

A CONTRACTUAL FRAMEWORK
FOR EVALUATING
AGRICULTURAL AND HORTICULTURAL
MARKETING CHANNELS

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Research Report No. 178

August 1986

Agricultural Economics Research Unit
Lincoln College
Canterbury
New Zealand

ISSN 0069-3790

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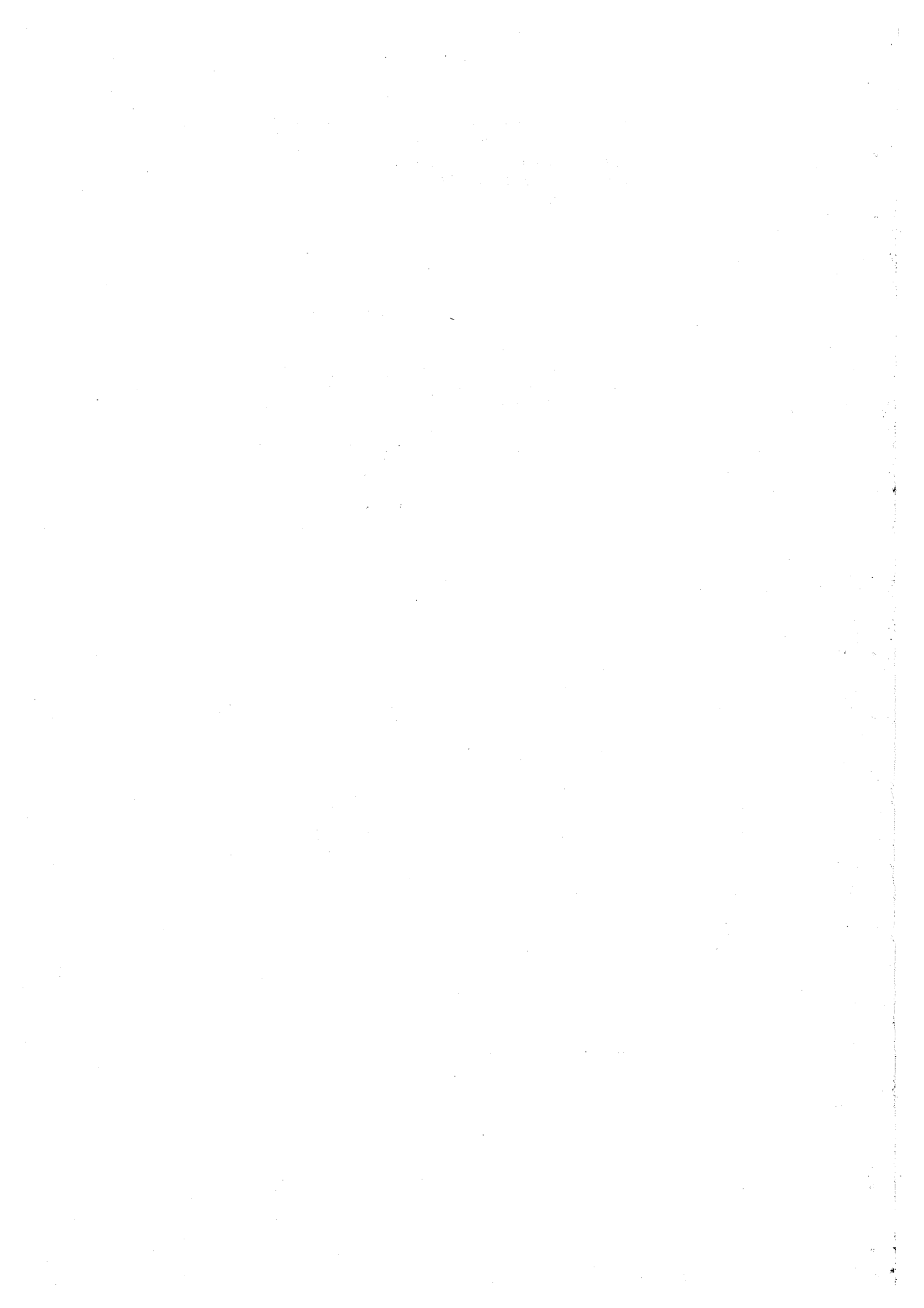
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PREFACE

The CAPS/AERU Marketing Study Group consisted of Professor A.N. Rae of the Centre for Agricultural Policy Studies, and Professor A.C. Zwart and Ms S.K. Martin of the Agricultural Economics Research Unit. It was established by the Economics Division, Ministry of Agriculture and Fisheries to address those marketing issues that were of concern in 1985 and 1986.

The Study Group acknowledges the contributions made to its deliberations by Dr S Durbin, Ministry of Agriculture and Fisheries, Dr W.R. Schroder of the Department of Agricultural Economics and Business, Massey University, and Dr P.L. Arcus, of Arcus Consultants Ltd, Vancouver, Canada. Dr Arcus was a Marketing Consultant to the Ministry of Agriculture and Fisheries in Wellington from February to June 1986.

The detailed results of the Study Group's research have been reported in two publications. This Report, which is one of these publications, evaluates a contractual framework for the analysis of marketing issues. The other detailed publication to emerge from the Group's deliberations is:

Rae, A.N., "Frameworks, Theories and Methods of Analysis of Marketing Channels: A Marketing Literature Review", Agricultural Policy Discussion Paper No. 7, Centre for Agricultural Policy Studies, Massey University. July 1986.

These two publications are summarised and integrated in a third document entitled:

Martin, S.K., A.N. Rae and A.C. Zwart, "An Integrated Framework for Analysing Agricultural Marketing Issues".

This is a joint publication available as:

Research Report No. 179
Agricultural Economics Research Unit
Lincoln College

or as

Discussion Paper No. 9
Centre for Agricultural Policy Studies
Massey University

R.G. Lattimore
DIRECTOR

SECTION 1

AGRICULTURAL MARKETING ISSUES

1.1 Introduction

In recent years, new directions have begun to emerge in agricultural export marketing. Emphasis has been placed on managed marketing to target market segments, rather than on bulk commodity trading. This has resulted in an increasing focus on product and market development and concern exists as to whether the marketing structures which now exist most appropriately meet perceived industry needs in these areas. In addition, there is a greater awareness by Government that the granting of statutory rights to a sector of an industry involves a redistribution of property rights, which has both efficiency and equity implications.

In New Zealand, a variety of marketing arrangements have emerged to cope with the export marketing of New Zealand's primary products. At one end of the spectrum is a controlled marketing structure typified by the dairying industry which has essentially existed in this form for over fifty years. At a lesser level of regulation are the statutory Boards which trade alongside existing marketing channels when they feel it is necessary. These include the wool industry and the meat industry prior to 1983. Other statutory options which partially regulate marketing activity are also in operation. In this case, an example would be a restriction on the number of private exporters who are licensed by statutory authority, as with kiwifruit.

In addition to this wide variation in statutory marketing alternatives, there exist a number of unregulated structures. For example, in the barley industry, a voluntary producer co-operative operates alongside private exporting merchants. On the other hand, in newly-emerging export industries such as cut flowers, there is no collective organisation of marketing activity by producers as a group, and a variety of export arrangements appear to exist between individual producers and their agents.

Two broad issues emerge with respect to the range of marketing alternatives which are in operation. The first has a positive orientation, and addresses the questions of why alternative marketing structures evolve in different industries, and why different structures may emerge in the same industry at different periods in time. The second issue is of a more normative nature, and concerns the evaluation of these alternative marketing structures with respect to their performance. To some extent, the two questions are interrelated, since it may prove necessary to understand why structures have evolved in a certain way in order to evaluate factors influencing their performance. These two issues will now be discussed briefly.

1.2 The Evolution of Marketing Channels

From a cursory examination of the historical evolution of alternative marketing structures in New Zealand, it is not clear why different structures have emerged in different industries, despite a perceived stimulus to change which appears to be similar in a number of cases. For example some industries such as dairying and pipfruit adopted highly regulated marketing structures in response to low prices in the 1920's. However, during the same period, other industries such as wool, which were initially regulated in response to perceived low prices, reverted to private enterprise marketing after international wool stockpiles had been cleared. In more recent years, the kiwifruit industry instituted licensing of exporters. This move was partially in response to the threat of oversupply and hence low threatened producer prices. On the other hand, barley producers responded to what appeared to be a similar stimulus on the surface (that is, perceived low prices) by forming a voluntary marketing co-operative which trades alongside existing channels.

