COORDINATION AND COOPERATIVES:

A COMPARATIVE STUDY OF THE APPLE SUBSECTORS

OF NORWAY AND MICHIGAN

By

Mojdeh Hojjati

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Agricultural Economics

1988

ABSTRACT

COORDINATION AND COOPERATIVES:
A COMPARATIVE STUDY OF THE APPLE SUBSECTORS
OF NORWAY AND MICHIGAN

By

Mojdeh Hojjati

This study analyzes the differences in the economic coordination of the apple subsectors of Norway and Michigan. A framework for analysis is developed for empirical analysis of the process of coordination, giving income distribution a key role in determining what form this process finally takes. This framework is used to analyze the situational characteristics of each area's apple subsector, and to generate hypotheses about the subsector organization likely to develop out of these situations. The actual structure of incentives in each area are then examined in relation to three issues: (1) short-run and (2) long-run matching of supply with demand in the fresh market and (3) price determination within the fresh and processing channels. The potential and actual role of farmer cooperatives in the coordination process are also discussed. Finally, the conduct of subsector participants and the resultant performance are examined.

ACKNOWLEDGEMENTS

Writing a thesis often seems like an interminable task. With the help of many people, the task is finally completed. I owe thanks to more people than I can name here, but by far the greatest debt is to John Staatz, my major professor. His endless store of patience and support (and suggestions for improvement!) will never cease to amaze me. Allan Schmid's insight contributed greatly in formulating the approach to this research, and to sharpening the final product. James Shaffer brought me into this project to start with, and I thank him for his support.

This is a comparative study in which people from both sides of the Atlantic have contributed. The United States Department of Agriculture's Agricultural Cooperative Service funded my research in Michigan, for which I am grateful. I thank Donald Ricks, who gave me constant encouragement and support. He was also my richest source of information and guidance in Michigan with his in-depth knowledge of the Michigan apple subsector and all its participants. The many people I interviewed for this study were also invariably helpful and generous with their time.

In Norway, I especially want to thank my two guardian angels: Per Ove Røkholt and Solveig Volle. Per Ove's support and encouragement continually opened new doors for me, and Solveig's friendship gave me the strength to carry on my research in Norway.

Thanks go to the Department of Agricultural Economics in the University of Aas for funding a survey of growers, and to Gartnerhallen for funding my trip to Norway's west coast. In Gartnerhallen, particular thanks go to Geir Isaksen for his support and to Martin Nodenes and Helge Løtveit for the many hours spent patiently answering my endless stream of questions. I cannot leave out Lars Tjugum, whose hospitality and warmth made my short visit to Leikanger both fruitful and memorable. Many others who are not named here also gave generously of their time and contributed to my understanding of the intricate structure of Norwegian agriculture. Despite the efforts of all these people, there are undoubtedly errors in my interpretation of Norway's agricultural sector in general and the apple subsector in particular. I apologize for these mistakes, and hope no one is offended.

Many good friends in East Lansing contributed to my mental health, and therefore to this study. Phil Post, Cheryl Danley and Floridalma Castillo were a source of warmth and support in and out of Chittenden Hall, while George Bowles, Fariba Khaledan and Nicole Smith helped keep the academic life in perspective. In the final months, Manfred Zeller was also a valuable support to me.

Finally, the last words and deepest thanks go to my family for their unwavering love and support. And so to Moosa, Mahvash and Mahsa (Fesghel Bademjoon) I dedicate this thesis.

TABLE OF CONTENTS

LIST OF FIGURES AND EQUATIONS

CHAPTER ONE

ANALYTIC FRAMEWORK AND PROBLEM STATEMENT

Economic coordination is both a dependent and an independent variable: it results from and in turn influences a particular distribution of costs and benefits. The form that this process takes is a reflection of the ability of various market participants to make their interests count, and this ability is largely a function of the formal and informal institutions ordering participant relations. This study examines two existing ways of coordinating one subsector, and compares the implications of each for the distribution of costs and benefits among market participants.

Economic coordination is seen here as the process of matching supply with demand in adjacent stages of commodity systems, taking into account how the interests of various actors get counted. Any functioning market develops this process in some form through the interaction of the power, needs, goals and constraints of market participants. The outcome of these interactions distributes costs and benefits, and related goods and services, in a particular way. Problems arise when this resultant distribution -- and its absolute level as well -- is unsatisfactory to enough market participants that they begin to agitate for change. It is at this stage that policymakers and other participants not directly

involved in the transactions become aware of the implications of the existing coordination process -- a process they may have originally been involved in formulating. Institutions that were developed to guide the coordination process are called into question, or new ones are demanded. In order to understand the origins of problems, and the potential effect of various proposed remedies, it is essential to have a thorough understanding of the intricacies of the existing process. Such an understanding is the first step to being able to judge the actual and potential effectiveness of existing mechanisms, as well as the possible form and implication of institutional changes.

This study examines coordination in the apple subsector as it occurs in Michigan and Norway. The role of institutional structure and its relation to the political and economic setting is discussed. In each country, the existing process distributes costs and benefits in a particular way, and leads to widespread discussion of particular issues. While the thesis examines all major coordination mechanisms, it gives a special focus to the role of farmer cooperatives in each country. Farmer cooperatives are a much-touted coordination mechanism across the world, thought to have the potential to empower the traditionally weakest element in the subsector, as well as having a potentially useful role in the coordination process. By looking at the different role or position of farmer cooperatives in Norway and Michigan, it may be possible to understand better what potential farmer cooperatives

have, and what factors contribute to or detract from the acheivement of this potential.

The approach to the analysis of coordination this study takes has many differences and certain similarities with previous approaches. The next section explains the approach used here and its differences with alternate approaches. Following sections identify and briefly discuss the specific coordination issues to be studied, and outline the potential strengths of and pitfalls for farmer cooperatives as coordination mechanisms.

I. THE PROBLEM OF COORDINATION[1]

A. Introduction

Agricultural economists have devoted much effort in recent years to developing the concepts of "economic coordination" and "vertical coordination." Particularly noteworthy is the work carried out by Marion and his colleagues under North Central Regional Research Project NC-117 (Marion, 1986). This section attempts to develop more fully an operational definition of economic coordination, arguing that previous analyses have tended to confuse economic coordination as a goal with economic coordination as a process and have often given insufficient attention to the income distribution consequences of alternative coordination mechanisms. The section also presents an analytic framework for empirical studies of coordination issues.

---

1. Sections A-E are adapted from Hojjati and Staatz.

This section is organized as follows. Parts B and C review the theoretical approaches to economic coordination implicit in simple neoclassical models and in transaction cost economics, while Part D reviews and extends the approach to coordination developed by NC-117. Part E presents the analytic framework for empirical studies. This framework is then used in following chapters in the comparative study of coordination in the apple subsectors of Michigan and Norway.

B. Two Standard Neoclassical Approaches

Agricultural economists often describe vertical coordination as the process by which adjacent stages of commodity systems are organized in order to match supply with the quantities and qualities demanded at adjacent stages. Standard economics texts do not address coordination as a distinct issue, referring to it more generally as something that prices have the potential to accomplish in the process of their creating incentives for achieving economic efficiency (Friedman, p. 30). In simple neoclassical models, prices are assumed to do the work of the coordination process by creating incentives that move the economy towards an equilibrium.

The simplest economic model is the perfectly competetive market. It assumes perfect knowledge, foresight and mobility of assets and hence, no transaction costs. All agents are assumed to be price takers and there exist no transaction costs, barriers to entry/exit, externalities or increasing returns to scale. All

individuals behave in a rational, self-interested manner, with consumers maximizing utility and producers maximizing profit. The well-known result is that under these conditions perfectly competitive markets will lead to consumption efficiency (all consumers' MRS's are equal), production efficiency (all producers use inputs such that the MRTS's are equal) and product-mix efficiency (in the economy as a whole, the MRT of goods for each other equals the consumers' MRS for those goods), using prices as the allocative or coordinating mechanism. However, there exist many possible efficient outcomes fulfilling these criteria, and the model does not purport to tell us which outcome is preferable. Furthermore, perfectly competitive markets can maximize social welfare only if the distribution of rights and resources are "right", that is, if "each consumer can buy the consumption bundle which corresponds to the welfare-maximizing configuration of the economy" (Layard and Walters, p. 26). If this distribution is "right" and the assumptions of the model are met, prices carry all necessary information on the relative desirability of different goods, costs of production, and the availability of each good, all of which assure coordination of the economic system (Schotter). If any of the aforementioned conditions or assumptions are violated, free markets will not result in efficient outcomes.

Obviously, the assumptions of this model are extremely stringent. One attempt to relax the assumptions of this very simple model is the theory of perfectly contestable markets. This theory drops the assumption that producers are price-takers, but

by stessing the assumption of absolutely no barriers to entry or exit, it virtually ensures the same results as the perfect competition model (Nicholson, p. 465). As the underlying assumptions of the model are made more realistic (that is, as markets are allowed to become less contestable) the resulting analysis becomes more indeterminate, making it more difficult to justify relying on prices to do all the work of allocating resources. Indeed, the price system fails to convey all information necessary for efficient resource allocation if there exist imperfect information, uncertainties, imperfect competition, externalities, or public goods (Nicholson, p. 658).

