay more taxes. The author used the phrase “milking a cow without feeding it.”23 This phrase shows that taxing entrepreneurs without building good infrastructures to facilitate entrepreneurial development among them is not sustainable. Equally, Dyer (2005) found out how external donors’ funds for supporting education were misused by opportunistic local government leaders. However, a number of right steps to curb such corruptive tendencies in

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the country have been initiated. For example Ford (2008) discussed undergoing efforts of the government of Tanzania to tackle these endemic problems in the society.

**Bounded rationality**

Bounded rationality refers to the limited cognitive abilities of human agents to select an optimal solution to a given problem (Kahneman, 2003(a, b); Kahneman, Tversky, & Slovic, 1982). The cognitive ability varies with intelligence, level of education, exposure, and experience. The contracting parties make choices (decisions) under three unavoidable constraints. Firstly, they have limited and unreliable information (de Wit & Meyer, 2004; Guttel & Harel, 2008; Simon, 1999). Secondly, the human mind has only limited capacity to evaluate and process the available information. Thirdly, only a limited amount of time is available to come to a decision. Individual parties may not fulfill their obligations taken up in the written contract due to time constraints. These limits (bounds) on rationality make it impossible to draw up contracts that cover every contingency that may occur. Hence, contracts will be incomplete and therefore parties will see a need to have them renewed or renegotiated later.

Regardless of the information disclosure to the parties who contract, information utilisation during the contracting process depends on the ability to code, transform, and process and make use of that information (Simon, 1995, 1998). In the contracting process, one party may disclose information, but at the stage of execution, unforeseen circumstances due to the limited cognitive ability of the parties may result into an unintended outcome. Actually, with the information deluge through the recent development of internet and other information systems, the modern contracting man is confronted with information overload in retrieving, translating, selecting information, and making use of such information at the correct time. Such an information deluge, also, exacerbates bounded rationality, which in turn increases transaction costs in the market.

**Information asymmetry**

Asymmetric information occurs when at least some relevant information is known to one party, but not to all parties involved in the process of entering and executing a contract. If hiding such information to the other party has no harm to the mutual interest of the contract, the contract execution will attain the intended outcome. However, if such
hiding does harm to one of the contracting parties, the intended outcome will not be efficient.

Information asymmetry exists in all phases of carrying out transactions in the market. It results in negotiating, haggling, writing, signing, rewriting and resigning of the contract. Information asymmetry causes markets to become inefficient, since not all market participants have access to the information they need for their decision-making processes. Asymmetry of information increases transaction costs in the market and makes that contracts remain informational incomplete.

### 3.3 Property rights theory

Property rights help to allocate resources because they give the parties the basis for contracting. Contracts are means of allocating resources efficiently (Coase, 1988). The Coase theorem states that when property rights are well-defined (assigned) and transaction costs are zero, the allocation of resources will be efficient regardless of the initial assignment of property rights (Cooter & Ulen, 2006; Cooter & Schäfer, 2007; Dnes, 2005). Well-assigned property rights imply that the one holding these rights among others can be assured to be the beneficiary of the associated income flow. Coase has spent his time explaining the way assignment of property rights supports contracts. In his book, Coase (1988) discusses how economic agents can negotiate privately in order to lower the opportunity cost of overusing social resources. Therefore, the cost of not assigning property rights, according to Coase, includes the hindrance of private negotiation. Thus, if property rights are not well assigned to users, formal contracting becomes costly or even impossible. If this happens, it causes inefficient resource utilisation (de Sotto, 2000; de Sotto & Cheneval, 2006). De Sotto (2000) refers to a case from developing countries, including Tanzania, to demonstrate the importance of formal property right assignment. De Sotto & Cheneval (2006) find that informal property rights cannot be used to access credit or pay taxes. Informal property rights cannot help communities to lift themselves out of poverty, as it is difficult to create wealth in the informal property ownership model. In the study of de Sotto & Cheneval (2006), conducted in 2005 among different entrepreneurs across Tanzania, the authors found that 98 percent of entrepreneurs operate informally (extra-legal). The authors concluded that private negotiation in such situations could only allow informal contracts and informal conflict resolution. Based on the findings, de Sotto & Cheneval conclude that different development models borrowed from the West do not succeed in most of the developing
countries because the property rights are not well assigned in these countries.

**Characteristics of property rights**

From an economic perspective, formal property rights are bundles of rights that give the owners the discretionary ability to use and to exclude others. These bundles of rights have at least four features, namely, exclusivity, transferability, appropriability, and divisibility (ETAD) (Malloy, 2004).

Exclusivity means that the owner has the right to exclude others from using his property. Exclusivity is efficient because it makes it possible for the holder of this right to evaluate costs and benefits as no other has access to his property. This exclusivity also implies that when property is transferred this exclusivity is also transferred to the other party. Another reason as to why exclusivity is efficient is that it encourages innovation and invention. The exclusive ownership encourages the owner to invest in his property in order to maximise its value, as this value will be his and not someone else’s (Cooter & Schäfer, 2007). Cooter & Schäfer (2007) associate the persistence of poverty in different developing countries with a lack of assignment of exclusive property rights. The authors describe the extreme example of Zimbabwe in 2007 when the incumbent government seized land belonging to white farmers. Mugabe, the incumbent president of Zimbabwe, gave the land to those who had no ability to add value to the land. As a result, Zimbabwe faced hunger and poverty. Exclusivity needs protection of property rights; otherwise others may easily appropriate value from the good or asset. A legal system arranges for that protection of peoples’ ownership in order to be able to enjoy the income stream associated with the good or asset.