What appears to emerge from the above discussion is that the stimulus of actual, perceived or threatened low or uncertain prices may lead to some change in existing marketing arrangements in an industry. However, the reasons why different structures may then emerge appears to be more firmly embedded in the microeconomics of the situation.

For example, perceived low prices in the kiwifruit industry were seen to arise from an oversupply of product, particularly of poorer quality fruit. Therefore, it was felt that greater industry-wide co-ordination of exports was necessary to arrest this threatened price decline. In the barley industry, on the other hand, growers perceived an inadequate link between the relatively low prices which they received from merchants and the higher world price for barley. This led to the formation of a producer co-operative, which can be envisaged as having the dual effect of providing growers with an alternative marketing channel, and of allowing them to use this new channel as a means of exercising countervailing power against existing merchants. In industries which were even less co-ordinated, price uncertainty resulted in changes in marketing options. For example, exporters of linseed initially offered growers a forward contract to induce them to produce a crop which was unfamiliar to them. However, when they were not able to realize these forward prices, they withdrew from further contracts of this nature, and operated as commission agents on behalf of growers.

Therefore, while low or uncertain actual or perceived prices may be a catalyst for a change in marketing options, the form which such change might take is likely to vary according to the microenvironment in the industry. In order to understand how marketing channels might emerge, particularly in the case of new products, it would seem to be necessary to focus on linkages which are established between producers and their agents.

The agricultural economics literature has explored some of these issues to a limited extent. For example, a rationale for the existence of producer co-operatives is that they provide countervailing producer power to monopsonistic private merchants (Bateman 1976; Le Vay, 1983). Similarly, authorities with statutory power are seen as

emerging from co-operatives as a means of avoiding the free-rider problems associated with this latter type of agency (Bateman, 1976; Davies, 1960; Warley, 1967).

Beyond this, degrees of statutory power which exist can be listed along a spectrum, with minimum market intervention activities such as research and promotion being at one end of the spectrum, and maximum market intervention activities such as monopoly selling and supply controls being listed at the other end (Balderstone, et al., 1982). However, there appears to be very little research on why different degrees of regulation emerge in different industries, nor do changes in uncoordinated or unregulated options appear to have been addressed in the traditional agricultural economics literature.

Furthermore, the accepted path, and its rationale, from an unregulated industry to statutory involvement via co-operative organisation, should be treated with some scepticism. It is obvious that many industries do not conform to this evolutionary pattern, and therefore, the existence of such a progression should not be accepted in any mechanistic sense. In summary, the issue of why alternative marketing channels, both statutory and non-statutory, arise or co-exist, does not appear to have been adequately investigated in the conventional agricultural economics literature.

However, the transaction costs framework which is now familiar in the economics literature has been used to examine issues similar to that of why marketing channels might emerge or co-exist. In addition, it would be possible to focus on the mechanics of the short-term price formation processes which emerge between producers and their marketing agents when using this framework. Consequently, this theory may be able to offer appropriate insights into the evolution of agricultural marketing channels.

1.3 An Evaluation of Marketing Channel Performance

In addition to the positive question of why alternative channels arise or co-exist, the normative issue of whether these channels meet specified performance criteria is also of importance. In general, such performance criteria are based on broad efficiency concepts, such as whether existing resources are efficiently allocated, and whether alternative channels have the ability to capture market opportunities and to adapt to changes in them.

The agricultural economics literature is replete with studies on the efficiency of various aspects of marketing, much of which has been reviewed by Bateman (1976) and Breimyer (1973). Such studies include the evaluation of various types of statutory institution and an assessment of the economic and technical efficiency with which they perform their various functions (Campbell, 1973; Warley, 1963; Rae, 1980; Davies, 1960; Veeman, 1972; Guter and Low, 1971). Market channel analysis has encompassed the analysis of imperfectly competitive relationships (Brandow, 1969; Youde and Helmlinger, 1966), the structure-conduct-performance paradigm (Clodius and Mueller, 1961), integration and contracting (Logan, 1969; Allen, 1972), and the behaviour of marketing margins (Wollen and Turner, 1970).

However, this traditional analysis does not incorporate insights which arise from more recent economic theorising, including the concept of non-zero adjustment and transaction costs, the related contract and agency theory, and the new theory of market contestability. It would be useful to assess whether these theories can assist in the evaluation of efficiency issues in agricultural marketing.

When assessing efficiency issues, attention would have to be paid to efficiency indicators such as channel contestability, either directly or at arms length, as suggested by barriers to entry or inhibitions to channel selection, or alternatively, whether destructive competition occurs as has been suggested by the so called 'weak selling' arguments.

Other such factors would include the adequacy of price signalling and channel monitoring, and the extent to which these are obscured by payment procedures or government policies. Such question impinge on channel adaptability, as do issues relating to innovation, the adequate provision of marketing services, and the appropriateness of economic incentives for product and market development.

If any such evaluation of marketing channel performance indicated that efficiency criteria were not being met, then Government may have a role to play in rectifying this situation. Any such role would depend on the source of the inefficiencies. For example, if it is difficult to assess the performance of alternative channels, then Government may be able to assist by providing relevant information. Alternatively, if regulatory barriers to channel entry exist, and inefficiencies are seen to arise from these, then it may be appropriate for Government to remove such barriers. Consequently, the perceived sources of channel inefficiency would be important when determining any appropriate Government response.

1.4 Research Objective

In view of the above discussion, the objective of the research presented in this Report is to evaluate whether more recent economic theories on contractual arrangements assist in explaining why particular marketing channels might evolve, and whether existing channels meet accepted criteria for efficiency.

The remainder of the Report will be structured as follows. Chapter 2 will examine the economics of contractual arrangements. It will include a discussion of concepts used in transaction costs analysis and issues which influence contractual arrangements. Chapter 3 will review the research methods commonly associated with this type of study, while Chapter 4 will examine the applicability of aspects of the economics of contractual arrangements to some of the marketing channel issues which were previously discussed. A checklist of factors which should be considered when contemplating empirical research which utilises these newer economic concepts is presented as an Appendix.

CHAPTER 2
THE ECONOMICS OF
CONTRACTUAL ARRANGEMENTS

2.1 Transaction Costs Analysis Defined

Economic theories relating to contractual arrangements have emerged from the original literature on transactions costs. The concept of transaction costs was initially investigated by Coase (1937) in his analysis of why firms emerge in a specialised economy. Coase hypothesised that there were costs associated with using the price mechanism to organise production, and that the most obvious cost was associated with discovering what the relevant prices were. A further component of such costs would be the costs of negotiating and concluding a separate contract for each exchange transaction. Coase pointed out however, that price discovery costs could be reduced by the emergence of markets such as product exchanges.

Despite these mechanisms, transaction costs will still be positive although minimised, and this Coase theorised, would lead to the emergence of firms when the costs of organising transactions within a firm are less than the costs of doing so on the open market. Firms would continue to grow until the costs of organising an extra transaction within the firm are equal to the costs involved in carrying out the transaction in the open market, which assumes decreasing returns to the within-firm entrepreneurial function.

Despite being written almost half a century ago, Coase's insights into the emergence of the firm did not achieve popular recognition until recently (Cheung, 1983), and in the meantime, advances in the theory of the firm developed along standard neo-classical lines. However, in recent years, this neo-classical model of firm behaviour has come under increasing attack aimed at some of its assumptions which are perceived to be unrealistic. Such assumptions include zero transaction costs, fully allocated and privately held property rights, profit maximisation, and by implication, cost minimisation. One branch of the literature investigated alternative maximising behaviour (for example, sales maximisation), whereas another avenue explored managerial theories of behaviour which sought to explain why costs might not be minimised. Reviews of these two alternative theories of firm behaviour may be found in De Alessi (1983).

A third revision of neo-classical analysis focussed on the property rights and transaction costs assumptions, thereby resurrecting Coase's theory. De Alessi (1983) is of the opinion that these advances in transaction costs analysis are a significant improvement over the alternative managerial extensions to neo-classical analysis, such as Leibenstein's X-efficiency concept. He bases this conclusion on the observation that the latter concept focuses on preference relations that are not observable, and therefore, fail to yield testable hypotheses. On the other hand, he notes that the property rights/transaction costs generalisation does yield testable hypotheses on the clustering of resource rights and the evolution of alternative forms of business enterprise.

Hence, transaction costs analysis has gained increasing credence as a framework for analysing the emergence of alternative firm types. However, recent advances in the theory have altered the problem emphasis by focusing on business choices as the unit of analysis. That is, the emphasis has shifted from the firm level to the contractual level, and interest is concentrated on the relationship between a principal and an agent. This approach allows a wide range of problems to be investigated using the same analytical tool.