Another problem with these models is that they put the initial distribution of rights and resources outside the analysis. Prices are then considered to be an unbiased reflection of supply and demand for products, usually with little recognition that the initial distribution has a significant effect on what is supplied and whose demand is heard. That is, the initial distribution of resources is one of the factors that determine prices and hence the way in which activities in the economy get coordinated.[2]

C. Transaction Cost Economics

Transaction Cost Economics (TCE) is a body of economic theory that builds its foundations on some of the aspects of reality explicitly assumed away by the preceding simple models. It is a branch of economic analysis that originated with Coase in 1937 and

---

[2]. This is discussed further in Shaffer (1985).

has been most recently expanded by Williamson. TCE is an extension of earlier neoclassical approaches, but is different from the simpler models in that it includes opportunism and bounded rationality in its behavioral assumptions.[3] Given these assumptions, transactions can no longer be thought of as costless. This cost is compounded by asset immobility, i.e. that assets are specific to certain uses, with some assets more specific than others. According to Williamson, transaction costs, or the costs of running an economic system, are the major factor in economic organization (1985, p. 17). While the neoclassical approach focusses on production costs, TCE considers both production and transaction costs, with the primary source of difference between transactions being asset specificity. It is this condition, along with opportunism, that makes investments risky. The major concern of economic organization is then to minimize the sum of production and transaction costs. Even though drawing up complicated contracts or governance structures has a cost, it is worth it if this results in an even greater savings due to a decrease in the costs associated with risk, uncertainty and opportunism. In Williamson's own words, "TCE sees the problem of economic organization as devising contracts and governance structures that

---

3. Williamson (1981) defines opportunism as "self-interest seeking with guile", a situation in which econimic actors will, for example, strategically lie or take advantage of unforeseen contingencies that may arise in a contract to extract concessions from their trading partners. Bounded rationality refers to a situation in which economic actors act rationally, but within the constraints imposed by imperfect information and the actors' limited capacity to analyze it.

have the purpose and effect of economizing on bounded rationality while simultaneously safeguarding transactions against the hazards of opportunism" (1985, p. xiii). TCE hypothesizes that if an institutional form (or coordination mechanism) such as a farmer cooperative minimizes the sum of production and transaction costs for a given activity, it will have a competitive advantage and hence tend to dominate that activity. Organizational design is therefore seen as part of the process of economic optimization. The goal of policy, in Williamson's view, should be to remove impediments to the emergence of efficient coordinating mechanisms.

One shortcoming of TCE is that it focuses on minimizing costs as the sole criterion for selecting among alternative institutions without raising the question of <u>whose costs</u> get taken into account under these alternative arrangements. Different institutional arrangements have different consequences for the distribution of costs and benefits among market participants. Alternative arrangements also have implications for the distribution of the rights and resources necessary to affect the future distribution of costs and benefits. From a public-choice perspective, information on the distributional consequences of alternative institutional arrangements is also an important criterion for choice about what sorts of institutions should be fostered in society. Although Williamson appears to recognize that factors other than narrowly defined "efficiency" (e.g. dignity) are important, he does not develop them as central parts of his paradigm.

Williamson touches briefly on the distributional issue when he contrasts "property rights literature" and TCE. Williamson explains that the former emphasizes the importance of ownership rights, and that resource misallocations occur because of mistaken property rights assignments that create "incentive deficiencies" (1985, pp. 26-27). He then distinguishes TCE as an approach that accepts the importance of ownership and incentive alignments and "adds the proposition that ex post support institutions of control matter" (1985, p. 29). Since potential conflicts cannot all be identified in the ex ante stage, ex post bargaining is pervasive and institutions of private ordering become crucial.

However, the distribution of rights and resources has a much more fundamental significance than Williamson appears to give it. Even if bargaining is pervasive, the initial distribution of rights and resources determines who can bargain and what they have with which to bargain. This affects how costs and benefits will be distributed and what the likely result of ex post conflicts will be.

D. The NC-117 Approach

The NC 117 Research Project on the organization and control of the U.S. food system is a source of much literature on an array of theoretical and practical topics related to market structure and coordination. Although rich with ideas on the nature of coordination, the literature does not contain a definitive, consistent paper on the concept. Here, the ideas scattered

through that literature are brought together and further developed, with the goal of constructing an operational framework for the analysis of coordination in empirical work.

Marion defines vertical coordination as both a process and a state. As a process, he uses Mighell and Jones' characterization of vertical coordination as "all the ways of harmonizing the vertical stages of production and marketing" (Marion 1986, p.60). He sees coordination as a continuum from "perfect coordination... a perfect match between the goods coming out of an efficiently organized pipeline and the preferences of customers", to "zero coordination... no match at all... using this interpretation, there is no such thing as an ongoing system that is uncoordinated" (Marion 1976, p.180). In effect, then, he uses the process of coordination to mean the process towards the ideal state of coordination.

As a state, he draws on Lang's observation of coordination as "the objective of a perfectly harmonized state" (Marion 1986, p. 61). In this state, Marion compares the notion of coordination with that of economic efficiency. For this very reason, this study avoids using coordination as an ideal. As argued earlier, the concept of economic efficiency has embedded in it value judgements about the existing distribution of rights. Measuring the coordination of a market system, i.e., the level of achievement of an ideal, also requires valuation and judgements about the rules of the game of market transactions. Market participants often have conflicting goals and incentives, and

therefore conflicting conceptions of what coordination means and how it should be pursued. A definition of coordination needs to give explicit attention to such conflicts. Existing methods of organization are a function of whose interests get counted as much as a function of production and transaction costs, and these costs are themselves affected by whose interests are counted.

Here, coordination is defined only in the sense of a process. Furthermore, it is not viewed as a process whose outcomes can be clearly ranked from zero to some ideal state. Rather, it is seen as all ways of equilibrating supply and demand in adjacent stages of commodity systems, taking into account how the interests of various actors get counted. Here, as in Marion's definition, there is no such thing as a lack of coordination. Supply and demand always are equilibrated in some way. Markets always clear, but it is how they clear that may cause discontent. For example, they may clear through the build-up of "unwanted" inventories, which is disadvantageous to producers of the commodity and those who have to bear the storage costs, but beneficial to those who provide storage services. There are many different ways of coordinating, with different implications for the absolute level of production and transaction costs as well as their distribution. In the cases where unambiguous "missed opportunities" (i.e. Pareto-better solutions) exist, the approach approach outlined here is in harmony with the approaches discussed earlier. However, most economic reorganizations also imply a redistribution

of costs and benefits by some redistribution of rights and resources.

Limiting coordination to a process does not entirely avoid the value problem addressed earlier. Even though the effort will be to describe rather than judge performance, value judgements are made when choosing the characteristics with which to describe it.

E. Towards a Framework for the Analysis of Coordination

The challenge in developing an operational definition of coordination is not only conceptual but also one of specifying how the definition can be put to use in empirical work. For example, what elements of coordination do we measure and how do we establish what has caused a particular subsector to be coordinated in a particular way? The framework presented in this section is designed to generate hypotheses concerning subsector organization likely to emerge out of a given situation. It also aids in the the collection and ordering of information regarding coordination in specific settings in order to establish why coordination takes the form that it does in those settings and how it might change if alternative policies, etc., were implemented. Although the framework owes a great deal to the work of Bain, Scherer, Schmid, Shaffer and Marion, it modifies their ideas extensively. It was developed for use in this analysis of coordination in the apple subsectors of Michigan and Norway, and has potential for application to the analysis of other areas of coordination.

Analysis of coordination can be divided into four major categories: Situation, Structure, Conduct and Performance. Each of these have a number of more specific subcategories. The purpose of these categories and subcategories are to help identify and order the factors that determine how coordination takes place. These determining factors may not always fit neatly into a particular slot, but an effort to categorize them can contribute to a clearer understanding of the coordination process.

The starting point of analysis is the choice of the coordination issue to be analyzed. Webster's Collegiate Dictionary defines "issue" as a "point of debate or controversy" (p. 642). This implies a relation of some sort between different people, i.e., a bond of interdependence. The debate or controversy regarding coordination arises because of interdependence and disagreement over who does and gets what within these relationships. Within the broad concept of coordination identified above, many issues could be raised for analysis. In this study, three major issues have been chosen:

1. Matching the quantity and quality of fresh apples marketed with the apples demanded in the short run (Chapter 3).
2. Matching long-run supply with long-run demand in quantity and variety of fresh apples (Chapter 3).
3. Price determination in fresh and processed apple markets (Chapter 4).

These are each coordination functions that the apple subsector performs, and over which there can be considerable disagreement on

approach and practices of market participants. They will be broken down and analyzed in the following four steps:

1. Situation:

These are the inherent characteristics of the good or service about whose coordination we are concerned.[4] These inherent characteristics are the source of participant interdependence, of potential costs and benefits. Although their existence cannot be affected, their impact can be. The inherent characteristics can be more easily detected and ordered by classifying them with respect to the following subcategories:

a. Exclusion Cost: This refers to the ease with which one can limit the use of a good or service. A physical good that is individually purchased and consumed, like an apple, has a low exclusion cost. A state's reputation for high-quality apples has a high exclusion cost, since participants who did nothing to contribute to this reputation cannot easily be excluded from its benefits. The difficulty of assessing individual costs and benefits for high exclusion cost goods is frequently a source of conflict among market participants.

b. Transaction Costs: These are primarily of three types: information costs, decision costs and governance costs. The first is the cost of gathering, processing and distributing information. The second is the cost of coming to an agreement in a group. The last is the cost of monitoring and enforcing agreed-upon contracts. The rules of the game (Structure) determine who will

---

[4]. The discussion of Situation that follows borrows from Schmid.

bear these costs, while Situation determines the source of the costs.

c. Returns to Scale: The nature of returns to scale in producing the good or service has important implications for what market structure is likely to emerge under "free market" conditions. For instance, increasing returns to scale are part of the reason that small apple packing houses tend to close down and large packing houses grow. This also makes it more difficult for a new packing house to enter the market.

d. Asset Specificity: This concerns how specific to a certain use an asset is. An apple sorting machine, for instance, cannot be used for anything but sorting apples. It is very costly to be flexible in reaction to changes in market demand when a substantial part of production costs are locked in assets specific to a certain use.

e. Frequency of Transactions: Certain transactions occur frequently by nature (Shaffer 1987). Major capital investments may occur infrequently, while the sale of fresh apples from packer to wholesaler happens both regularly and frequently. This has implications for the kind of trading structure likely to develop to order transactions, or for how costs and benefits might be distributed given a trading structure.

f. Biological Constraints: When analyzing agricultural goods, one needs to take account of the effect that weather can have, the durability of the product (e.g., how long it can be stored, how

easily it bruises), the relative ease of acheiving physical properties like uniform size and uniform color, etc.