Another characteristic of property rights is transferability. Transferability allows the transfer of resources or property from an inefficient use to the most efficient use. Transferability makes it possible to exchange property rights among economic agents. Hence, transferability is one of the characteristics of property rights that lead to an efficient use of resources.

Appropriability means a right to generate and consume the income from the owned resources. The residual income (that is, revenues minus costs) determines the impact of economic output. The owner is motivated to maximise the value of his property, because he is motivated to increase the residual value. This attribute also leads to
economic efficiency, since the owner of these rights is motivated to work hard in order to maximise his income stream. However, an individual is motivated to increase residual value only if that claim is assigned to him.

Finally, property rights are characterised by divisibility. This means that an owner of a property has the right to reallocate parts of the rights associated with his property. For instance, if an owner of a house decides to rent part of it to someone else, he divides his bundle of rights in such a way that the tenant enjoys part of the housing amenities for a fee, while the owner still has all other rights. A second example concerns the farmer who employs some people for e.g. harvesting. These people may enter the farmlands for harvesting, but obviously do not have the right to sell the harvest themselves. The farmer may also rent his farm for a specific period (i.e. a year) to someone else either for a share of the harvest or a fixed fee (and probably some extra conditions). This agent then has the right to farm the land, harvest to produce and might even sell the harvest, but not sell the property. After a year he is obligated to return the farm to the original owner. This divisibility makes it possible to (sub)divide rights in such a way that the owner may maximise the value of that bundle by using others that are better equipped or talented than the owner himself.

3.4 Transaction cost theory

A transaction cost is a cost incurred when making an economic exchange, apart from the stated price of a good or the service rendered. Transaction costs of ex ante and ex post nature are usefully distinguished. The ex ante costs include costs of finding contracting parties, drafting contracts and negotiating. The ex post costs of contracting take several forms. These forms include the haggling costs during correcting ex post misalignment in the execution of contracts, governance structure costs, bonding costs, and contract enforcement costs (Williamson, 1985: 20-21). For example, the cost of buying an orange includes other costs beside the price of the orange itself. Buying the orange involves energy and effort to find out which type of an orange one prefers to others, where to get it and at what price. If a buyer travels from his home, buying the oranges would include transport costs to reach the market as well. After arriving at the market place, one will have to negotiate for a right price, a fact that takes some time as well. After reaching the agreed price, the buyer will have to exert some energy to settle the payment. Therefore, the costs to the buyers are higher than the cost of the orange itself. These additional
costs to the direct cost (price) of the orange are all considered transaction costs. This transaction cost is influenced by the economic system (institutional framework) as the system drives the costs associated with the market, the accessibility to that market and the payment system. Other factors include the behaviour of the two players (the seller and the buyer of an orange) who may cheat in pricing it or hiding information about it. Sometimes, the two may use more time to negotiate on price and incur haggling costs before concluding on the price. If the buyer likes to eat an orange everyday and he finds it costly to buy them on the market, he may choose to grow his own oranges instead of buying them. In the end, market transaction costs may force a person to decide to produce his own raw materials in case these transaction costs in the market are higher than the full cost of producing the goods himself.

Transaction costs are critical in deciding whether to produce a product or buy it from other producers. Transaction costs then also include the costs of moving an item from one place to another, including transport costs, loading and unloading costs, administrative costs, policing and enforcement costs - which are the costs of making sure that the counterparties comply with the contract terms and take appropriate action if not. Williamson (1985) furthered the analysis by putting forward a theory of transaction costs, which relates the characteristics of the transaction to the governance structure. Parties will search for a governance structure, which minimises the transaction cost associated with a specific exchange. According to Williamson (1985), transaction characteristics as specificity, frequency and uncertainty, drive these cost as well as the choice for a specific governance structure. Therefore, in many markets exchange may take different forms depending on the characteristics of that exchange. For instance, in markets for sugarcane and tea differences in contracts, regulating the exchange, occur due to the characteristics of the produce (i.e. its specificity and frequency).

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24 Williamson (1985) defined these governance structures as market based (with three kinds of contracting modes, i.e. classical, neoclassical and relational) and unified governance (i.e. the firm). The term governance is now very widely used and becomes difficult to define strictly. From a Northian perspective, the term governance means the rules of the game. These rules are needed to coordinate activities in society in general, in a firm or within a contractual relation.
3.5 Agency theory

Agency theory explains the behaviour in the relationship between a principal and an agent. In this relationship, the principal hires the agent to perform services on behalf of the principal. The theory addresses two specific issues in this relationship. The first is that the agent has a different goal than the principal has and that the goal of the agent may conflict with the one of the principal. Due to opportunism, information asymmetry and bounded rationality it is prohibitively costly (or simply impossible) for the principal to write a complete contract in order to instruct the agent perfectly. The second issue is that the principal as well as the agent will look for solutions to mitigate that goal incongruence and the resulting behavioural problems. These solutions are to be found in incentive schemes (in other words finding an appropriate payment scheme), monitoring (information that the principal uses to control the agent), and bonding (ways in which the agent can prove his loyalty to the principal’s goal). Variants of the principal-agent relationship can be found in the relation between shareholders and management, between management and employee, insurer and insured, real estate agent and client. All parties are presumed to act in their own interests. Conflicts arise between the principal and the agent when the self-interest of the agent overrides the interest of the principal.