With this resurgence of interest, the concept of transaction costs has been considerably refined. Rather than simply referring to the costs of price discovery, more detailed cost components have been identified. One such component on which much literature has been centred is agency costs (Jensen and Meckling, 1976; Fama, 1980; Cameron and Duignan, 1984).

Agency costs are those portion of transaction costs which arise when the principal in a relationship delegates authority to an agent, and must then incur costs to ensure that the agent behaves in the principal's interest, since given utility maximisation by both parties, there is no guarantee that this will occur. In the literature, this problem of divergent objectives between the principal and agent is referred to as the problem of moral hazard or the agency problem. Jensen and Meckling (1976) note that a principal incurs agency costs when establishing appropriate incentives for the agent, and when incurring monitoring costs designed to limit aberrant activities of the agent. In turn, an agent may incur expenditures known as bonding costs, which guarantees that the agent will not take certain actions which will harm the principal. Despite these monitoring and bonding activities, it is unlikely that the interests of the principal and agent will completely coincide, and hence, a reduction in welfare is experienced by the principal which is also attributable to the agency relationship. This component of agency costs is referred to as residual loss. The total agency costs incurred in any contractual relationship are the sum of the above components.

An example of how the agency costs extension to transaction costs analysis may be useful is in seeking an explanation of why one type of contract may supersede another. In this case, the substitution of contractual arrangements will cease when the savings in transaction costs of price discovery equal the rise in agency costs at the margin (Cheung, 1983; Alchian and Demsetz, 1972).

In summary, transaction costs analysis, broadly defined, focuses on the nature and magnitude of positive transaction costs, and its implications for the outcomes of contracts and economic structures. The focus of recent applications of the analysis is at the contractual level, and concentrates on the principal-agent relationship with varying degrees of sophistication. The theory has been applied to a wide range of problems. Examples include land tenure arrangements (Cheung, 1969; Lucas, 1979), employment contracts (Stiglitz, 1975; Cheung, 1983) and firm types (Alchian and Demsetz, 1972). The literature also contains a host of other examples.

The discussion will now turn to the issues which are addressed through the application of transaction costs analysis to contractual arrangements.

2.2 Issues Which Influence Contractual Arrangements

From the literature, it would appear that a number of inter-related factors determine the nature of contractual arrangements which arise in a particular situation. These include the nature and distribution of information imperfections which determine risk perceptions, and the magnitude of transaction costs. Other significant factors include risk preferences and the existing allocation of property rights.

The contractual arrangements which arise in any situation seek to perform a number of functions. These include signalling product or input characteristics to appropriate parties, distributing risk between parties, and providing appropriate incentives for parties to perform.

The way in which contracts are structured, and therefore, the extent to which they perform these functions, has implications for the performance of the marketing system as a whole. For example, the types of contract which exist have implications for the level and variability of prices at various points in the marketing channel, and for the degree of marketing effort (such as product and market development) expended at various stages in the marketing system. Some of the factors listed above and the functions of contracts will now be discussed.

Sources of contractual risk have received some attention in the transaction costs literature (Leonard and Zeckhauser, 1985; Cheung, 1969). Such risk tends to be of two types. Firstly, there is uncertainty associated with the future value of random variables. Secondly there is uncertainty associated with whether agents will perform in the manner preferred by the principal.

The former type of risk is referred to as natural risk. It may be composed of exogenous supply-side elements, as occurs in many agricultural industries, or it may be associated with demand, or with both aspects. Where such risk is demand related, the distribution of information may be such that asymmetries exist. That is, demand conditions may be more obvious to some parties than to others, and this may influence the nature of any contractual arrangement.

The second risk aspect referred to above is the moral hazard element of risk, or the agency problem referred to previously. This has been dealt with in some depth in the literature, particularly in the context of managers of public companies who are principals in the relationship acting as agents on behalf of shareholders (Jensen and Meckling, 1976; Fama, 1980). Much of this agency literature centres on the magnitude of agency costs under different firm structures, and whether such costs are likely to be minimised in these circumstances (Alchian and Demsetz, 1972; Klein, 1980). With respect to this latter issue, greater confidence that the agency costs in a contractual arrangement are minimised is warranted when appropriate mechanisms exist to discipline the agency relationship. For example, in the case of public companies, the extent to which a manager's behaviour diverges from the interest of shareholders will be limited by the stock market assessment of the value of a share in the corporation. Falling stock

prices influence the ability of management to raise further capital, and expose the corporation to the threat of takeover bids. This leads to a situation where competing managers can displace current managers who are not performing in the shareholders interests. However, other firm structures do not have these specific disciplining mechanisms (Cameron and Duignan, 1984; Alchian and Demsetz, 1972; Zwart, 1984) and in these cases, agency costs are higher, or alternative disciplining procedures arise.

In general, therefore, the above discussion illustrates how the types and degree of risk may influence the type of contract chosen in a particular situation. However, risk preferences also have implications for contractual arrangements. For example both parties may be risk-averse, or one may be risk-neutral. In the first case, contracts which share risk could be expected to emerge, whereas in the second case, the risk-neutral party is likely to bear risk. Although a third case could conceivably exist where both parties are risk-neutral, this possibility is of little relevance, since risk would be of no significance in any contractual arrangement. Despite the fact that some theoretical studies distinguish between risk-neutral and risk-averse preferences by principals and agents (Shavell, 1979), in general both parties are likely to be risk-averse.

The nature of property rights will also influence the nature and performance of contracts. For example, a distinction between private and publicly owned firms is that ownership in the latter case is non-transferable. This rules out specialisation in ownership, inhibiting the capitalisation of future value consequences into current transfer prices and reducing the incentive of those who bear such consequences to monitor managerial behaviour. As a result, private firms are likely to behave more efficiently than comparable government-owned firms (de Alessi, 1983; Cameron and Duignan, 1984). A further example of the relationship between the nature of property rights and the structure of incentives are the problems associated with team production. In this case, there are several types of resources, not all of which belong to the same person, and output is not the sum of separable outputs. Therefore, an incentive problem exists as to how to reward team members in a manner which induces them to work efficiently (Alchian and Demsetz, 1972). Conversely, where total output is the sum of separable outputs, then team-incentive problems are removed, and appropriate incentives are provided through reward systems based on output, such as piece rates (Cheung, 1983). It is possible to envisage other property rights issues in agricultural marketing channels which influence the nature of emerging contracts.

In the above discussion, a positive orientation has been taken to identify factors which influence the types of contract which might emerge. However, it is also instructive to consider normative issues, and to focus on the types of functions which contracts perform. Different contractual arrangements can then be evaluated according to whether they perform these functions adequately when judged against particular performance objectives. As noted earlier, contracts seek to signal characteristics, to provide performance incentives, and to allocate risk (Leonard and Zeckhauser, 1985; Stiglitz, 1975).

Some authors focus on one of the above functions in their analysis. For example, Cheung (1969) concentrates on the risk aspects of contracts. He advances the hypothesis that contractual arrangements are chosen so as to maximise the gain from risk dispersion subject to the constraint of transaction costs. He uses this hypothesis to explain why different types of contractual arrangement may coexist. Other authors, however, concentrate on the incentive problem, seeking to explain why different types of agency relationship may arise (Jensen and Meckling, 1976; Lucas, 1979; Alchian and Demsetz, 1972).

However, another strand of the literature concentrates on the dual functions of providing performance incentives and of allocating risk, and on the trade-offs which may occur between the two (Fama, 1980; Shavell, 1979; Holmstrom, 1979; Stiglitz, 1975). For example, risk sharing may lead to a reduction in incentives (moral hazard). Stiglitz (1975) observed this when he noted that, under an employment contract, piece rates induce employees to perform but requires them to bear a high degree of risk. Time rates remove some of this risk, but also removes performance incentives at the same time. Stiglitz (1975) concludes that, in this case, the appropriate choice of payment will depend on the attitudes toward risk of workers and employers, effort supply elasticities, the sources and magnitude of uncertainties, and the nature of the supervision used in the employment situation.

Not surprisingly, there appears to be very little literature which considers the problems associated with simultaneously performing the three contractual functions of signalling characteristics, providing performance incentives and allocating risk, although the study of Leonard and Zeckhauser (1985) is an exception to this. They commented that attempting such a task places a heavy burden on contracts, which cannot be expected to provide full optimality in the performance of all three functions. They noted, therefore, that inefficiencies with respect to each of these functions may result. How functional trade-offs are made in any particular contractual situation will have implications for efficiency and performance.