This list is of subcategories is not exhaustive, nor are all subcategories always relevant to a specific coordination issue.

In considering situation, we also need to make basic assumptions about how people behave (are they profit maximizers? etc.). The behavioral assumptions used in this framework are the following:

a. Opportunism: People seek their self-interest with guile, trying to take advantage of any unforeseen contingencies that may arise to extract concessions from trading partners (Williamson, 1981).

b. Bounded Rationality: This refers to a situation in which economic actors behave rationally, but within the constraints imposed by imperfect information and the actors' limited capacity to analyze it.

c. Multiple Objectives: People try to satisfy more than one goal -- these goals may even be contradictory. This is not to deny that one objective may be dominant over all others, but to include the possibility of multiple competing objectives.

d. Learning by Reinforcement: Present behavior is shaped by perceived results from past behavior. People adjust their behavior constantly in reaction to the reinforcements from their environment (Platt).

e. Interdependence of Utility Functions: In keeping with the preceding assumption, it is assumed that utility functions are

interdependent. A farmer may be content with the returns from packer until he sees that another farmer is getting higher returns for seemingly similar apples.

2. Structure:

Structure gives order to the interdependencies created by Situation. It determines who has the opportunity to participate in resource-use decisions (Schmid, p.179). This is where we describe the distribution of rights and resources between the participants or groups that are involved in the particular coordination issue we are considering, i.e., the rules of the game. This is also where we describe the participants themselves; e.g., taking farmers as one participant group, we describe whether farm production is atomistically organized, whether there is a large gap of interests within the group (e.g., large vs. small farmers), and what the farmers grow (e.g., specialized vs. diverse crop production). Structure can be divided into three major sub-categories:

a. Market Structure: This involves a description of the market participants and the subsector organization, i.e., what the stages are between producer and consumer. Here we discuss the environment of transactions at each stage: clearly a competitive environment has different implications for power distribution than an oligopsonistic one.

b. Trading Structure: This includes the customs, covenants and contracts that define relations between trading partners (Shaffer

and Schmid, p.9). The only aspect of these relations not included here is government legislation specifying rules for trading (e.g., marketing orders).

c. Legal Structure: The government-legislated rules that form the bounds within which market and trading structure operate are identified here. For instance, the Capper-Volstead Act allows farmers to practice collusion. Whether they do or not is a different matter, and is covered in the first two sub-categories. Government-distributed rights to take part in decisions are also included here, for instance the rules allowing only farmers to vote on the formation of marketing orders.

3. Conduct:

While situation and structure define the framework, order, and characteristics of participant relations, conduct outlines what participant behavior actually is, i.e., what actions participants take that determine how the subsector is coordinated. Conduct is the link between the structure of participant relations and the result of their interactions (performance or coordination). Conduct is examined on three levels:

a. Objectives: What are the goals or incentives of each group? Although profit-maximization is often posited as the major goal of producers, there may be other (competing) objectives at work. Within groups, individuals may place different emphasis on the competing objectives (for example, level vs. stability of income).

b. Paths: Once the major objectives have been identified, one looks at the possible paths the participants could take to reach

them, given the constraints imposed by situation and structure. These paths may be contradictory, even if there is only one dominant objective identified. For instance, the dominant goal of a packer may be to maximize profit. Packers receive their income from per-pound fees on tonnage handled. Thus, their profit is a function of the tonnage consigned to them by the farmers, the tonnage sold to wholesalers, and operating costs. Low apple prices attract buyers but displease the farmers. Bagging apples (as opposed to packing in tray-packs) minimize operating costs if the packer has already invested in bagging machines, but may not attract wholesalers trying to fulfill a growing consumer preference for bulk displays. High quality tray-pack apples attract buyers and make it possible to sell at a higher price, which pleases farmers, but this increases operating costs, at least in the short run. Individual packers choose the course of action perceived to be the most likely (or easiest) path to acheiving the dominant goal. By setting out the objectives and paths in this way, we can more clearly understand the choices faced by the participants with respect to coordination, as well as recognizing the reason for differences in behavior by people in the same group (who are presumably trying to reach the same objective).

c. Action: Lastly we observe or predict which path is actually taken, that is, what conduct is or will be. If analyzing a current state of affairs, we observe what action participants take, while if trying to analyze the consequences of alternative

arrangements, we try to predict what actions are likely to be taken. Here the relative power of participants can be seen at work, as the more powerful are the more successful in their efforts to obtain as many benefits and avoid as many costs as possible.

4. Characteristics of Performance:

The interaction of situation, structure and conduct result in a series of consequences for the market and its participants, which we label coordination or performance. It represents the distribution and level of costs and benefits, the "who gets what" of the coordination issue we are considering. The analyst must decide which aspects of coordination are important to consider and which are insignificant, for "any list of performance effects is a selection from an infinite number of effects and thus is conditioned by the values... of the observer" (Schmid, p.184). The characteristics introduced below should not be viewed as ideals or goals, but as various angles from which market consequences will be viewed. On a superficial level, performance (or coordination) simply describes what the general market outcome is in relation to the particular issue under discussion. On a deeper level, performance (coordination) discusses the specific outcomes for market participants.

Performance or coordination indicators need to be broad enough to be suitable for use in the analysis of a variety of issues but

specific enough to be operationalized and used as a measure. The performance characteristics used in this research are the following:[5]

a. Price: Its stability, flexibility and level, as well as the relationship of prices to the costs of production.

b. Specification: Concerns the flow of information on preferences for and costs associated with characteristics of products, as well as the flow of information on the characteristics of the product being transferred between parties. For instance in apples, the information of relevance to specification would include what variety and pack of apples are preferred by customers and how much it costs the producer to supply those apples. Given a particular level of information, specification also concerns how the products supplied compare with what is demanded, and whether the buyer has access to enough information to recognize the quality of apple being purchased (Shaffer 1987, p.17). Often price is assumed to carry this information but it can also omit or distort information in the presence of "market imperfections".

c. Transparency: concerns "the extent to which the terms of trade of all transactions are open to observation by all potential participants in the market" (Shaffer 1987, p.17).

d. Adaptiveness to market changes: Different market arrangements result in different levels of flexibility. This includes flexibility in incorporating new opportunities and conditions,

---

[5]. The following section borrows from Shaffer (1987), with some modifications.

such as technological innovations, as well as in reacting to changes in existing variables, such as a shift in consumer preference from bagged to bulk apples.

e. Distribution of the costs associated with risk and uncertainty: Different arrangements distribute costs differently. Each participant tries to minimize her own burden and to pass on as much of the risk and uncertainty to others as possible. The resulting distribution is a reflection of the power of different participants to make their wishes count. For instance, the fact that many apple packer-shippers receive their income from flat fees on the amount handled rather than from a percentage of price received for the apples means that price fluctuations are wholly passed on to the farmers, who receive the per-pound price received by the packer, minus the flat fee. The burden of price uncertainty is borne primarily by farmers in this case, reflecting a balance of power in favor of packers.

f. Bringing consequences to bear on behavior: This indicator refers to the extent to which participants bear the cost or receive the benefits of the actions they take. In more commonly-used language, this is the idea of internalizing externalities. For instance, if a packer uses rough sorting techniques, bruises a farmer's apples and consequently sells them for a low price but still receives the same fee per pound of apples handled, he is imposing an externality on the farmer.

Externalities are ubiquitous, and to aim at internalizing all of them is not possible. Oftentimes to remove the effects of an

externality from one person means to impose it on someone else. All actions have ripple effects that can reverberate through the economy, affecting multiple participants (Schmid). The aim of this indicator is neither to identify all externalities nor to propose eliminating them. But externalities that affect participant conduct in the issue under consideration need to be recognized. If, in the above example, the farmer's reaction is to switch packers, then he has in effect forced the first packer to internalize the externality. However the farmer may stay with the same packer and react by producing lower quality apples (reasoning that they will not get a high price anyway). If a policy goal was to improve the quality of apples supplied to the market, it would be important to recognize why quality was low in the first place, in order to design effective policies.

F. Concluding Comments:

The focus of this approach is not actually the market but the analysis of institutional arrangements, and their effect as they interact with a particular setting. The categories and sub-categories are meant to generate hypotheses and facilitate analysis, by providing a means of classifying the variety of contributing factors and information the analyst unearths. It also can help point to what information needs to be gathered and what questions need to be asked.

When an analyst perceives an existing or potential issue in the coordination process, she is actually observing performance.

Thus we begin the actual analysis with performance and work backwards to trace its sources. By following it back to its roots, we come to understand why the coordination process has taken the form it has, and what this means for the different market participants. The participants observe and continually react to their environment; thus performance in one time period is incorporated into structure and conduct in succeeding time periods. The dynamic nature of the framework also allows us to take performance as a starting point, change parts of structure, and follow the effects in the short and long run. Certain structures or conduct may be desired as ends in themselves, e.g., the continued existence of family farms may be a priority of decision-makers. The extent to which these ends are reached then become performance indicators of their own.