3.6 Factors causing governance problems

Ex post opportunism: moral hazard

Moral hazard is opportunistic hidden action by an agent, or contract party, in contractual relationships. The classic examples are to be found in insurance contracts. Moral hazard arises when the behaviour of the insured changes after he has purchased insurance coverage (Cooter & Ulen, 2006). Cooter and Ulen (2006) give an example of the insurer who insures property (a house, for example) at higher value than its market value. Such an insured party has an incentive to set fire to his property in order to receive compensation that is higher than the market value of the insured home. To compensate for such costs, the insurers include an additional charge in the premium involving such properties and might prescribe fire protection devices.

The seminal paper on agency theory is the one written by Jensen & Meckling (1976).
Moral hazard affects, for example, donor agent’s projects, which support poor nations such as Tanzania. Agents who work on behalf of a donor agency may enrich themselves first instead of supporting the group targeted by the donor agency. Another example concerns development project leaders who may take the donated funds to construct their own houses or other personal projects instead of spending it on the targeted project. Donor agencies may be unable to discover the misuse of such donated funds. This makes that the agencies suffer from moral hazard.

**Hidden information: adverse selection**

Adverse selection occurs in the pre-contractual phase when one of the parties to the contract hides information relevant to the other side. The most cited classical example on adverse selection is that of the lemon problem (Akerlof, 1970). The “lemon” problem arises from the inability of buyers to differentiate between the qualities of a certain product they like to buy in a market. When a seller has more information on a product than a buyer has, the buyer is likely to suffer an adverse selection problem. A seller operates at a comparative advantage due to information asymmetry. In the Akerlof example, the seller of used cars sells lemons (i.e. bad cars) and good cars and he is aware of that. However, the prospective buyer cannot ascertain the quality of the car before the transaction. The seller may sell the lemon at the same price as the good car. If a buyer buys the lemon car, he pays too much and the seller gets too high a price. Rational buyers will know that this might happen to them and will discount the price of all cars for the possibility of ending up buying a lemon. This leads to good cars, which are worth more to the owner than the price he may get on the market (due to the “lemon” discount), do not come to the market at all. With the best quality cars not on the market, in general quality deteriorates even further, depressing prices of all cars. This leads to the effect that the owners of the next best quality refrain from selling, depressing prices further. The end of the story, according to Akerlof (1970), is that the market will cease to exist. In order for a second hand market to exist other supporting instruments (i.e. forms of guarantees) are needed to overcome the adverse selection problem.

In the sugarcane context (see the cases on MSEL and KSCL in chapters 5 and 6 respectively) the sucrose level in sugarcane is the

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26 Adverse selection is also often indicated with the term “hidden information”.

27 Obviously, for adverse selection to do its work it need to be assumed that the benefits to the seller of selling a lemon are higher than not selling that lemon but a good car.
hidden information, but in contrast to the Akerlof example, it is not available to the seller but to the buyer of the cane, giving rise to conflicts and mistrust.

Adverse selection is a major problem facing insurance companies. This arises because the insurance policy (e.g. a fire insurance policy or car insurance) is especially attractive to the high-risk clients. For these clients the costs of the policy is lower than the value of the contract to them. It is the high-risk clients for which this especially applicable. Low-risk clients evaluate the policy as too expensive to them as the costs are higher than the benefits. When the insurer selects and insures the high-risk clients then this adds costs to the insurer, depressing profits. Adjusting premiums will drive lower-risk clients from the market, leaving a subset of clients with higher risk profiles (Cooter & Ulen, 2006). The adverse selection arises due to asymmetric information between insurer, insured, and the opportunistic hiding of information.

**Hold out problem**

Hold out is a problem that occurs during contract execution. When the parties contract with each other, they expect each party to perform. One of the parties may decide, for whatever self-interested reasons, not to fulfill his obligation during the contract execution, while the counterparty’s activities depend on the other party’s performance. In other words, the non-performing party hinders the continuation of the performance of the other party. Hold out problems in the supply of raw materials will negatively affect the end-producer in an industry.

Hold out problems cause chaos in the production planning which may result into losses for the company. Normally, firms plan their activities for a month, a year, or even a longer period. These plans include projects, which require contractors to accomplish the stated goals in terms of the milestones of the projects. When a party holds out, he disturbs reaching these milestones of the contracted project activities or other daily routine tasks.

An example of such holdout problems can be found in the case of MSEL, discussed in chapter 5. The SHFs conspired not to sell sugarcane at the beginning of the season when the factory opened for the crushing of the sugarcane. The SHFs forced MSEL to buy their sugarcane during the peak period when the sucrose levels in sugarcane
are at the highest level.\textsuperscript{28} With this, they disrupted the planning of the factory and caused a peak in the supply in the dry season, which the factory found difficult to handle.