The above Chapter has considered some of the factors which influence contractual arrangements, and also the functions which contracts seek to perform. It was determined that contractual concepts had been utilised in both a positive and a normative sense to analyse business choices. As such, it focusses on the short-term price formation processes which were identified in the previous Chapter as being important when examining agricultural marketing issues.

CHAPTER 3

RESEARCH METHODS

3.1 Introduction

The techniques which have been used to analyse contractual arrangements will now be discussed. This will be accomplished through a detailed examination of representative types of study, followed by a critique of the methods used in such analyses. In this way, the types of technique used can be demonstrated, and the conclusions which emerge from such models can be evaluated. This approach highlights the strengths and inadequacies of contractual choice concepts when evaluating agricultural marketing issues. As noted in the previous Chapter, studies tend to have either a positive or a normative orientation, although in a few cases, both aspects are considered.

Examples of studies with a positive emphasis include Alchian and Demsetz (1972), Cheung (1969), Cheung (1983), Zwart (1984) and Leonard and Zeckhauser (1985). Cheung (1969) and Alchian and Demsetz (1972) will be reviewed in this Chapter, since the techniques used in these studies appear to be representative, and they clearly illustrate how theories of contractual choice might be useful when analysing how alternative agricultural marketing channels might emerge.

There appear to be a large number of studies with a normative emphasis which utilise these concepts, including Zusman and Etgar (1981), Lucas (1979), Holmstrom (1979), Shavell (1979) and Stiglitz (1975). Since the methodology and emphasis in these different studies is essentially similar, the Shavell (1979) study will be reviewed for illustrative purposes.

3.2 The Positive Approach

3.2.1. Cheung's Study on Land Tenure

The first study to be examined will be that of Cheung (1969). He attempted to explain the observed co-existence of several forms of land tenure contract in Chinese agriculture, namely fixed rent, share and wage contracts. He considered alternative explanatory hypotheses, which he then rejected or accepted on the basis of empirical observation. The first such hypothesis was that contracts were chosen to minimise transaction costs. However, he rejected this since, he reasoned, it implied that share contracts would never be chosen, which was obviously not the case. The second hypothesis which he examined was that transaction costs were the same for each type of contract, and that contracts were chosen so as to share risk between parties. However, in these circumstances, it would be difficult to justify the existence of fixed rent or wage contracts.

As a consequence of these observations, Cheung hypothesised that a choice of contractual arrangement was made so as to maximise the gain from risk dispersion subject to the constraint of transaction costs. The magnitude of transaction costs and the distribution of risk were then evaluated for alternative contracts.

By defining transaction costs to be those costs associated with contract negotiation and enforcement he concluded that share contracts had higher transaction costs than fixed rent or wage contracts, since there is need to reach mutual agreement on a rental percentage, the ratio of non-land input to land and the types of crop to be grown. For the other types of contract, however, only one party is sufficient to decide how much of the other party's resources to employ and what crops to grow, given the market prices. Hence, transaction costs are assumed to be lower in these cases. Cheung found it difficult to distinguish between fixed rent or wage contracts with respect to transaction costs, since shirking was a problem associated with enforcing wage contracts, whereas asset (such as soil) maintenance was an enforcement problem with fixed rent contracts.

Cheung then considered the distribution of risk under alternative contract types. He noted that under fixed rent arrangements, the tenant bears most of the risk, whereas under wage contracts, the landowner does likewise. However, under share agreements risk is dispersed through the risk-sharing procedures.

Consequently, since some dispersion of risk is preferred to no dispersion at all, a share contract will be chosen rather than fixed rent or wage contracts if the higher transaction costs are at least compensated for by the gain in risk dispersion.

Cheung made a number of observations which he felt supported his hypothesis.

1. In the first instance, it is reasonable to speculate that share contracts would not arise in cases where third parties insure the amount of crop yield. In Japan, where compulsory crop insurance has been enforced by Government, share tenancy is rare. In China, however, such insurance is uncommon and share tenancy is relatively more widespread.
2. Supply-side risk is greater for wheat relative to rice, since higher proportional yield variances occur in the former. If the transaction costs of the same contractual arrangement are similar for both crops, then share arrangements are likely to be more common with wheat crops. This appears to occur in China, where share tenancy is more frequent in the wheat region than in the rice region.
3. Under share arrangements, the landowner bears a greater degree of risk than under fixed crop rent agreements. Therefore, where the two types of contract coexist, it is to be expected that share rent would be slightly higher than fixed crop rent, thereby providing a return for risk-bearing to the landowner. Such a situation is observable in China.

4. By a detailed examination of contract stipulations, Cheung was able to make further observations with respect to market arrangements and contractual choice which he felt supported his hypothesis.
- (a) He noted that during periods of inflation when transaction costs associated with fixed cash rent contracts are relatively high, cash rents tend to be converted into crop rents or share contracts.
 - (b) Fixed rent agreements often include an escape clause for the tenant during famine years, during which a rental reduction applies, thereby imposing a risk burden on the landowner. Conceptually, a whole range of escape clauses could be envisaged with a higher fixed rent associated with an increased number of escape clauses. However, increasing transaction costs would be associated with further escape provisions, which would eventually lead to the supersession of this type of contract by a share contract, where multiple 'escape' provisions for the tenant are implicit. The existence of an escape clause would increase the popularity of fixed rent contracts relative to share contracts. Hence, it would be expected that share contracts would be relatively scarce where fixed-rent contracts with escape clauses exist, and the converse to apply in cases where fixed rent contracts do not have escape provisions. Cheung noted that China had escape provisions in fixed rent agreements, and that a relatively high proportion of these agreements existed there. However, other parts of South East Asia did not have such provisions in these agreements, and in these regions, share contracts were relatively more popular.

Cheung concluded his study by noting that the introduction of transaction costs and risks within a choice theoretic context provided a fruitful approach to an examination of the question of why different contractual arrangements are chosen under the same system of private property rights. However, he acknowledged that his analysis avoided certain issues, either explicitly or implicitly. As he noted, he did not consider risky choices other than those which were contractual. In addition, he abstracted from the choice and development of legal institutions, and from contractual behaviour associated with different property rights constraints.

3.2.2. Alchian and Demsetz's Study on Firm Types

Another study with a strong positive element which utilizes contractual choice concepts is that by Alchian and Demsetz (1972). They were concerned with the situation where team effort leads to greater output than separable production, and their focus was on metering input productivity and rewards under different organisational types, or the problem of shirking under team production. Transaction costs are implicit in this problem, since there are positive costs and trade-offs associated with organising and disciplining team members.

One method of reducing shirking which the authors specifically investigate is for someone to specialize as a monitor to check the input performance of team members. The question then arises as to who will monitor the monitor. They identify two potential constraints on the tendency of monitors to shirk.

The first of these is market competition offered by other monitors, although they feel that this constraint is not perfectly effective. An alternative constraint can be imposed by giving the monitor title to the net earnings of the team, net of payments to other inputs. That is, the monitor becomes the residual claimant. The authors then examine the characteristics of a range of firm types and comment on the shirking problem with respect to these alternative firm types. They begin with the assumption that the cost of managing a team's input by a central monitor, who disciplines himself or herself because he or she is a residual claimant, is low relative to the cost of metering the marginal outputs of team members. Conversely, the cost of team production is increased if the residual claim is not held entirely by the central monitor. Four firm types considered by the authors will now be reviewed.

Profit-sharing firms are the first such type to be examined according to this criterion. In this case, if all team members profit-share, then it is to be expected that losses from shirking will be greater when the team size is large. That is, if the optimal team size were only two input owners, then each has a stronger incentive to reduce shirking than if optimal team size were large, since in the latter case, only a small percentage of losses occasioned by the shirker will be borne by him or her.

The authors concluded therefore, that profit-sharing to encourage self-policing is more appropriate for small teams. In addition, they deduced that profit sharing is more viable if small team size is associated with situations where the cost of specialized management of inputs is large relative to the increased productivity potential in team effort. In support of these observations, Alchian and Demetz noted that profit sharing tends to be limited to partnerships with a relatively small number of active partners, and that these partnerships tend to be of an artistic or professional nature.

The authors then examined socialist firms which are employee owned, using as a model firms of this type in Yugoslavia. This is essentially a variant of profit-sharing firms, since all employees share in the residual. However, such firms also employ a central monitor. In these circumstances, it would be expected that losses from enhanced shirking by the monitor would exceed gains from reduced shirking by residual-sharing employees. Therefore, such a structure is unlikely to emerge naturally, and where it is politically imposed, it is to be expected that some management technique will arise to reduce shirking by the central monitor. In support of this hypothesis, the authors note that in Yugoslavia, employee committees can recommend the termination of a manager's contract with an enterprise.