II. COORDINATION ISSUES TO BE STUDIED

A. Quality and Presentation of Fresh Apples

The quality of the fresh apples sold to consumers is a variable on which many market participants have an effect. Quality itself is a composite variable, and can be broken down into size, color, lack of bruising and crispness. The former three are quite easy to detect, while the latter is not easily visible. Size and color are the factors over which the farmer has the most control; crispness and bruising are factors that can be positively or negatively affected at every stage from farmer to consumer.

Presentation, as referred to in this study, concerns how the apples are packed for sale, i.e., the type of box or bag in which apples are packed, and the range of quality within the pack type. This is an area that is out of the farmer's domain as producer. Apples are currently packed and presented in bags of various sizes or in tray-packs of various kinds.

After the apples have passed through more than two hands, it is very difficult to know who is responsible for the apple quality, especially in its less visible aspects. Some readers may be wondering at this point why the very important variable of taste has been left out. The reason for this is that taste is most strongly related to apple variety rather than growing or handling techniques. This is not to deny that factors other than variety have an effect on taste, only to maintain that the major factor is variety.

Providing quality apples can be fraught with problems. Who can tell what quality of apples are desired by consumers? Whose responsibility is it to disseminate this information? The less visible qualities of the apple are harder to control-- who is to blame if apples are mealy or bruised? Can the less visible qualities be made more visible? If so, whose responsibility is to to do this? Who is to decide how the apples are packed?

Quality is not only a matter of level but also of consistency: if Michigan's apples are only sporadically of excellent quality, this damages Michigan's reputation and its sales. Who is to bear the cost of inconsistency, and who will be responsible for keeping

quality consistent? These are just a few of the questions that can cause conflict and are resolved somehow in any functioning apple market. How they are resolved has a bearing not only on the quality of apples marketed but how costs and benefits are distributed in providing that quality.

B. Long Run Supply vs. Demand

If asked, few consumers would be able to say how many and what variety of apples they will want to consume five years from now. Farmers, however, regularly make planting and tree removal decisions based on such imponderables. Storage operators do the same when they decide on a size for their storage facilities, as must packers when they decide to invest in a tray-packing machine. All along the channel, participants in both the fresh and processed markets try to guess what the future will bring and make long-term investments in assets specific to certain uses based on these guesses. Once a decision is reached, it is difficult and costly to change. A farmer who plants an apple tree is, in effect, making a 40-year investment.

In such a situation, information about future market conditions is extremely valuable. This information includes what demand and supply will be. Individual farmers responding to price increases may each substantially increase plantings. Together, this leads to long-term oversupply and depressed prices for the farmers. Misinformation is also very costly, so giving advice to market participants is itself a risky and potentially costly venture.

With different tactics and plans, market participants make their investment decisions. They may do it based on a simple rolling average of the past few years' apple prices. They may pay consultants to tell them what the future will look like. They may even attempt to act collectively to control the supply side of the long-run coordination problem, or to focus their efforts on affecting total demand once long-run planting decisions have been made. But somehow, decisions must be and are made. Decisions made today about future supply reflect not only the market participants' reaction to their limited information about the future, but also the outcome of participants' struggle between the (often conflicting) needs of the short vs. long run.

C. Price Determination

For all the shortcomings of price as a coordination mechanism, and for all the misinformation it can carry in a world of uncertainty, opportunism and bounded rationality, nevertheless it remains one of the most important variables in the coordination process. Given a particular season's output, price is the single greatest determinant of many participants' income. It is also one of the central variables in resource allocation decisions for planning future output capacity. Thus the level of price, and the distribution of power to have a voice in setting this level, are important areas over which conflict can easily arise between participants.

Here, when we speak of price determination, the focus is not

only the price of apples, but also of related necessary services like storage, packing and selling. The major area of participant conflict may be what the level of prices are and how these prices are determined, but intertwined with that are the concerns of who has a hand in determining price, and how the final price pie is divided up between all the people in the subsector channel who have claims to pieces of it.

III. FARMER COOPERATIVES AND COORDINATION

Over time, a wide variety of structures can be developed by subsector participants to protect their interests in the coordination process. Some structures are suited to a specific transaction, while others lend themselves to a broad variety of situations and transactions. Farmer cooperatives are an example of the latter category. In theory, farmer cooperatives can be a powerful and effective mechanism for the furtherance of farmer interests. Farmers have often been viewed as the most disadvantaged participant-group in agricultural commodity subsector channels, being vulnerable to opportunistic trading partners and unpredictable weather.

Farmer cooperatives are touted the world over as the most effective mechanism for aiding farmers attempting to provide themselves with a more secure and stable environment by pooling risk, losses, and their (often) individually slight power. All over the world, farmer cooperatives have been formed; sometimes by the farmers themselves, other times at the urging of outsiders.

Their success has been mixed. The credit given to the cooperative as a coordinating mechanism, and its mixed record of success, raise two broad questions:

a. Why are farmer cooperatives considered to have such potential?

b. Why have so many not reached this potential?

To shed some light on these questions is the goal of this section. They are analyzed using the framework previously introduced, focussing mainly on the subcategories of situation. With the use of these subcategories, we will see how cooperatives can potentially affect situation, and how situation creates barriers to the acheivement of this potential. At this stage we are considering only the generic cooperative. In later chapters, the specific potential and actual role of farmer cooperatives in the coordination of the apple subsectors of Norway and Michigan will be discussed.

Cooperative Potentials and Problems

A. Transaction Costs and Asset Specificity:

As pointed out by Williamson (1985), transaction costs stem from the existence of bounded rationality and opportunism, interacting with the condition of asset specificity. Institutions that minimize the transaction costs incurred by a group will be favored by that group. Thus cooperatives can exist where they are able to economize on the transaction costs which farmers face, providing that the transaction costs of forming the cooperative do

not outweigh any potential savings. These transaction costs can be further subdivided into decision costs, information costs, and the costs associated with asset specificity.

1. Decision Costs: An individual farmer does not have to consult with anyone or seek anyone's consensus before deciding on a course of action. His decision costs are thus very low. In a cooperative, however, decision costs can be very high. Being democratically controlled, the larger and more heterogenous is a cooperative's membership, the higher are the costs of coming to an agreement within the increasingly diverse interests of the group. This cost could be one of the forces that often breaks down cooperatives, for they may be slower in coming to decisions and conservative due to the juggling of diverse interests. This can put them at a competitive disadvantage with respect to investor-owned firms, where decision-making is more centralized and thus possibly faster.

2. Information Costs: The costs to an individual farmer of collecting market information, such as the terms of trade secured by other farmers or the overall supply picture of the state, can be prohibitively high. It is just not practical for the individual farmer to shop around for the best deal every time he wants to buy some fertilizer or sell some apples; the costs of collecting this information, valuable as it may be, far outweigh its potential benefits. Market information is a good with marginal costs approaching zero; that is, the major cost of this good is in its initial "production" (i.e., gathering it). Once

this cost has been incurred, there is little difference in cost whether 5 or 50 people use it. A cooperative is thus very well suited to providing such goods; the initial fixed cost is paid by all the members through their membership fees and the low marginal cost can be charged according to indiviual use.

3. Governance Costs: Williamson (1985) focussed a great deal of attention on the monitoring and enforcing of contractual agreements. He recognized that after contractual agreements have been reached, major costs are often involved in finding out whether both parties are upholding their side of the agreement. The level of governance costs depends on the nature of the product and the nature of the relations between subsector participants. For instance, apple processors used to provide pallet bin boxes for growers to deliver apples in. Growers paid for this service, and relied on processors to return the bins quickly so they could continue the harvest. However, processors did not always return the bins reliably. This created a problem for growers, as in the harvest period delays of a few days can mean apples that are overripe and thus worth less. It is likely that a grower-owned cooperative processor would be more likely to put a higher value on grower needs, and return pallet bins more conscientiously.

Other agreements that are not as clear and visible as the return of pallet bins may have a higher governance cost, even within cooperatives. Quality standards are essentially contractual agreements to provide only apples that have specific characteristics. These characteristics are not all easily visible

or measurable, and even for those that are easily discernible it would be very costly to check individual apples. Transactions involving apples of specified quality must rely to some extent on trust, or at least, the ability to rely on trust significantly decreases transaction costs. One could argue that a farmer cooperative can trust its members not to try and deliver sub-standard apples, but this need not be the case.

4. Asset Specificity: Williamson (1985) also pointed out that as asset specificity increases, so does vulnerability to opportunistic behavior by trading partners. On average, farming involves a much higher capital investment per worker than does manufacturing (Shaffer and Staatz, p. 55), and much of this investment is in highly specific assets such as apple trees. Agricultural producers are also constrained by the fact that their products are perishable, making them even more vulnerable to opportunistic behavior. By putting more information at the farmer's disposal, a cooperative can help him make more informed decisions. If a farmer cooperative controls a significant portion of the market for its members' products, it can also provide a common front for bargaining with potentially opportunistic trading partners. This is, in effect, a sort of insurance that farmers can provide for themselves. In an alternative scenario, the farmer cooperative serves as a sure home for its members' products, protecting them from suffering large losses on transaction-specific assets should an investor-owned market outlet close down (Staatz, p. 179). For instance, farmers have banded

together and bought out processing plants that were going to close due to poor earnings.

Asset specificity also raises two problems for cooperatives; one concerning farmer-members' investments and the other, cooperative investments (Shaffer, 1987). The problems are due to two characteristics of cooperatives: first, gains and losses are always pooled to some extent; thus no individual member bears the full consequences of actions he takes. Second, decisions are made by reaching consensus among some proportion of members, representing diverse and sometimes incompatible interests.