\textbf{Collective action and free riding}

A collective action problem may occur when more than two parties need to cooperate to accomplish a certain task. Each individual expects the others to act according to the agreement. Parties in this cooperation may lay down some rules that guide their cooperation. While performing the agreed task, some of the individuals may decide not to accomplish or shirk their tasks at the same time; they then benefit from the efforts of the others. Those who benefit without contributing their efforts are free riders. Free riding happens because of self-interest motives among the members of the group who are expected to contribute or participate in the accomplishment of the task. This problem is frequently observed in the production of public goods. Free riders do not participate in the production of public goods or the conservation of public property, but they still use the goods produced by the efforts of the others who toiled for such a public good (Hardin, 1993; Olson, 1965). Hardin (1993) explains that individual rational choice is preferred to social choice. Choosing a social choice implies group efforts and shared values. Hardin argues that individual rationality requires the preference to be transitively ordered in such a way that the more preferred alternative is chosen. In case members benefit more from the group efforts, the group activities are preferred to individual efforts. If the efforts outside the group are more beneficial and satisfying than those in a group, the individual will obviously choose to remain outside the group. If the efforts are for the production of a public good that cannot exclude those who do not participate, the free rider will enjoy the benefits of the efforts of others regardless of any strategy the group leaders may have put in place.

Organising a small group is easy, put differently: in economic terms it involves lower costs, compared to organising a large group. With an increase in the numbers of participants, organisation becomes more costly and free riders emerge more easily (Olson, 1965). It is more costly to disseminate information, to monitor the efforts of the participants and to make them cooperate when the group is huge. One mechanism is to appoint a group leader, who is allocated the task to inform and monitor the participants and focus the efforts. Such a mechanism shares some obvious characteristics with a hierarchical

\textsuperscript{28} This example is explained in detail in Chapter 5.
organisation. Another strategy is to break up the task in smaller subtasks, which are assigned to individuals. The subtasks are easy to monitor. Again, this shares some obvious characteristics with the hierarchical organisation. At some point such an informal organisation runs into the problem of a lack of (formal) authority of the group leader, leading to friction among members, increasing the cost of organising (Olson, 1965; Williamson, 1988). It is necessary to eliminate free riding because free riding leads to a breakdown of the cooperative efforts ex post and ex ante. In the case that the group cannot eliminate the free rider problem; the group will disintegrate, as every individual member will expect that the others are likely to free ride on the efforts of others. Furthermore, if this behavioural risk is known prior (i.e. ex ante) to the organisation of the common effort, than even the organisation of the group will not come about.

Collective action problems occur in the agro-industry, for example, when the SHFs form a group of 10 people to apply for a loan. The loan is given in the form of fertiliser to the group of ten people; they need to repay the loan collectively. If one of them fails to repay the loan, the group has to repay it. When one of the group members free rides, i.e. uses the fertiliser not on the intended crops or by selling it to someone else, he will fail to deliver the contracted output and fail to repay the loan. This type of free riding is a collective action problem and, most commonly, leads to group disintegration.

### 3.7 Some solutions to governance problems

The agent problems caused by opportunism, asymmetric information and bounded rationality can be abated using various strategies in order to minimise transaction costs. Solutions that may resolve agent problems are screening, collective bargaining, incentives, monitoring, and bonding.

**Screening**

Screening is a preliminary assessment of job candidates or investment opportunities based on specific criteria. Screening is a form of purposive sampling of the parties at the first stage of the contracting process. Not all individuals who intend to start a contractual relationship are given the chance to contract. Screening is a common practice for the parties who have the decision making power in a contractual relationship. In the agency theory, screening is the work of the principal who screens the agents to enter the contract.
In agricultural investment, the screening of smallholder farmers who can produce good quality farm produce is essential, because not all farmers are capable of producing the required farm produce for processing good quality agro-industry products such as sugar, tea, tobacco, coffee and others. Screening may help the factory owners to contract smallholder farmers who can produce the required quality. Screening costs are ex ante transaction costs that parties incur to search for parties.

As an example consider tea farming. The Tea Research Institute of Tanzania (TRIT) is contracted by the tea producer (WATCO) to screen farmers for their farming practices. Only those farmers that can show good quality tealeaves are eligible for delivering tea to WATCO.\(^{29}\)

**Collective bargaining**

Collective bargaining is a method of negotiation in which employees use authorised representatives to assist in the negotiation with the principal on common goals. Normally, employees, farmers, students, consumers, and producers form various forms of associations. In those associations, representatives are elected to work with the employers, crop boards, university management, and producers to organise a functional relationship in which issues pertaining to the mutual interests of the principals and agents can be resolved.