The third firm type examined was the corporation, where equity capital is raised by many investors contributing small portions of a large investment. The problem then arises of how to cope with

managerial shirking when profit-sharing occurs among a large number of corporate shareholders. In such cases, decision authority is transferred to a smaller group who manages other team inputs. Two important mechanisms for monitoring this management team were identified by Alchian and Demsetz. The first was that stockholders can revise the management composition through bloc voting procedures at meetings. An alternative procedure is to sell shares when managerial policies are disapproved of. In this case, share values become an indication of managerial performance.

The presence of share markets where efficiency is ensured by the activities of investment analysts, and the widespread existence of corporate charters which facilitate takeovers provides some empirical evidence that managerial shirking is monitored under this type of organisational structure.

A fourth type of organisational structure which the authors considered was the non-profit firm, such as a mutual firm or a co-operative. Under this structure, the future consequences of improved management cannot be capitalized into the present wealth of stockholders, nor can multiple ownership shares be bought by one person. Hence, the procedures for disciplining the management of a corporation are absent under this corporate structure, and therefore, it would be expected that managerial shirking is greater in non-profit making, mutually owned enterprises. Alchian and Demsetz do not support this hypothesizing by empirical observation, but merely note that this type of enterprise would appear to be more appropriate where more shirking is desired, or where redirected uses of the enterprise in response to market revealed values is less desired.

Although Alchian and Demsetz concentrate more on the hypothesis formulation stage of theory selection rather than on actual hypothesis testing, nevertheless they do derive testable implications through their analysis of different types of organisation, and make some casual empirical observations which support their hypothesizing on managerial shirking.

3.2.3. An Evaluation of Positive Techniques Which Use Contractual Choice Analysis

The concept of positive transaction costs appears to be well-entrenched in the literature and would appear to have considerable potential for explaining why alternative contractual arrangements might emerge or co-exist under similar property rights constraints. This is particularly so when considered in conjunction with concepts such as risk aversion.

As de Alessi (1983) notes, a major advantage of the theory lies in the fact that observable predictions can be relatively easily deduced from hypotheses, and therefore, on methodological grounds, the theory is superior to any alternative explanations for the co-existence of contractual arrangements, where testable predictions cannot be easily deduced.

To elaborate, the model of economic explanation used in the positive approach, outlined in the previous Section, is essentially the

'hypothetico-deductive' model. That is, an iterative process of theory selection occurs through hypothesis formulation, followed by the deduction of observable predictions from the hypothesis, then empirical testing of these predictions. If necessary, the hypothesis is revised, and the process of deducing and testing subsequent predictions repeated. Ward (1983) elaborates on these steps.

This process is well illustrated in the Cheung analysis, but less so in the Alchian and Demsetz study. In the latter case, the authors concentrated more on formulating their hypotheses and deducing observable predictions from these hypothesis, rather than on empirically testing them.

While an acknowledged advantage of this approach lies in its ability to formulate testable predictions, potential problems could arise in the empirical testing phase of the procedure. In the first instance, empirical observations tend to be of a qualitative rather than a quantitative nature. However, in some cases, it may not be intuitively obvious how transaction costs are defined, or what the relative magnitude of transaction costs are under different contractual arrangements. For example, Eswaran and Kotwal (1985) dispute Cheung's contention that share cropping involves greater transaction costs than a wage contract. Since aspects of transaction costs are not quantifiable, the explanatory power of the model is restricted in such circumstances.

Secondly, the casual nature of some of the empirical analysis in this type of study gives cause for concern. To quote an example, Cheung deduced that when escape clauses occurred in fixed rent contracts, then share contracts would be rare. He duly noted that in China, where such escape provisions were common in fixed contracts, a relatively high proportion of such contracts existed. However, in other parts of South-East Asia where such provisions are not common in fixed-rent agreements, share contracts are more in evidence. Therefore, on the basis of this and other qualitative observations, he accepts the hypothesis that contracts are chosen to maximise the gain from risk dispersion subject to the constraint of transaction costs. However, the very general nature of this empirical observation on the relative frequency of share contracts makes the implicit assumption that all else is held constant somewhat suspect, and therefore, must increase the probability of accepting a null hypothesis which is false, or of rejecting one which is true.

Transaction costs analysis appears to have considerable potential for explaining important aspects of contractual choice. However, the above caveat on its use in a positive analytical sense must be kept in mind, and the concept of transaction costs utilised in any study would need to be carefully defined, with due attention being paid to measurement aspects.

3.3 The Normative Approach

3.3.1. Shavell's Study on Risk Sharing and Incentives

Shavell (1979) concerned himself with optimal arrangements for risk-sharing and incentives in the principal/agent relationship. Transaction cost concepts enter into his analysis to the extent that a

random element is associated with the outcome of an agent's effort on the principal's behalf. In addition, the principal may have imperfect (or no) information on the agent's effort, and the problem of moral hazard may arise from inappropriate incentive structures.

More specifically, Shavell considered the situation where the principal benefits from the outcome of the agent's activity. This outcome is determined by the agent's effort and a random element. The principal then pays the agent a fee. The question which arises is how this fee should be related to outcome or the agent's effort when alternative assumptions are made on attitudes to risk-bearing and on the extent and quality of the principal's information on the agent's effort.

A set of assumptions limiting the scope of the analysis were then made. Specifically, it was assumed that:

- a) The principal and agent act to maximise expected utility, where the principal's utility depends on wealth, while the agent's utility depends on wealth and effort.
- b) The outcome depends on effort and a random state of nature, but increased effort results in a higher outcome regardless of the state of nature. In addition, the agent makes a decision on effort before the state of nature is known.
- c) The fee depends only on variables known to both parties.
- d) Mathematical functions are assumed to have the usual properties and solutions are assumed to be unique.

Having made such assumptions, the problem of how to set a fee schedule which provides adequate performance incentives while appropriately allocating risk was then represented symbolically. First, take the situation where the principal knows only the outcome, x . Now, given a fee schedule, the agent selects effort, e , which maximizes his or her expected utility.

Therefore, in this case, the principal will pay a fee, Φ , such that $\Phi = \Phi(x)$. The agent maximizes expected utility over effort, e .

$$(1) \quad EV(\Phi, e) = \int V(\Phi(x), e) r(x; e) dx$$

where V is the agent's utility and $r(x; e)$ is the probability density of the outcome, x , given effort, e .

However, where the principal knows the outcome, x , but also has an observation, z , on the agent's effort, then he or she will pay a fee, Φ , such that $\Phi = \Phi(x, z)$. In this case, where the agent maximizes expected utility over effort e , then

$$(2) \quad EV(\phi, e) = \iint V(\phi(x, z), e) q(z/x; e) dz r(x; e) dx$$

where $q(z/x; e)$ is the probability density of the observation on effort, z , given the outcome, x , and effort, e .

Turning to the principal's expected utility, when a fee schedule and agent's effort are given, this is represented by

$$(3) \quad EU(\phi, e) = \int U(x - \phi(x)) r(x; e) dx$$

where U is the principal's utility.

Therefore, the problem of the principal and agent is to find a Pareto optimal fee schedule. Now a fee schedule, ϕ , is Pareto optimal if it solves the problem

$$(4) \quad \max EU(\phi, e) \text{ over } \phi$$

subject to

$$(5) \quad EV(\phi, e) \geq V_0$$

where V_0 is determined by bargaining power or market forces (that is, the utility level which the agent could achieve by going elsewhere), and

$$(6) \quad EV(\phi, e) \text{ is maximised over } e$$

It is assumed that the first-order condition

$$(7) \quad EV_e(\phi, e) = 0$$

identifies the solution to (6). The problem of maximizing $EU(\phi, e)$ over ϕ and e subject to (5) only describes a Pareto optimum solution where e as well as ϕ can be directly chosen.

Shavell then solved the above constrained maximization problem, and derived propositions appropriate for different attitudes to risk and for different assumptions on information on the agent's effort available to the principal.

For the case where the principal has no information on effort, the fee depends on outcome alone. If the agent is risk neutral, there exists a Pareto optimal fee schedule under which the agent is paid the outcome minus a constant which is the risk-averse principal's share. Such a schedule allocates risk in a desirable way and provides the right incentive to the agent.

However, when such an agent is risk-averse, the above solution subjects the agent alone to the risk associated with the outcome. On the other hand, insuring the agent against risk by setting a fee equal to a constant leaves no incentive for effort. In this case, a Pareto optimal fee schedule would be one where the agent is paid an amount which must depend to some extent on the outcome, but the agent never bears all the risk.