Individual members all have investments in transaction-specific assets. When technological change or changes in market demand take place, individuals who had invested in now-obsolete assets are likely to resist adapting to the new conditions. For instance, even if researchers develop a new, hardier strain of apple, the farmer who just invested in a block of trees 6 years ago will be very reluctant to remove them and plant the new, improved variety. The farmer will continue to expect his cooperative to accept his less hardy apples. On an aggregate level, the cooperative will either have to offer buyers lower quality apples, or be forced to sort out a higher percentage than if the hardier varieties were planted. Since losses are pooled to some extent, the individual farmer has less incentive to take his trees out of production than if he had to bear the full cost of his actions himself. When the farmers in this situation are

numerous enough, they can ensure that the cooperative does not stop accepting their less-than-optimum quality apples.

On the cooperative level, certain investments may be made to offer services to all members, as in the processing plant purchase referred to earlier. The purchase of such an expensive and specific asset makes the cooperative vulnerable to opportunistic behavior by its members. Once the investment has been made, the cooperative needs the patronage of its members at a level sufficient to acheive economies of scale for the asset. Every member that exits the cooperative before the cost of the asset has been recovered imposes higher costs on remaining members, giving them an even greater incentive to exit. This leads to a vicious circle that can quickly kill a cooperative. Again, the fact that each member is shielded from the consequences of his action may provide the incentive (or rather, remove the disincentive) to taking such action. The group decision-making structure of the cooperative may allow some members to block the passage of rules creating barriers to exit from the cooperative.

B. Trust and Frequency of Transactions:

We have said that opportunistic behavior is generally present to some extent in any situation, and have also pointed out that people learn by reinforcement. The obvious conclusion is that once a person has experienced the opportunistic behavior of a trading partner, he will avoid that partner the next time the transaction is to be repeated. The effectiveness of this

farmers with countervailing power as in the first example; rather, it would serve as a trustworthy provider of services previously purchased from an investor-owned firm. Thus theoretically, since the members would trust their cooperative's management, they would not dispute the product price paid to them, nor would they feel a need to check on their cooperative by shopping around. Trust is the foundation upon which cooperatives are built, and without it no cooperative can last for long. Especially in times of economic hardship, trust is what keeps the cooperative going. Not only is it necessary for members to be able the trust their fellow members and management staff to protect their individual interests, the cooperative must be able to trust its individual members not to take opportunistic actions that weaken the collective whole.

C. Multiple Objectives:

It was mentioned that an individual may have more than one objective to consider when making decisions. If individuals are aggregated into the specific level of the subsector channel they form, the existence of multiple objectives becomes even more pronounced and important. Taking farmers as a whole, it is clear that different farmers may have different objectives or interests, or at least different ideas of how best to reach those interests. The interests of farmers as a group are also different from the individual interest. Finally, at both the individual and group level, strategies to benefit long-run interests may be diametrically opposed to those promoting short-run interests.

Farmer cooperatives can help reconcile and find compromises for the differing interests, but they can also be torn apart by the ensuing conflict.

By providing a forum for discussion and dissemination of information, a cooperative can make farmers more aware of their fellow farmers' needs and constraints. It can make farmers as a group aware of market conditions and changes. The management staff of the cooperative can provide the "big picture" to the members, pointing out the needs of the cooperative as a business, and the strategies in the best long-run interests of individuals and the group. However it is exactly the conflict between individual vs. group and long vs. short run interests that have spelled the demise of many a cooperative.

IV. PLAN OF THESIS

This chapter laid out the roots of this study. The issues to be discussed were introduced, and an approach for analyzing them suggested. This approach was used to outline the potential role of farmer cooperatives in the coordination process as well.

The following chapters pull the focus away from theory and back to empirical reality. Chapter 2 describes the basic characteristics of apple subsectors in general, and the environment of these subsectors in Norway and Michigan in particular. At this stage, the specific issues to be analyzed are not discussed. Chapters 3 and 4 then turn to a step-by-step analysis of each subsector as it relates to the specific issues.

Chapter 5 is a slight shift back to the general, as the overall performance of each subsector is described and then compared. Chapter 5 also makes an overall comparative analysis of coordination in the apple subsectors of Norway and Michigan, including the role of farmer cooperatives.

CHAPTER 2

BASIC CHARACTERISTICS OF THE APPLE SUBSECTORS OF NORWAY AND MICHIGAN

This chapter will start with the most general characteristics of any apple subsector and move to a successively more specific description of the fresh vs. processed and Michigan vs. Norwegian apple markets. In terms of the framework introduced earlier, the chapter covers situation, market structure and legal structure. These are the aspects of the two subsectors that can be discussed on a general level, before moving to a specific focus on the issues previously introduced. This chapter does not consider trading structure, as the rules and covenants ordering participant relations are transaction-specific. Different components of trading structure are introduced in Chapters 3 and 4, as they relate to the particular issues involved. Aspects of legal and market structure with particular relevance to each issue will also be referred to when relevant.

I. SITUATION

This section introduces the most basic characteristics of the generic apple subsectors, and considers the implications of these characteristics for the organizational structure of the subsector. Most characteristics will not be specific to a geographical area or apple variety, although some may be more relevant to the fresh (or processed) sector. The behavioral assumptions introduced in

Chapter 1 are not elaborated on here; their presence and effects are alluded to when relevant throughout the study.

The production of apples involves long-term investment in highly asset-specific goods. Apple trees do not begin bearing fruit until they are at least 4 years old, do not reach full bearing capacity until their 8th year, and have a potential lifespan of 40 to 50 years. Growers must invest not only in physically specific assets such as trees but also in the human-specific assets needed to care properly for each variety of tree. The tree's growth and productivity are heavily influenced by weather conditions, even given all the chemical regulators, hormones, pesticides and fertilizers available to farmers. In their fresh form, apples are very perishable, although it is possible to store some for several months in controlled-atmosphere (CA) storage.

Long-run increase in apple supply is thus a very risky and uncertain business. Producers need to be able to distinguish temporary supply fluctuations and demand surges from shifts in the supply or demand curve. If farmers invest in more trees in response to a temporary demand increase, they will drive price down, to their own detriment. Conversely, a farmer who owns fruit-bearing trees would be reluctant to cut them down in response to a price drop since this is, in effect, the irreversible destruction of a fixed asset.

Apple packers and processors are also constrained by their fixed assets, though not to the degree of producers. Apple

juicing, sorting and bagging machines are both costly and fairly specific to a particular use. It can be argued that these actors have more flexibility than producers, since the storage rooms, trucks, and even juicing machines can be used for goods other than apples. There is an opportunity cost involved in idle machinery, but it least it will not rot if left unused for a period of time, unlike apples and apple trees. Apple shippers are even less constrained by asset specificity. Being a successful shipper requires the talent and connections to sell high volume, but requires little more monetary investment than a telephone. Thus the percent of total costs ascribed to asset-specific investments is the highest for growers and the lowest for shippers.

The higher is a participant's investment in asset-specific goods, and particularly the higher is this investment relative to his trading partners' asset-specific investments, the more he is vulnerable to opportunistic behavior by those trading partners. As vulnerability increases, so do the potential benefits from vertical integration. Integrating allows the participants to protect their asset-specific investments. Integration also has a cost, especially when the investments required are very high or not complementary to those already made by the participant. For instance, even though fewer investments are needed for a grower to integrate into shipping than into packing, the human-specific assets required for packing are more complementary to the grower's own skills than the marketing skills necessary to be a successful shipper. Thus we may expect to find growers integrating into

packing more often than integrating all the way into shipping. Note that integration can take more than one form; a group of growers may cooperatively integrate into packing to protect their asset-specific investments jointly, or a single grower may integrate into packing and then sell his services to other growers. Who actually integrates and what form this integration takes will depend on the specific conditions and structure of incentives faced by individual participants. These are analyzed in subsequent chapters.

Information costs are variable for fresh apple quality: size, color and bruising are relatively easy to detect while crispness and flavor are more difficult and costly to perceive visually. The needs of different aspects of apple quality are to some extent contradictory, e.g., picking the apples at optimum time for color may be past the optimum time for crispness. When the needs conflict, producers will be most likely to maximize the qualities they get paid for, which will probably be the ones most easily detected. This is not limited to apples, as anyone who has purchased a beautiful red tomato and found it tasteless knows well.

Market transactions are repeated frequently at all stages in both the fresh and processed channels, from the daily purchases of consumers to the (seasonally constrained) weekly purchases by processors and wholesalers. Given the constraints they operate under, this theoretically allows market participants to adjust their behavior in response to opportunistic behavior by trading

partners (Shaffer 1987, p.24). However, apples are an easily damaged commodity. Especially with fresh apples, handling and storage techniques can bruise, soften and otherwise lower the quality at every stage from farmer to consume. Some varieties are more easily damaged than others, but the quality of all apples is affected very much by how they are treated. This can cause many disputes between industry participants, since after apples have passed more than two hands if is difficult to recognize who is responsible for lowering the apple quality.

This quality externality is likely to weaken the ability of market participants to adjust their behavior in response to opportunistic behavior for two reasons. First, it is difficult to evaluate the quality of service offered by a participant without trying it. Second, even after purchasing the service, it is not easy to detect when the provider occasionally mishandles the fruit. These difficulties cause market participants to rely on trust and personal relationships, and to place importance on maintaining long-term relations with their trading partners.[1] Participants more constrained by asset specificity (such as growers) are likely to have a greater interest in continuing the relationship and thus bear unsatisfactory service more often than will their trading partners. Finally, effective frequency is likely to be lower with fresh than processing apples, as the quality externality is greater in the former area.