Collective bargaining is a useful mechanism that increases the information flow and mitigates information asymmetry. When the suppliers of, for example, sugarcane express dissatisfaction with prices via their representative, collective bargaining is an instrument to arrive at a mutual consensus concerning acceptable prices. The case studies show that collective bargaining comes up in all the cases. In chapter 2 the organisational set up of this system is discussed. It is at the national level, e.g. the tobacco board that negotiates the contractual conditions for farmers with tobacco processing factories in concordance with the Tanzanian Tobacco Industry (URT(d), 2001). This procedure is not only limited to the tobacco industry but all cash crops in Tanzania have such a collective bargaining organisation according to the laws of The United Republic of Tanzania (URT(b), 2002).

\(^{29}\) See chapter 8 for the tea case.
Incentives

In agency relationships the principal rewards the agent. Agency theory shows that it matters how the principal rewards his agent. Different forms of pay can be discerned: a flat fee or fixed salary, a piece rate system, a sharing rule based on e.g. profits, a compensation mechanism based on a company’s stock, or a mix of these. Depending on the type of relationship, one of these forms may be more attractive than the other available alternatives. The problem arises from the fact that it is not easy to determine the forms of incentives that stimulates the agent to spend his efforts towards realising the goals of the principal. Apart from the pecuniary form of pay, other non-pecuniary elements do play a role in the remuneration of the agent. Housing, availability of staff, cars, nursery schools, and all kind of other small amenities may act as an incentive for the agent to perform his duties. The principal’s challenge is to find the form of pay that motivates the agent to expend efforts precisely in such a way that the principal benefits from such efforts. However, as the agent has his own goals and his efforts are largely unobservable to the principal, the agent will try to minimise his cost (that is effort) and to maximise pay (pecuniary and non-pecuniary) given his goals instead of those of the principal. This trade off on the part of the agent will lead to a less than perfect match between the goals of the principal and, given the impossibility to write a complete contract, a less than perfect incentive scheme.

Monitoring

Monitoring is an activity or process in which a principal undertakes to supervise his agent in using his property rights. The principal may conduct the monitoring by watching remotely, or managing by walking around to keep an eye on the activities the agent undertakes on his behalf. As the agent is self-interested he may cheat, lie and manipulate the situation to favour him (Coase, 2006; Williamson, 1993). The agent may use the power delegated to him by the principal to enrich himself. For this reason, the principal must spend resources on monitoring, apart from the contracted payments to motivate the agent.

Monitoring can also be seen as a form of policing. The principal invests resources to police the agent as he sets security guards to inspect what the agent does. In the developed countries and some other developing countries, computerisation has helped the principal to monitor agents. The tea factory owned by Tanzania Tea Packers
Limited (TATEPA) uses a digitised weighing machine to monitor the weighing of the tealeaves by agents in Tanzania.\textsuperscript{30}

**Bonding**

By posting a bond, that is an asset, property, or promise with some value, with the principal, the agent makes it costly to himself if he does not perform his tasks optimally. If he does not perform, then the principal may foreclose on the bond and keep the proceeds. The agent then loses that value. With posting such a bond, the agent promises to adhere to the rules set out in the contract as it is costly not to do so. Williamson (1985) discusses such a mechanism in the context of transacting via exchanging hostages in order to bind parties to performance. Bonding is difficult in situations in which one of the parties to the contract has no valuable assets or property to offer as a bond. As the case studies reveal, bonding might be an instrument to mitigate opportunistic behaviour, but it is hard to organise as farmers lack valuable properties. Only in the TATEPA case a form of bonding comes up in which farmers invest in shares of the factory via a deduction of their sale proceeds.

### 3.8 Smallholder farmers’ contract learning cycle in Tanzania

The contracting process can be divided in several stages, e.g.: sending an offer, negotiating, accepting (after successful negotiation), writing, signing, executing, renegotiating, and renewing a contract. In different contracting settings, the stages may differ from each other depending on e.g. the attitude of the parties, the type of goods or assets, and the time between payment and delivery. For this research, these stages can be categorised as follows: contract formulation, execution, behavioural change, independent contracting, and contract renewal through a primary cooperative society (PCS). In Tanzania, individual SHFs may contract with factory owners (FOs) directly, or they may contract through a PCS.

Stage 1 is joining the PCS. Joining a PCS is very common as since colonial time, after independence and Ujamaa period, all cash crops value chains were vertically integrated through the cooperative society

\textsuperscript{30} See chapter 8 for details.
model. These organs were all under the governmental control. After privatisation in 1982, the crop boards are still government agencies supervising the agro-industry institutions. The boards now regulate crop production and processing. The cooperative societies still organise SHFs according to the laws of the United Republic of Tanzania (URT(b), 2002; URT(e), 2003). The leaders of PCSs, thus, negotiate on behalf of the SHFs, members of the PCSs.

*Figure 7 Farmers contracting learning cycle*

Figure 7 shows the learning cycle in contracting in Tanzania beginning from stage one when FOs and SHFs formulate a contract through their respective PCS.