Shavell then turned to the situation where the principal has information about the agent's effort, in which case the fee may depend on both the outcome and the indicator of effort. Where the agent is risk-neutral, the Pareto optimal fee schedule is one under which the agent is paid an amount which depends only on the outcome. That is, the information on the agent's effort is of no value, since as in the previous risk neutral case considered, the optimal fee schedule is one where the agent is paid the outcome minus a constant.

However, where the agent is risk-averse but the principal has information on the agent's effort, then a Pareto optimal fee schedule is one where the fee depends partly on this effort, thereby removing from the agent some of the risk associated with a risky outcome. Shavell noted that the actual extent to which the fee depends on effort depends on the degree of accuracy with which effort can be observed. A complication to the analysis is introduced by the fact that the principal introduces a new source of risk by relying on imperfect information about effort. However, despite this new risk, a Pareto-optimal fee schedule would still depend on this information. Hence, information about effort always has some value where the agent is risk averse.

To conclude, Shavell considered examples of the principal-agent relationship. These included strict liability versus negligence standards in the control of stochastic externalities such as environmental damage, moral hazard and insurance, lawyer and client relationships, and contracts between shareholders and the manager of a firm. By using the results of his analysis, he was able to make normative judgments on the appropriateness of alternative contractual arrangements in each of these cases.

3.3.2. An Evaluation of Normative Techniques Using Transaction Cost Analysis

The methodological technique employed by researchers such as Shavell (1979) to tackle normative issues arising from the principal-agent relationship belongs to the so-called 'radical apriorist' school of economic reasoning. Practitioners of this approach perceive economic theories to be systems of logical deductions from a series of postulates derived from introspection, and as such, these theories are not subject to empirical validation (Ward, 1983). Therefore, the only relevant test of any particular proposition derived by using this technique is the validity of the logic used to derive the propositions from the general assumptions.

This process can be demonstrated by reference to the above study, where propositions on optimal arrangements with respect to risk-sharing and incentives in the principal-agent relationship were derived. In order to do this, Shavell made a number of general assumptions, including which variables determine utilities, outcomes and the fee schedule. Using these assumed relationships, the problem of how to set an optimal fee schedule was then formulated mathematically as a constrained maximization problem. The first-order conditions associated with this function were then derived using appropriate mathematical techniques, and propositions were derived from the solution procedure. Once such propositions have been established,

they can be used as a Pareto-optimal benchmark against which to evaluate existing contractual arrangements with respect to risk-sharing and incentive structures.

The advantage of this type of analysis is that normative guidelines can emerge, against which the actual performance of marketing channels can be evaluated. However, caution is warranted with such an approach, since the problems which tend to be investigated are quite specific, and dependent on assumptions about the operation of an economic system which may be somewhat restrictive. In particular, variables which influence relationships may be quite limited.

A second limitation arises when propositions which are derived from different studies are used as a checklist against which to evaluate the performance of actual systems. However, the propositions from one study may have been derived under a different set of assumptions to those which emerge from another study, and there may be little indication as to how robust such propositions are with respect to changes in these assumptions.

It must be stressed that the above criticisms are in no way confined to analyses using transaction costs concepts, but are general to all studies of this type, regardless of the economic notions which are employed. The concerns expressed above in no way invalidate economic theories which arise from this analytical technique, but merely indicate caution in their application.

CHAPTER 4

CONTRACTUAL CHOICE CONCEPTS AND MARKETING CHANNEL ISSUES

4.1 Introduction

The use of contractual choice concepts such as transaction costs has become increasingly popular when assessing the emergence and performance of alternative contractual arrangements. Despite this burgeoning literature with its wide range of applications, the use of these concepts in analysing choices and incentives in agricultural marketing channels is relatively unknown. One exception to this is a study by Zusman and Etgar (1982) who derived an equilibrium set of contracts for a marketing channel, which they then evaluated in terms of risk-sharing, allocative efficiency and the distribution of gains. A more specific analysis was undertaken by Zwart (1984) who attempted to explain aspects of exporter behaviour and marketing effort in the New Zealand meat industry prior to centralised Meat Board control by using transaction costs concepts.

The extent to which such concepts assist in evaluating the marketing channel issues identified previously will now be examined. As a first step in this procedure, some of the factors which influence the nature of contractual arrangements between a producer (the principal) and his or her agent will be examined. In doing so, it will be assumed that both the principal and agent in any contractual arrangement are risk averse. The discussion, therefore, will centre on the magnitude of transaction costs, and factors which influence these.

Recall that transaction costs were broadly defined to be the costs associated with discovering prices. Its more sophisticated variants include more detailed components of this price discovery process, such as the actual costs of contract negotiation, uncertainty and information asymmetries associated with both demand and supply, and the various facets of agency costs associated with the relationship.

4.2 The Distribution of Natural Risk and Information

Some examples which illustrate these natural risk elements associated with information imperfections are now outlined, and some casual hypothesizing is undertaken with respect to transaction costs and contractual arrangements.

Consider an industry which started as a result of an exporter's effort in securing a market. This exporter would then seek product with which to supply the market. However, if the product was unknown to producers, then the exporter may have to offer forward contracts to induce the supplier to produce the crop. In this way, the exporter bears the price risk, while the supplier bears the risk associated with an unfamiliar product.

Contrast this situation with that where supply is production driven rather than market driven. In this case, the supplier has

product available, and requires an agent to find a market for this output. However, the agent may be unwilling to bear the price risk associated with a product whose market potential is unknown. Therefore, the producer may have to relieve the agent of this potential price risk by contracting a commission selling arrangement.

These two examples illustrate how different contractual arrangements may arise in seemingly similar circumstances. In the first case, natural risk was greater on the supply side, thereby leading to a contractual arrangement where the exporter bears the price risk. In the second situation, such risk is concentrated on the demand side, in which case the producer may accept the price risk.

Further consideration of the balance of this risk over time may also lead to insights into why contractual arrangements in an industry change. Consider the linseed example. In this case, the stimulus came from exporters who perceived export opportunities for the product. They offered producers forward contracts as an inducement to grow an unfamiliar crop. However, the exporters were unable to realise these forward prices which they had offered. As a consequence, they declined to offer such contracts in the following season. However, growers by that time were more familiar with the crop's cultural requirements and asked exporters to operate on their behalf as commission agents in export markets.

Initially, risk by both parties was perceived to be greater at the supply end, which may have led to forward contracts being offered. However, as growers became more established, but markets appeared more uncertain, this balance of risk changed, which may have caused a change in the contractual selling arrangement. Hence, contractual options may have 'flip-flopped' as a result of changing risk perceptions in growing and marketing the product.

The nature of this type of risk might also explain why similar channel options appear to occur in some industries. For example, where demand risk is seen to be greater, all agents may wish to offer a commission selling arrangement, and compete with each other at the margin. In this case, forward or fixed pricing agreements might not emerge.

4.3 The Nature of the Product and Contractual Options

It is possible to envisage situations in which the nature of the product influences the contractual arrangement. In some cases, the producer is responsible for determining the final form of the product, whereas in other cases he or she may be supplying a relatively homogenous input for a highly processed product.

Where the supplier essentially determines the final form of the product, then processors or agents may set up forward contracts with growers, with fixed prices and product specifications. In the second situation, however, pressure may lead to some type of auction or exchange emerging fairly early in the marketing process, where property rights to the output are transferred from the grower to a commodity dealer or processor, who then directs the input into the next stage of the process. Alternatively, an institution operating collectively on

behalf of individual producers may emerge to direct homogeneous product to alternative end uses on behalf of producers. Such institutions essentially operate as commission agents and suppliers receive a pool price from product disbursement.

4.4 Agency Considerations

Consider the evolution of marketing channels in the context of agency relationships. In the barley industry, companies initially offered growers a fixed price for their product. However, these prices appeared to get out of line with the world product price, thereby creating an agency problem for producers. A group of growers responded by setting up their own co-operative which sold on commission and returned growers a pool price.

It is of interest to note that the companies apparently raised their price to suppliers in response to the threat of producer co-ordination, and eventually switched to operating pooling arrangements as well. In this case, it proved relatively easy for producers to monitor company performance, and to force down agency costs associated with the relationship by opening up an alternative marketing option.

However, in his study of exporter behaviour in the New Zealand meat industry prior to 1982, Zwart (1984) noted instances where growers may find it difficult to monitor alternative marketing options, and hence, agency costs might not be minimized. For example, when schedule prices were set, they tended to reflect current market conditions. However, Zwart suggests that the commission agents may have been indulging in so-called weak pricing, which would suggest unfavourable market conditions, which would then be reflected in the schedule price. Hence, this schedule price would not provide a competitive check against commission selling, since it was dependent, to an extent, on the price of product sold on commission.