---

[1]. As used in this study, trust and personal relationship refers to the informal, long-term bonds that Williamson (1985) calls relational contracting.

On a larger scale, the quality externality is one source of the high exclusion cost of a reputation for high-quality fresh apples. For instance, Michigan is trying to establish a positive reputation among buyers and consumers for consistently high-quality apples, to replace its currently mediocre reputation. Although individual shippers try to distinguish themselves and stress their consistent high quality, it is buyers' perceptions of the whole that makes up the state reputation. Shippers' efforts to brand their products by offering only high quality under the name are thwarted by their individually small market share and the large number of competitors. Thus the state reputation is what often distinguishes a shipper from shippers in other states. Reputation has a high exclusion cost, and individual efforts to raise the state reputation run into free-rider problems. In the eyes of potential new customers, the people who bore costs to be able to offer high-quality apples will not be seen as any different from those who did not bear such costs. This is a situation widely encountered by producers and marketers of homogenous goods.

II. STRUCTURE

A. Market Structure: In this section the participants and subsector stages in the fresh and processed channels of Norway and Michigan will be examined in turn.

1. Norway:

There are approximately 1500 apple producers in Norway, the majority of whom are located around the southwestern fjords, the southern coast, and around the capital city of Oslo. A survey conducted for this study in July 1986 found that 79% of the farmers received less than half their income from apple sales (see Appendix D for survey description). On an average farm size of less than 5 hectares (approximately 12 acres), most farmers grow three or four crops. As we will see later, this characteristic of farmers has many effects on subsector performance. These 1500 farmers produce approximately 60,000 tons of apples annually. The proportion going to processing is quite variable and depends greatly on weather conditions, but is often over half of total production (Nodenes, Teien). Norwegian apples come in over 35 varieties, and are harvested starting mid-August.

Farmers are responsible for growing, picking, initial rough-sorting and packing the apples in large crates. The rough-sorted apples go to the processors, while the rest go to packing stations that pick up, store, final-sort and pack the apples in boxes. Most of the farmers are serviced by the 24 main packing stations in Norway. These packing stations do not generally handle large volumes and there is much discussion about the need to consolidate them in order to reach the economies of size possible with new machinery for sorting apples. The packing stations are almost all operated and at least partially owned by the patron-growers. They are cooperatively operated, with power vested in a board of

directors made up of grower-members. The board hires the manager and invests in him the powers necessary to carry out his job.

Most of the stations are tied in some way to one of the two largest wholesalers in Norway. Nineteen are tied in varying degrees to Gartnerhallen (GH), the national fruit, vegetable and flower marketing cooperative, and five are tied to Banan Matisse (BAMA), Norway's largest private fruit and vegetable wholesaler. These two transport and sell the apples to smaller wholesalers and retailers. Together, GH and BAMA handle over 60% of the apples coming out of packing stations, and over 50% of apples going to the retail market.

Processors buy most of their apples from the packing stations. Due to the high acidity of Norwegian apples, even in high crop years processors import at least 25% of their apple concentrate needs to mix with the domestic juice or concentrate. Ninety-five percent of Norway's processed apples go towards the production of juice (Nodenes, 6/8/87). The great majority of apple processing is done by Hardangersaft, a wholly-owned, independently operating subsidiary of GH. For reasons that will become clear later, Hardangersaft only sells to manufacturers and bottlers. It does not compete at all in the retail market (Nodenes, 1/6/87).

Figure 2.1 illustrates the structure of the apple subsector of Norway:

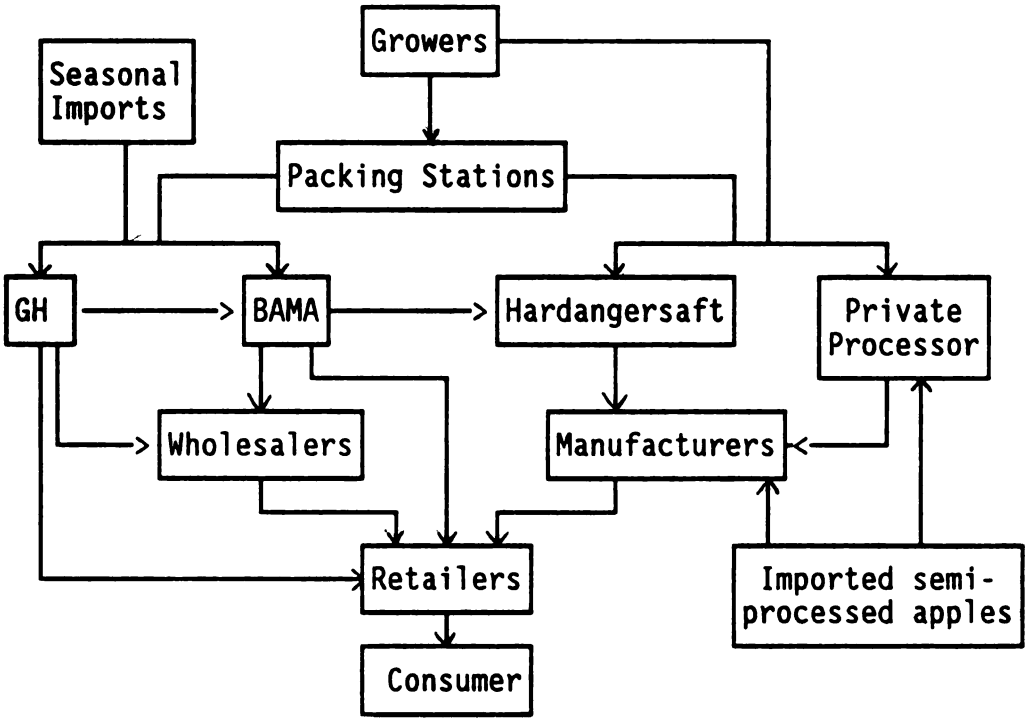


Figure 2.1. Structure of the Norwegian Apple Subsector

On the political side of Norwegian agriculture are the farmer unions and government ministries. Over 80% of all farmers belong to one of the two farmer unions: Norwegian Farmer Union or Norwegian Smallholder Union. In the green sector (fruits, vegetables and flowers), however, the proportion of farmers belonging to the unions is substantially less. The ministries most relevant to agriculture are the Ministries of Finance, Consumer Affairs, and Agriculture.

An interesting point about the Norwegian apple subsector is that at no stage are participants relying solely on apples for

Michigan's apple subsector involves three or four steps between farmer and consumer. The farmers produce, harvest and transport apples to the first handler. A minority of farmers are also integrated vertically into storage, grading, packing, and even selling. But usually, in the fresh market, packers are responsible for storage, grading and packing. Shippers are responsible for selling and providing or arranging for shipping; of Michigan's 26 year-round shippers, the two largest account for close to 60% of fresh market sales (Schwallier). The "shipper" label is sometimes misleading, as they are often only brokers. That is, they sell the apples for their client packing houses but do not actually take possession of them. Most shippers are actually packer-shippers, i.e., packers that have vertically integrated into shipping. But while most shippers are packers, most packers are not shippers. Shippers negotiate with and sell to retailer-buyers, who then sell to the individual consumer.

In the processing channel, farmers may sell directly to processors, or sell through the state-wide bargaining association, the Michigan Agricultural Cooperative Marketing Association (MACMA). The processors may sell directly or through brokers to retailers or the food service industry. Processors in Michigan are generally privately or cooperatively owned; fifteen years ago there were very few cooperative processors in Michigan, but today they control approximately half of the processed market share. The reasons for this, and the role of MACMA, will become clearer as we continue.

Figure 2.2 summarizes the apple subsector of Michigan:

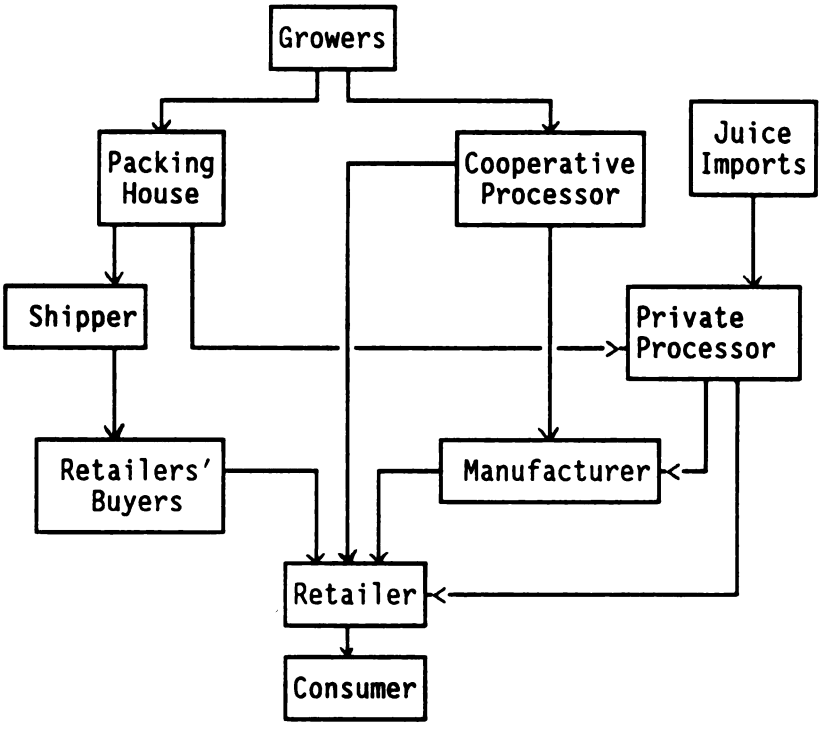


Figure 2.2. Structure of Michigan's apple subsector

3. A Comparison:

Although Michigan and Norway have approximately the same number of apple producers, Michigan's output is, on average, over 8 times that of Norway's. There are several factors contributing to this gap; the average farm in Michigan is three times as large as its Norwegian counterpart. On these smaller farms, the Norwegian farmers generally grow more crops and within those crops place less emphasis on apples than Michigan's farmers. It is also more feasible to reach economies of scale with available technology more suited to Michigan's relatively flat farms than in Norway's very steep mountainside farms. Michigan's milder climate and

longer growing season is another advantage.