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31 Cash crops are the category of crops that are produced mainly for sale. The reader needs to understand that Tanzania is a young nation which became independent in 1961. During colonial days, all crops that were produced for earning cash were produced for export to Germany, or later to England. Indigenous crops that were planted for domestic market were not called “cash crops”. Currently, many indigenous crops are still sold on the market, but they are usually called food crops.
Stage 2, after signing the contract, the FOs and the government of Tanzania, in collaboration with donor agents, train the SHFs. SHFs are trained in how to use these inputs and how to adhere to the contractual obligations. The SHFs have different understandings of the contractual clauses. Some think that the contract is just a formality and some others do understand their obligations. Normally, the PCSs organise farmers in groups of ten. Members need to join a group in order to receive subsidised fertilisers and other inputs (e.g. herbicides, but also ploughs and even tractors) via the PCSs. The group receives the fertiliser and the other inputs on credit. Procedurally, the group registers its name, then receives fertilisers and other inputs, and after the harvest repays the associated loans of all the group members.

In stage three, SHFs decide what to do. A farmer may decide not to comply with the contract, or hide himself somewhere after receiving the fertilisers. Others may partly adhere to the contract, but decide to use the fertilisers in different ways instead of using it for the intended crop. Others farmers are faithful to all conditions of the contract.

Stage 4 is when SHFs actually understand what the contract entails. Such a farmer knows exactly what obligations are taken up in the contract he signs. At this stage, the farmer may decide to operate independently from the PCS and negotiate directly with the FO. He then ceases to use the cooperative society for obtaining farm inputs on credit. He finds it is useless to contract through the PCS because it increases transaction costs to him (PCS fees, time-consuming meetings). Independent farmers reach this stage through the training offered by the FOs, the government and donor agents. The independent farmers understand exactly what it takes to grow good quality farm produce and maximise their return on investment in fertilisers and their future contractual claims. These successful SHFs may raise their own capital through applying to different banks in Tanzania and obtaining loans to buy farm inputs, or save part of their income to buy the inputs. Since Tanzania has huge plots of unutilised land, the farmers may apply for sufficiently sized plots of land and expand their operations. Others who have not reached this level of understanding continue to operate through the PCS in order to still receive training and technical assistance. Through training SHFs are able to understand the use of fertilisers and the value of their efforts. They also learn how to obtain fertilisers from the government agencies and other sources. For various

32 Such a farmer may even go to the virgin forests, which are not owned by any individual, and start farming.
reasons the majority of SHFs has not yet reached the stage of independent contractor, and thus continues to operate via the PCSs.

3.9 Behavioural alternatives for the farmer

Figure 8 shows a decision tree, summarising the behavioural choices for a SHF as soon as he receives the farm inputs. The actual behavioural alternative that is chosen by a SHF is revealed after signing the contract, or during contract execution.

Figure 8 Farmers Decision Tree

Figure 8 shows that in order for a poor farmer to receive subsidised farm inputs on credit, he has to join a PCS. Alternative A characterises a farmer who directly sells the fertiliser he receives in the open market in order to obtain income. Poor SHFs have a strong incentive to get

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33 Normally, the Government of Tanzania negotiates with foreign donor countries to buy fertilisers at subsidised prices. The fertiliser is sold by government agencies at subsidised prices. Because farmer A does not know the actual market price of received fertiliser, on credit from FOs, he sells the fertiliser at an even lower price to willing buyers.
income as quickly as possible in order to solve current monetary problems.

Actually, this is a departure from one of Coase’s (1988) assumptions that endowments are irrelevant in allocating rights. In situations of pure poverty, allocations do matter. In a situation of poverty, a farmer will have a (very) short planning horizon, or a very steep discount rate. The immediate future is much more important than the distant future. This might be due to a poverty of mindset, which leads to an underestimation of future benefits (Narayan, 1997; URT(f), 2005). Due to this, a farmer receives the fertilisers perceiving that fertiliser to be free which decreases the willingness to pay. As the willingness to pay for the fertiliser is zero - due to lack of means and a lack of farming knowledge -, while he can get a positive price for it on the market, the incentive to sell is high. The fertiliser is sold immediately after receiving it. As he sells it directly on the market, he will not be able to repay the subsidised fertiliser later. In order to escape this obligation, he runs away from the village and settles somewhere else. Sometimes, SHFs who are knowledgeable in the industry may ask him to register as a member of the cooperative society in order to receive subsidised fertiliser. When a poor SHF receives the coupons for getting the subsidised fertilisers on credit, the poor farmer directly sells the fertiliser to the other SHFs at low prices in order to receive income immediately.

With alternative B, the farmer (SHF B) receives fertiliser, but uses it for his own crops instead of the contracted crops. To him his own crops are more valuable than the contracted crops. These other crops provide his family a living in the immediate future (either by selling or direct consumption). Experience has taught him that it is difficult for the factory to impose sanctions if he does not deliver the contracted crops later at the factory. However, he will end up in debt, as he will not be able to repay the subsidised fertilisers. For the next period, he has either to hide or move his family to virgin lands, or change his name and apply for membership again.

With alternative C, SHF C uses the fertilisers partly on his own crops and the remaining part on the contracted crop, as he does not have enough funds to buy enough fertiliser for his own crops. This, in turn, gives a lower yield than expected or a lower quality for the contracted crop. With this, revenues will be depressed and he either receives a low pay from the FO, or ends up in debt, but less so than farmer B.
With alternative D, SHF D uses the fertiliser on the intended crop and later sells it to the factory. When this farmer has harvested he sells it to the FO and receives the net sales income. The FOs and other agencies involved in offering fertilisers on credit, deduct their loan amount. The smallholder farmers get the residual income and may decide to continue farming the same crop the next season.