The co-operative ownership structure of many meat exporting firms is a further indication of why agency costs to these relationships might not have been minimized. As Zwart notes, such institutions have the ability to take over other companies, but are themselves protected from being taken over.

Therefore, unlike the barley example noted above, in this case it might not be possible to efficiently monitor channel performance relative to alternative marketing channels, and hence the extent of any agency problems might not be perceived, which would be an inhibition to channel switching or opening up a new channel.

Agency problems might also arise when channels are not contestable because of regulatory barriers to entry. Zwart notes an instance of this in the meat industry prior to delicensing. Several of the larger companies controlled the majority of the processing facilities in the country, and under licensing restrictions, they had the ability to place at least some notional restrictions on product flows of other exporting companies. The open door policy may also have limited the contestability of this market, since under this policy the producer was required to nominate an exporter at the time of slaughter.

This meant that the entry of firms who might only be associated with the marketing of carcass meats was limited to those firms who had contacts with the major processing companies. Hence, the inability of firms to specialise in the marketing of meat and not be involved in procurement from suppliers placed a potential restriction on the marketing performance of the entire industry.

This discussion implies that statutory marketing arrangements should be carefully evaluated to determine whether such channels can be monitored and whether they are contestable at arm's length, if not directly, and whether potential agency problems exist as a result of these artificial barriers to entry.

Government involvement in agricultural industries may also remove the incentive for producers to monitor agent behaviour. For example, when Supplementary Minimum Prices were being paid, there would not have been a great deal to be gained from monitoring prices received from different agents. Hence the payment of production subsidies may reduce efficiency in the marketing channel.

4.5 Marketing Effort

An analysis of incentives facing exporting firms may also give some indication as to the direction of marketing effort in alternative marketing channels. Zwart (1984), in such an analysis concluded that commission agents are more likely to be concerned with marketing effort which influences their market share or throughput. This is because it involves less risk from variable prices, and because the marginal returns from a unit increase in the final price are less than those for the purchasing agent. The purchasing agent, on the other hand, may be more concerned with marketing effort which would increase the final price of the product. Table 1 summarises agent responses in these alternative marketing channels.

This type of analysis could be used to investigate the phenomenon known in New Zealand as weak selling, which refers to the apparent lack of marketing effort in maintaining prices in overseas markets. If the major effort of firms operating on commission in the meat industry at that time was associated with acquiring livestock to increase their throughput, then they may exhibit a relative lack of concern about maintaining price discipline in the final market.

Where channels are contestable, and producers are able to monitor the performance of alternative channels, then such 'weak selling' could not persist, since producers could switch channels. This possibility would, in itself, induce commission agents to pay more attention to price-enhancing marketing effort. However, as noted previously, information distortions or non-contestable channels may reduce the producer's ability to monitor channel performance.

The above discussion indicates how an analysis of firm incentive structures may indicate whether, and under what circumstances, weak selling is likely to occur. Schroder (1985) similarly observed that this phenomenon might be related to business incentive structures.

Table 1: Comparing the Response to Marketing Effort in Alternative Marketing Channels

1. Commission Agent	2. Purchasing Agent
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Objective Function

$$R = aQ + bP \cdot Q + c$$

$$R = Q(P - P_p)$$

Response to Price Changes

$$\frac{\partial R}{\partial P} = bQ$$

$$\frac{\partial R}{\partial P} = Q$$

Response to Quantity Changes

$$\frac{\partial R}{\partial Q} = a + bP$$

$$\frac{\partial R}{\partial Q} = (P - P_p)$$

Risk Effects From Var(P)

$$\text{Var} \left\{ \frac{\partial R}{\partial P} \right\} = 0$$

$$\text{Var} \left\{ \frac{\partial R}{\partial P} \right\} = 0$$

$$\text{Var} \left\{ \frac{\partial R}{\partial Q} \right\} = b^2 \text{Var}(P)$$

$$\text{Var} \left\{ \frac{\partial R}{\partial Q} \right\} = \text{Var}(P)$$

Where R is revenue, Q is the quantity of product handled, P is the price at which product is sold, P_p is the purchase price, a is per unit commission, b represents commission charges associated with the value of the product ($0 \leq b \leq 1$), and c are fixed charges which may be levied on some other basis.

4.6 Conclusions

In the previous Chapters, a range of hypotheses on contractual evolution and agent behaviour were advanced to illustrate how transaction cost concepts might be useful in evaluating marketing channel issues. However, it must be stressed that much of this hypothesising is quite casual, and may not stand up to more rigorous empirical scrutiny.

Transaction cost concepts focus on incentives, risk and information, and the implications of these for contractual arrangements. For example, this type of analysis could indicate the extent to which an agent is likely to behave in a principal's interest, how risk is allocated, and whether transaction costs in their various manifestations are likely to be minimised. On the basis of these observations, comment could be made on the relative efficiency of alternative marketing channels, which would give an indication of whether government should intervene or withdraw from activity in these channels.

When applied in a positive sense, this type of analysis may be useful in determining why alternative contractual arrangements exist in different industries, and why such arrangements may be different in the

same industry at different periods in time. It may also assist in explaining why specific contractual forms predominate in certain situations.

It must be noted that the various contractual arrangements which would be assessed could operate in unregulated markets or within channels controlled by statute. As such, a narrow economic application of these principles might not prove to be quite so fruitful when attempting to explain changes from non-statutory structures, or from minimum levels of statutory intervention to more major statutory measures. In such cases, non-economic linkages may need to be explored.

As illustrated in previous Chapters, this approach also appears to be potentially useful in its normative context for evaluating channel performance with respect to efficiency issues. For example, the degree to which producers are able to monitor alternative channels has efficiency implications. Similarly, the extent to which channels are contestable influences the magnitude of the agency cost component of transaction costs, and also impinges on efficiency questions. The approach may also have insights to offer with respect to the relative direction of marketing effort in alternative marketing channels. This may allow comment to be made on pricing behaviour under different marketing options, and give limited information on the extent of product and market development under alternative marketing arrangements.

This type of analysis may also indicate appropriate behaviour for government agencies. When regulatory barriers to entry exist which limit the contestability of marketing channels, then government may be advised to remove such barriers. Similarly, when government policies obscure the ability of producers to monitor agent behaviour, then such policies may need to be reassessed. On the other hand, when it is difficult to monitor channel performance because performance measures are not independent, then Government may need to evaluate pricing procedures, and transmit information on relative efficiency to producers.

Notwithstanding these limitations to their use, and the qualifications noted with respect to aspects of the scientific methods employed, contractual choice concepts would appear to have considerable potential as a framework for evaluating agricultural and horticultural marketing channels. Consequently, in Appendix 1, a checklist of issues which it would be appropriate to address in an empirical study have been assembled.

REFERENCES

- Alchian, AA and Demsetz, H "Production, Information Costs, and Economic Organisation", American Economic Review 62:777-795, 1972.
- Allen, GR "An Appraisal of Contract Farming", Journal of Agricultural Economics 23: 89-98, 1972.
- Balderstone, JS et al. "Agricultural Policy Issues and Options for the 1980's." Working Group Report to the Minister for Primary Industry, Canberra, Australian Government Publishing Service, 1982, 167 p.
- Bateman, DI "Agricultural Marketing: A Review of the Literature of Marketing Theory and of Selected Applications". Journal of Agricultural Economics 27:171-226, 1976.
- Breimyer, HF "The Economics of Agricultural Marketing: A Survey", Review of Marketing and Agricultural Economics 41: 115-65, 1973.
- Brandow, GE "Market Power and Its Sources in the Food Industry" American Journal of Agricultural Economics 51 (1): 1-12, 1969.
- Campbell, K "The State Marketing Board - Relic or Prototype?" Australian Journal of Agricultural Economics 17(3):179-188, 1973.
- Cameron, RL and Duignan, PJ "Government Owned Enterprises: Theory, Performance and Efficiency", Paper presented to the New Zealand Association of Economists' Conference, Wellington, February 1984, 28 p.
- Cheung, SNS "Transaction Costs, Risk Aversion, and the Choice of Contractual Arrangements", Journal of Law and Economics 12:23-42, 1969.
- Cheung, SNS "The Contractual Nature of the Firm", Journal of Law and Economics 26:1-21, 1983.
- Clodius, RL and Mueller, WF "Market Structure Analysis as an Orientation for Research in Agricultural Economics", Journal of Farm Economics 43 (3): 515 - 553, 1961.
- Coase, RH "The Nature of the Firm", Economica 4:386-405, 1937.
- Davies, JL "Reflections on the Marketing of our Farm Produce", Journal of Agricultural Economics 14(2):128-142, 1960.
- De Alessi, L "Property Rights, Transaction Costs, and X-Efficiency: An Essay in Economic Theory", American Economic Review 73:64-81, 1983.