Norway does have one major advantage over Michigan in coordinating its apple subsector: it is a sovereign state. It can and does control the flow of competing imports into the country. When trying to implement structural changes, it only has to consider the effect within its own boundaries. Michigan, on the other hand, constitutes approximately 10% of the nation's market and must contend with imports. Many of the major forces affecting Michigan's apple growers originate from outside the state's borders.

Theoretically, one might expect farmer cooperatives to be more prevalent in sectors where farmers are subject to more risk and vulnerable to more opportunistic behavior. Today in Michigan this sector is the fresh market. On the other hand, Williamson 1985) argues that specialized governance structures such as cooperative integration are more likely to occur the more often a transaction is repeated. Given the dampening effect on frequency in fresh market transactions caused by the quality externality, we might expect specialized governance structures to be more prevalent in the processing channel.

The need to protect one's asset-specific investments is an even more pressing factor cited by Williamson as an incentive to integrate. A processing plant requires relatively greater asset-specific investment than a packing house, thus there are incentives to integrate in order to provide insurance for the firm not only at the grower but also at the processing stage. In both

Norway and Michigan, cooperatives and other specialized structures are in fact more prevalent in the processing channel.

Some private processors in Michigan claim that the primary reason for the prevalence of grower cooperatives is the comparative advantage given to cooperative processors by Michigan's legal structure. Chapter 4 will argue that this claim is an oversimplification of reality.

B. Legal Structure

The laws and regulations that have a bearing on the apple subsectors of Norway and Michigan will be discussed in this section, including everything from general laws for agriculture to specific government grades for apple quality.

1. Norway:[2]

All Norwegian agricultural participants are bound by a number of broad and far-reaching pieces of legislation. First, the global economic crisis beginning in the late 1920's, and then World War II, had deep economic and psychological effects on Norway. This is reflected in the breadth and depth of its national agricultural policy. While many industrialized countries responded to the economic crisis in agriculture with marketing boards, the Norwegian government decided to use and strengthen the existing farmer cooperative structure to channel help to the farmers (Bergfløt).

---

[2]. The following section owes a great deal to P.O.Rokhølt and O.Bergfløt.

It was the Market Regulation Act of 1930 that first gave national recognition to the role of farmer cooperatives. It made farmers responsible for alleviating what they saw as an oversupply problem, albeit with some government assistance. Under this Act, a Marketing Council (Omsetningsrådet) was set up to collect a fee deducted from the producer price and put it in a fund to be used for market regulation and promotion. The Council administers the fund, but the actual regulation and promotion in the different branches of agriculture were left up to "farmers and their economic organizations" (Bergfløt). In practice this meant that the farmers, through their cooperatives, were to be responsible for the regulation and promotion of their own products. There exist separate cooperatives for different branches of agriculture, including Gartnerhallen, which is the Marketing Cooperative for fruits, vegetables and flowers (also called the "green sector").

Although there are no laws prohibiting more than one cooperative per sector, in practice only one per sector has been encouraged. The legislation of 1930 was a reaction to the economic crisis of the time and was relatively limited in scope. Then came World War II. Norway was occupied by the Germans. Since it imported much of its food needs, being cut off from the rest of the world during the Occupation exacted a heavy toll on the domestic food supply. The small villages scattered throughout Norway were a major force in the Resistance, and many children from the cities were sent to live in the rural areas during this time.

This experience was not forgotten. Although many concerns were incorporated into national agricultural policy, the need to maintain the rural settlements as a security force and the need to secure more of the nation's food needs domestically were two of the more important forces at work. These have a role in shaping Norwegian agricultural policy to this day.

a. Major Goals of Agriculture: The agricultural policy of Norway rests on five major pillars. These are described in detail in Report No. 14 to the Storting (Parliament) of 1976, excerpts of which are included in Appendix A. Because of the central role of these goals in the distribution of resources in general and the position of agriculture in particular, this report will be summarized below:

"Since the war, an active agricultural policy has been pursued in Norway... in order to secure safe economic and social conditions for the operators, and because agriculture will play an important role in solving several of the problems in society" (p. 1). The following five goals are then laid out:

i) Agricultural Production: "Shall cover the domestic demand for milk and milk products, meat, eggs, potatoes and rough vegetables that can be stored. For other vegetables, fruits and berries, the goal is to cover domestic demand as far as possible... the growing of cereals should be increased substantially"(p. 4).

ii) Regional Policy: Agriculture should contribute to the realization of the general goals of the regional policy, which is

to prevent depopulation of the rural and economically weak areas, especially in the north.

iii) Income Parity: This primarily concerns farming, but does include other agricultural businesses as well. Specifically, the objective is that "the net income per work-year on an up-to-date and rationally operated farm big enough to provide an experienced adult with year-round employment shall at least be at a level corresponding to the annual salary of adult men in industry" (p. 9). This objective is the cornerstone, though not the sole purpose, of the annual negotiations between the government and farmer unions.

iv) Efficiency: Is clearly used here as one of the considerations in achieving other objectives, and not really an objective of its own. "There is a conflict between (efficiency) and other goals of the agricultural policy... efficiency norms vary according to region and size of farm", and are "adjusted according to the importance attached to the different objectives of the agricultural policy" (p. 13).

v) Conservation of Environment and Resources: This broad goal aims at conserving non-renewable resources and limiting the pollution from agriculture, especially "pollution from silos, straw treatment, fertilizers, pesticides, etc." (p. 7), while also calling on agriculture to contribute to the reduction of pollution in other sectors, for instance by recycling organic materials from the urban areas.

Creating an economic and social environment that is self-

reliant for its basic needs and secure from a national defense standpoint can be seen as a public good, or more accurately, a high exclusion cost (HEC) good with marginal costs approaching zero (at least, over a wide range of use). Private markets will tend to underallocate resources to the provision of such goods, however, since individuals consider only their own marginal benefit (Nicholson, p. 709).

HEC goods are typically provided by some higher authority that can provide it and tax all potential users, thus avoiding the free-rider problem. The Norwegian government has in this case taken a broader view of national defense, a classic HEC good. That is, continued government support of agriculture can be seen as public provision of an evenly-populated and self-reliant country, just as government support of the army is seen as public provision of strong national defense.

If this broader view of national defense is accepted, the central questions that must be asked are first, what is the best way to finance this agricultural aspect of national defense, and second, how much defense (self-reliance, stability) is desired--that is, what is the opportunity cost of providing this good. This former point is not a subject of current national attention, but the latter is being raised more and more frequently by Norwegians in and out of the political sphere. As the cost of providing an evenly-populated, nutritionally self-reliant nation becomes scrutinized more closely, the debate will necessarily lead

to the related issue of how to best finance whatever level of agricultural support is decided on.

b. The Annual Negotiations: Legislation passed in 1950 set the framework for annual price negotiations between farmers and the government. Negotiations on price were carried out, in effect, to secure the income objective for the farmer. The original legislation did allow for either party to demand negotiations on issues other than prices, and over the years the annual negotiations have grown to involve much more than just price setting.

The negotiation results take a slightly different form in different agricultural subsectors. In general, the two parties (growers and government) first negotiate on an income increase for the growers, based on factors such as operating costs, inflation, and the income increase received by industrial workers. The next step is to decide how much of this will come from higher prices, and how much from higher government subsidies. In some subsectors, such as dairy, a set price increase is decided on as well. In others, such as apples, the agreement specifies by how much prices may be adjusted throughout the year, leaving the details to be worked out later. The remaining income increase comes from an increase in various government subsidies received by the farmer, ranging from input subsidies to differential transport subsidies based on farm location. Excerpts from the 1980-82 Agricultural Agreement are contained in Appendix B.

Upon completion of the general agreement, the Ministry of Agriculture makes specific interpretations for price and subsidy increases. The implementation of the agreement is the cooperatives' job. This is not to imply that membership in Gartnerhallen is compulsory, just that the responsibility of market regulation is on the cooperative's shoulders. In return for this responsibility, Gartnerhallen receives compensation from the Marketing Council. Gartnerhallen's responsibility to implement the Agricultural Agreement and to accept all the produce brought to it by its members, and its mandate to practice open membership is often cited as justification for this compensation. The Marketing Council pays almost all of Gartnerhallen's storage building costs and approximately 18% of its total administrative costs, as well as various other costs decided on a case-by-case basis by the Marketing Council (Isaksen, Bergfløt).

c. Processor-Grower Negotiations: Processed apples in Norway also have negotiations on price every year. The parties involved are the Processor Association on the one side and Gartnerhallen (GH) and the Farmer Union on the other side. GH is a member of the Processor Association as well, but in the negotiations it can only sit on one side. The result of these negotiations has three major components: first is the actual price for processing apples. Two prices are set, with juice apple prices being higher during the Norwegian fresh apple season. After February 1, fresh apple imports are unrestricted and remaining Norwegian apples (which

store very poorly) all go to processing, thus the lower price set for processing.