With alternative E, SHF E has enough wealth to be able to buy subsidised fertilisers on his own in the market. Such a farmer has accumulated enough wealth and knowledge to act as a fully independent producer over the years. While SHFs A, B, C, and D are members of the cooperative societies (PCS), only SHF E can be seen as an independent contractor. Membership of a PCS is of less interest to him as he is able to contract for farm inputs himself without the need of an intermediary (PCS).

### 3.10 The Farmer Behaviour Model (FBM)

Based on the discussion concerning the behavioural alternatives available to a farmer, it is quite clear that different SHFs may have different time preferences, planning horizons, knowledge and wealth levels. Part of these differences can be analysed in a more stylistic setting in order to illustrate the wealth effects that are associated with the behavioural alternatives. However, for this analysis, a short departure from the assumption of bounded rationality is needed, i.e. one must assume full rationality. A farmer is then fully aware of his agronomic knowledge, his agronomic productivity, and his time preference. Farmers differ only with respect to their level of agronomic knowledge. Hence, this makes that farmers can be categorised in five categories, corresponding to the behavioural alternatives specified above. The farmers do know their category ex ante, but others do not. Furthermore, farmers cannot switch between categories for the moment. With some additional assumptions, it is then possible to analyse the wealth effects that arise with respect to consumption and investment decisions within the framework of Fisher (1930).\(^\text{34}\)

It is easy to see that this set up is difficult to integrate with the one in Figure 8. This shows five outcomes reflecting SHFs who come to a decision based on their specific situation. Due to differences in wealth,

\(^{34}\) The assumptions are that these decisions can be viewed within a single period setting with two dates, that no uncertainty exists with respect to the productive outcomes, that the fertility of land is constant within this time frame and that productive opportunities are characterised by marginal decreasing returns.
agronomic knowledge and time preferences, individual SHFs will experience different levels of utility. An additional unit of money may thus deliver different levels of utility for different SHFs in the agro-industry. It seems likely that an additional unit of money is worth less to a rich SHF than to a poor one. Therefore, once a farmer receives the fertiliser, he has the option to either use the fertiliser on the crops, or sell it on the market to solve immediate problems. Obviously, the SHF who sells the fertiliser immediately after receiving it, will not earn any income at that time when others sell their farm produce after the harvest. Given different levels of wealth and agronomic knowledge on farming practices, the monetary value of fertiliser may have a higher utility to an SHF who is very poor than to a rich SHF who is able to use the fertiliser productively on his land. For the analysis below to work, farmers are assumed to have equal utility functions, only to differ with respect to their level of agronomic knowledge. Although this obviously limits the analysis, it illustrates the effects of that difference with respect to production and consumption decisions.

*Figure 9 Contract decisions and welfare outcome for SHFs*

Legend:
- MVF: market value of fertiliser.
- $\text{Exp(Revi)}$: the expected value of revenues of farmer $i$ at time $T2$, where $i = B, C, D$ and $E$.
- $I_i$: Indifference curves showing the utility of $i = B, C, D,$ and $E$
- $1+R =$ farmer discount rate.

Figure 9 shows the behaviour of the farmer which is revealed soon after a farmer has received fertiliser on credit. The figure shows the production possibility frontier (PPF) for the five different categories of farmers. For instance, farmer E has the most extensive agronomic knowledge and thus can produce alongside curve $\text{PPF}_E$. The value of the contract he is able to secure, is higher for him than the value of the contract that e.g. farmer B, producing alongside curve $\text{PPF}_B$, may obtain. Farmer B has no obvious way to directly step into the footsteps of farmer E as he does not possess the agronomic knowledge. The production possibilities differ for each category as each corresponds to a different level of agronomic knowledge. This makes that the PPF of farmer B is below the one of farmer C, which on its turn is below the one of farmer D, which is below the one of farmer E.

In the figure, four indifference curves portray the typical marginal rates of substitution of farmers in a category for time $T1$ and time $T2$ consumption. They show the optimal amount of investment in fertiliser on factory crops. It is only for farmer A that no PPF is taken up, as he immediately sells the fertiliser after receiving it. At the tangency of the indifference curves and the production possibility curves a discount rate $(1+R)$ is shown (assumed to be equal for farmers). The intersection of this line with the horizontal axis (not drawn) gives the subjective present value of a farmer’s investment in his farm. As this imaginary intersection is always outside the PPF, every farmer (excluding farmer A) perceives it to be worthwhile to invest the fertilisers at time $T1$ on either the contracted crops, or his own crops.

The starting point of the PPF is at point $Z$ on the horizontal axis, as every farmer receives (via coupons) the same amount of subsidised fertiliser.$^{35}$ The horizontal axis shows the monetary value of the fertiliser (MVF), which for each category of farmers, equals a value of $OZ$.