- Eswaran, M and Kotwal, A "A Theory of Contractual Structure in Agriculture", American Economic Review 75(3):352-367, 1985.
- Fama, EF "Agency Problems and the Theory of the Firm", Journal of Political Economy 88:288-307, 1980.
- Guter, MM and Low, EM "The British Egg Marketing Board 1957-71 - A Reassessment", Journal of Agricultural Economics 22 (3): 247-262, 1971.
- Holmstrom, B "Moral Hazard and Observability", Bell Journal of Economics 10:74-91, 1979.
- Jensen, MC and Meckling, WH "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure", Journal of Financial Economics 3:305-360, 1976.
- Klein, B "Transaction Cost Determinants of 'Unfair' Contractual Arrangements", American Economic Review 70:356-362, 1980.
- Leonard, HB And Zeckhauser, RJ "Financial Risk and the Burdens of Contract", American Economic Review 75(2):375-380, 1985.
- Logan, SH "A Conceptual Framework for Analysing Economics of Vertical Integration", American Journal of Agricultural Economics 51 (4): 834 - 847, 1969.
- Le Vay C "Agricultural Co-Operative Theory: A Review", Journal of Agricultural Economics 34(1):1-44, 1983.
- Lucas, REB "Sharing, Monitoring and Incentives: Marshallian Misallocation Reassessed", Journal of Political Economy 87:501-521, 1979.
- Rae, AN "The Role and Performance of Statutory Marketing Organisations" Discussion Paper 56, Department of Agricultural Economics and Farm Management, Massey University, Palmerston North, 1980, 13 p.
- Schroder, WR "Thoughts on Licensing Horticultural Exporters", Paper presented to the New Zealand Branch of the Australian Agricultural Economics Society, Picton, July 1985, 9 p.
- Shavell, S "Risk Sharing and Incentives in the Principal and Agent Relationship", Bell Journal of Economics 10:55-73, 1979.
- Stiglitz, JE "Incentives, Risk and Information: Notes towards a Theory of Hierachy", Bell Journal of Economics 6:552-579, 1975.
- Ward, BD "Economic Methodology and Econometrics: An Expository Essay on the Philosophy of Economic Science", Discussion Paper 1, Department of Agricultural Economics and Marketing, Lincoln College, Canterbury, 1983, 91 p.
- Warley, TK "The Future Role of Marketing Organisations", Journal of Agricultural Economics 15:550-571, 1963.

- Warley, TK "A Synoptic View of Agricultural Marketing Organisations in the United Kingdom. In Warley, TK (ed.) Agricultural Producers and their Markets. Oxford, Basil Blackwell, 1967. pp. 328-340.
- Wollen, GH and Turner, G "The Cost of Food Marketing", Journal of Agricultural Economics 21: 63-83.
- Youde, J G and Helmberger, PG "Marketing Co-operatives in the US: Membership Policies, Market Power, and Antitrust Policy", Journal of Farm Economics 48 (3 Part II): 23-36, 1966.
- Zusman, P and Etgar, M "The Marketing Channel as an Equilibrium Set of Contracts", Management Science 27(3):284-302, 1981.
- Zwart, AC "Exporter Behaviour and Marketing Effort in the Meat Industry", Paper presented to the New Zealand Branch of the Australian Agricultural Economics Society, Picton, July 1984, 16 p.

APPENDIX 1

A CHECKLIST FOR EMPIRICAL RESEARCH

A1.1 Introduction

The following checklist identifies some of the more important empirical requirements which would be necessary if contractual choice concepts were to be applied to agricultural marketing channels. Such information could then be used in a positive sense to test a range of alternative hypotheses on the emergence or existence of specific contract types. In a normative sense, it could be used to evaluate whether mechanisms exist to discipline behaviour in alternative channels.

In constructing this checklist, the contractual focus is assumed to be on the producer (the principal) and his or her agent to whom product is despatched. The required information is divided into three categories, these being market and product characteristics, contractual characteristics, and channel and industry characteristics. The listed questions are not in any order of importance, nor is it suggested that detailed information on all these aspects of contractual behaviour will be necessary in every case.

A1.2 Product and Market Characteristics

- Is output/yield variable?
- What factors influence output/yield variability?
- To what extent output/yield variability be attributable to chance (e.g. weather)?
- How familiar are producers with the crop/product?
- What alternative production opportunities are open to producers?
- Is the producer's initial investment in the product relatively high?
- What is the production cycle for the crop?
- How perishable is the product?
- Is the product supplied by the producer essentially homogeneous (with few grades and perhaps minimum quality standards)?
- Does output as supplied by the producer tend to be of variable quality?
- To what extent does the producer determine the final quality of the product?
- Can the producer distinguish between product qualities?
- When output leaves the producer, how close is it to its final form?
- Are there diversified end uses for the product in its final forms?
- How much does the producer seem to know about the final end uses of the product?
- Do a great number of transactions take place before the product finally reaches the end user?
- How much does the agent seem to know about the final end uses of the product?

Can the agent distinguish between product qualities supplied to him or her?
 To what extent does the agent know more about demand conditions than the producer?
 Are agents long-established operators with the product or market?
 Is the product relatively familiar or unfamiliar in final markets?
 Are there long established product outlets?
 Are quality controls in operation in final markets?
 How sensitive are markets to quality variations?
 Is there an outlet for low quality products?
 Is the product branded?
 Who are the known competitors in markets?
 To what extent are NZ producers relatively important suppliers to final markets?
 Are volumes which more from NZ large enough to capture economies of scale?
 Do product prices have a history of being variable?
 Is it possible to attribute product price variability to either demand or supply factors?

A1.3 Contractual Characteristics

Does the agent buy the product?
 Does the agent have a number of options on where to direct product?
 Is the agent obliged to take all product offered to him or her subject to minimum quality standards
 Does the agent pass product on to an auction or exchange?
 Does the agent pass product on to a final market or buyer?
 Does the agent transform the product before passing it on?
 When do property rights to the product change hands?
 Does the agent operate on commission?
 Does the agent offer forward contracts?
 Does the agent offer a range of contracts?
 How clearly does price alone signal what the agent requires?
 Are product specifications given to producers along with price?
 What are the contract details?
 Are there escape provisions in the contract?
 Is the contract standard or is it individually negotiated?
 Do contracts seem simple and robust?
 What is the duration of contracts?
 How does the duration of contracts match with production cycles?
 How easy is contract violation on either side?
 What type and degree of risk does the agent bear?
 What type and degree of risk does the producer bear?
 What is the agent's risk preference?
 What is the producer's risk preference?
 Is the agent specialising in contacts and price information?
 What is the agent's margin?
 How easily can the agent's effort/performance be observed by the principal?
 Does the agent make attempts to bond to the principal?
 To what extent does the agent provide production inputs?

To what extent is agent behaviour in the next dyad aimed at increasing prices?

To what extent is agent behaviour aimed at maximising throughput?

A1.4 Channel and Industry Characteristics

What is the ownership structure of the agent's firm?

Is the agent's firm subject to takeover?

How important is this agent activity to the overall operation of the agent's firm?

How easy is monitoring information to come by for the principal?

Is the agent likely to engage in price-enhancing activity and what form would this take?

Is the agent likely to engage in volume-enhancing activity?

To what extent is agent effort supply directed or demand directed?

Can producers operate with a range of agents?

At the margin, what selections between channels can be made?

Are there transaction costs associated with opening up another channel?

What other channels are in operation?

Which are most important?

Do other agents offer the same type of contract to producers?

Are charges or prices offered by other agents similar?

What is the level of risk associated with alternative channels?

What risk dispersion arrangements operate in other channels?

Do other risk dispersion arrangements exist (e.g. third party insurance)?

How easy is it to monitor performance in alternative channels?

Are channel performance measures independent?

Is there a history of frequent entry to and exit from the industry by agents?

To what extent has vertical integration occurred?

Are there natural barriers to entering channels?

Are there regulatory barriers to entering channels?

Does government intervene to offer producer subsidies?

Does government intervene to offer agent subsidies?

Is government operating in any other way in the channel?

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