This standardises the horizontal axis upon the value of subsidised fertiliser available to farmers. The expected revenues are portrayed on

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$^{35}$ Farmer E, being an independent farmer, also receives the same amount of coupons as any other farmer. As this amount of fertiliser may not be enough for him he buys additional fertiliser via the government agencies or via other poor farmers selling fertiliser in the market.
the vertical axis of figure 9. Starting with farmer A in figure 9, he receives subsidised fertiliser, worth at current market prices OZ, in coupons of e.g. 50 kg. Farmer A does not use the fertiliser at time T1 for yielding cash crops at time T2, but sells it immediately on the market. Figure 9 shows that farmer A will sell the fertiliser at any price up to the amount OZ. Farmer B applies the fertiliser to his own crops. The PPF\textsubscript{B} in figure 9 is associated with his own crops and not with factory crops. For this reason, the nutritional value of the fertiliser is (partly) wasted. This is depicted in Figure 9 as a partial use of fertiliser (BZ), while the remainder (OB) is not used productively. As this farmer lacks knowledge and skills of good agronomic practices, he harvests a low yield on the crops amounting to a total revenue of Exp(RevB). From this revenue, the loans for farm inputs have to be deducted. If these are larger than Exp(RevB), the farmer ends up in debt. Farmer C apportions the amount of fertiliser CZ on factory crops and the remainder OC on his own crops. The yield amounts to Exp(RevC) for farmer C. Loans then need to be deducted from this revenue. Farmer D utilises the full amount of fertiliser on the factory crops (OZ). This yields a revenue of Exp(RevD) where the PPF crosses the vertical axis. Similarly, farmer E utilises the full amount of fertiliser and invests in additional fertiliser (and possibly other agro-inputs for an amount of EZ) to yield the revenue of Exp(RevE).

**Development path for farmers**

Ideally, the training and services offered by the FOs, the government of Tanzania and the donor agencies to SHFs, develop farmers who sell fertiliser on the spot market to real entrepreneurs in the agro-industry. SHFs may develop from a category A farmer to a category E farmer, or vice versa depending on farmer behaviour and the economic and legal system prevailing in Tanzania. The essence of this development is to increase their agronomic knowledge so that they can become more productive, i.e. may choose a point alongside a higher production possibility frontier. The increase in agronomic knowledge gives the farmer the tools to increase productivity and control quality. Such a development may also change the planning horizon of a farmer, changing the discount rate. This cannot be shown in the graph above as the categories then become incomparable.\textsuperscript{36} Nevertheless, in practice, when SHFs undergo training, their behaviour may change, and they may incorporate a longer planning horizon in their activities. As they

\textsuperscript{36} It implies that farmer E would value the outcome of each alternative differently compared to farmers in the other categories, and vice versa. The graph then becomes specific to each farmer.
plan for a longer period, the farmers start (partly) adhering to the contractual agreements, the farmers’ perspectives on future income changes.

**Figure 10 Farmer development path**

![Diagram showing expected contractual claim at time T2 vs. MVF at time T1]

Farmers who are transforming from producing with a low productivity to increased productivity in their farm, benefit directly because they receive higher revenues than before that transformation.

In Figure 10 a development path of an individual farmer is represented by the bold line from A to E. With the agronomic development of a farmer productivity increases, quality increases, contractual costs decrease, and opportunistic behaviour diminishes. The farmer, therefore, increases his wealth, thus lifting himself out of poverty. The development also increases factory productivity via higher quality, a higher crop yield, and reliability. The whole value chain benefits including the government via lower cost of social cost programs and higher revenues via the collection of taxes.

The development path, however, can be taken in two directions. With a positive development, the transaction costs go down as behavioural
problems diminish in the agro-industry. Therefore, this results in increased contract compliance over time and from the perspective of FOs, a decrease in farmer opportunism. The development might also be in the other direction, i.e. a SHF who has already attained a certain productivity level may fall back to a lower productivity category, due to e.g. unforeseen adverse circumstances (floods or other adverse weather incidents), contract problems (e.g. wrong incentives, collective action problems), or a lack of formally defined property rights (e.g. unenforceable ownership rights).

3.11 Summary

The theoretical analysis in this chapter has been built on property rights, transaction costs and agency theory. It has been pointed out that institutions are the rules of the game that determine the behaviour of economic agents. In addition, economic behaviour influences the rules of the game in a sort of feedback loop. The institutions include merchants, gilds, hawkers, tribal groups, church groups, banks, government bodies, university, firms, and other organisations.

The chapter has discussed how the behaviour of people shapes the behaviour of their institutions as well. In many developing countries such as Tanzania, to a certain extent, many transactions cannot take place under the aegis of law because of the large informal sector in the economy. In such an economy, transaction cost is high, as participants cannot rely on formal institutions to protect their property rights. The behavioural problems are the result of asymmetric information, bounded rationally and opportunism. These problems increase transaction costs when parties contract. These behavioural problems explain the magnitude of transaction costs in the economy. In this chapter agency problems such as moral hazards, adverse selection, and collective action and hold out are discussed. Furthermore, a number of solutions to abate the different economic organisational problems are discussed. The proposed solutions include screening, monitoring, bonding, and collective bargaining. Finally, in a more stylised setting, the chapter illustrates the wealth effects associated with the various behavioural alternatives. That stylistic model, the Farmer Behavioural Model (FBM), helps in highlighting the benefits of schemes that increase agronomic knowledge.