The second two components are not variables like price: they are promises. The Processor Association promises to buy their full domestic needs -- but no more -- from available Norwegian apples. In actuality the maximum they would buy would be 75% of their total raw product needs, as the acidic Norwegian apples must be mixed with imported juice. Legally, imported juice can make up a maximum of 25% of the final juice volume. GH, on its side, promises to approve imports if the Norwegian supply is not enough for the processors' needs. This promise is relevant because the group that controls the approval of processed-fruit imports is made up of GH, the Processor Association, and the Ministry of Agriculture. If GH and the Processor Association both agree that imports are necessary, the Ministry will also agree.

GH's negotiations with the Processor Association does not mean that it is bargaining with itself. GH's processing plant, Hardangersaft, only semi-processes apples. That is, Hardangersaft sells nothing to the retail level. It sells mainly to other members of the Processor Association. Hardangersaft has nothing to gain from a low raw product price, since it only takes out a processing charge and returns the rest to growers. Since it knows processors must buy 75% of their needs from domestic apples, it does not need to lower prices to move volume. It is up to the processors to argue that with a lower raw product price they can sell more processed apples and thus buy more Norwegian apples.

Even this is a weak argument, since oversupply of domestic apples relative to processor needs has rarely been a problem in Norway.

d. Quality Standards: The quality standards for Norwegian fresh apples are set by the Government Standardization Board, which consists of 11 people appointed by the Minister of Agriculture. These include representatives of the farmer unions, private wholesalers, Gartnerhallen, plant inspectors, government advisors, and the Ministries of Agriculture and Consumer Affairs. Current standards divide Norway's many varieties into three groups, and for each group specifies a Class I and II. A higher Class Extra also is defined but is not used. Quality standards are based on appearance, size, and for the two top classes, size variations within a class and a minimum refractometer measure.[3] Packaging and labelling standards are also specified by the Standardization Board.

Enforcement of standards is up to government inspectors, who inspect only occasionally, and then usually at the retail level. Gartnerhallen and private first-handlers are also formally responsible on a day-to-day basis, but in practice this is left up to the packing stations.

Legal structure in Norwegian agriculture is a complex and important part of the apple subsector's operation. The preceding description covered the more general aspects of the legal

---

3. A refractometer measures the sugar content of an apple as an indicator of its maturity.

framework. More specific or detailed explanations will be relegated to the following chapters, as they become relevant.

2. Michigan:

Legislation on apples in Michigan is very limited, both in number of laws and their scope. On the federal level, the few laws relevant to apples are very broad and ambiguous, leaving much room for interpretation. The following section will start with the most general federal laws relevant to apples, and move successively to the most specific state laws dealing solely with apples.

a. The Capper-Volstead Act: The Capper-Volstead Act of 1922 (CVA) granted farmer cooperatives limited immunity from the Sherman Antitrust Act. It also defined what a farmer cooperative was, and what it could and could not do. Section 1 of the CVA allowed farmers "to act together in associations, corporations or otherwise... in collectively processing, preparing for market handling and marketing... such products of persons so engaged. Such associations may have marketing agencies in common" (quoted by Rhodes, p.319). In order to be considered a farmer cooperative, the farmer associations had to:

i) Be "operated for the mutual benefit of the members".

ii) Not deal in nonmember products more than member products.

In addition to these two requirements, it had to conform to at least one of the two additional requirements:

iii) No member was to be allowed more than one vote because of

allowing more than one vote per member for other reasons.

iv) No dividends could be given on stock or membership capital greater than 8% per annum.

Section 2 of the CVA instructs the Secretary of Agriculture to investigate and intercede in a cooperative if it is found to be unduly raising the price of agricultural goods through monopoly power or trade restrictions. The meaning of "undue" is subjectively determined, however, and no cooperative has ever been found guilty of undue price enhancement in the 65-year history of the CVA.

b. Michigan Public Act #344:[4] PA#344 concerns only the processed apple market, and its history is a good reflection of the recent history of this market in Michigan. When the demand for processed apple products increased in the 1950's and 1960's, many large national-brand processing firms were located in Michigan. Smaller private-label firms were also important in the market. Growers felt disadvantaged in negotiations with processors, particularly with the larger national-brand processors which had influence on both raw and finished product prices. Some growers charged that not only did the processors pay them too little for the raw product, but they were inconsistent in paying for corollary services such as transport of apples to the plant.

The 1967 Agricultural Fair Practices Act did little to alleviate this problem, as it did not require good-faith bargaining. Although legally prohibited from doing so, processors

---

[4]. The history of PA#344 is adapted from Berger.

bargaining. Although legally prohibited from doing so, processors could easily discriminate against producers belonging to bargaining associations -- ostensibly for other reasons. Growers organized into a voluntary bargaining unit, MACMA's Processing Apple division. This cooperative apple bargaining association was successful in influencing price and other terms of trade to a limited degree. Its influence was most noteworthy in short-crop years. The bargaining cooperative also influenced grading standards and corresponding prices, and disseminated more market information. The voluntary nature of MACMA provided definite limitations to the association's ability to influence grower price and to achieve its other goals. There was also a clear free-rider problem, such that MACMA represented only 40-50% of the processing apple tonnage.

In 1972, mandatory bargaining was instituted under Michigan's Public Act #344. PA#344 allowed growers to bargain collectively with processors for raw apple prices on an exclusive agency basis, with special provisions made for binding arbitration. Under PA#344, the Processing Apple division of MACMA became the Association of Michigan Processing Apple Growers (MPAG) and the exclusive bargaining agent for Michigan's processing apples. MPAG is now one section of MACMA, which is involved with a number of the agricultural commodities produced in Michigan. All producers who grew over 5000 bushels of processing apples per season, whether members of MACMA or not, were represented by and paid fees to MPAG.

In 1985, the United States Supreme Court declared exclusive agent representation to be unconstitutional. The Michigan Supreme Court thus overturned the exclusive agent representation provision of MACMA. Therefore MPAG can no longer collect fees from or bargain for non-members MACMA, nor are non-members bound by MPAG-negotiated prices. In effect, the Supreme Court decision allowed the unwilling riders created by PA#344 to disembark, while allowing free riders onto the bargaining train. MACMA's current (weaker) role in coordination of the apple subsector will be discussed in Chapter 4.

Since the boom period of the 1950's and 1960's, the demand for apple sauce and frozen slices has been declining. Even without PA#344, declining demand probably would have led to a decreasing number of processors. Some industry participants argue that the exclusive agent representation provision of PA#344 hastened the departure of the processors, especially the larger national-brand ones. Processor departure was probably encouraged even more by the flood of cheap foreign imports in the apple juice market, the only processing market experiencing rising demand. That is, the avenue for fully half of processing apples experienced a rise in demand, and this rise was met almost entirely by imports.

Nor did it help that cooperative processors were exempt from bargaining. This was a less important matter in 1972 when PA#344 was passed, for at that time processing cooperatives handled a much smaller part of the processed apple market. Since then, processing cooperatives have come to play a much larger role in

Michigan -- in part because of the dual phenomena of declining demand and cooperative exemption from bargaining-- thus exemption from committing the cooperative to a raw product base price at the beginning of the season. At any rate, the processed apple channel today is in a very different position than it was 20 years ago, when demand was strong and rising, and private processors dominated the market.

c. Michigan Public Act #232: In the 1940's, the Michigan Apple Commission was formed to assist growers through advertising and promotion of Michigan apples. In 1965, the Michigan legislature passed PA#232, which was a state marketing order enabling legislation. By 1967, the Michigan Apple Commission had decided to operate under PA#232 in order to qualify for mandatory fee assessments and thus eliminate the free-rider problem. The Michigan Apple Commission became the Michigan Apple Committee (MAC), a mandatory grower-financed organization for the advertising and promotion of Michigan's apples.

d. Quality Standards: Most of Michigan's fresh apples are labelled using Federal quality grades, even though most the industry operates under much higher levels. Apple grades are U.S. Extra Fancy, Fancy, No. 1, and Utility. Generally apples destined for the fresh retail market are U.S. Extra Fancy, Fancy, or a combination of the two. Apples are graded on color, and lack of blemishes/bruising. There are no legal limitations on size, except that it be clearly labelled, There are, however, limitations on how much apples within one box can diverge from the

standards are also specified.

At the time that the Federal standards were written, blemishes were the primary industry problem and blemish-free fruit is the major focus of the standards. Thus of the 18 categories under "limits of defects in U.S. Apple Grades" listed in the Apple Grader's Manual, 11 have to do with various kinds of blemishes. The remaining 7 include such vague statements as "all grades must be mature but not overripe". There are no precise quantifiable measures of maturity, such as refractometer standards or pressure-test levels, included in the federal grade standards.

The highest percent color required in federal grade standards is 66%, whereas today apples are regularly sold at over 70% color, sometimes even up to 90% color.[5] Shippers are formally responsible to the retailers for the quality of apples they sell, but on a day-to-day basis it is the packers who implement the standards. Shippers responsibility is thus to coordinate retailers' quality demands with packing houses' operations.

The legal structure relevant to apples in Michigan includes mainly the Capper-Volstead Act, PA#232, the no-longer mandatory PA#344, and the Federal quality standards. For the analysis of Michigan, the informal trading structure that has developed to order participant relations is very important. In Norway, although the informal structure is certainly important, the formal

---

[5]. Percent color is in the eye of the beholder -- that is, there is no standardized device for measuring it. Currently, percent color is measured by eye for all colors and varieties of apples. The implications of this are discussed in Chapter 3.

although the informal structure is certainly important, the formal legal structure plays a much more central role in the coordination process than in Michigan.

CHAPTER 3

MATCHING QUANTITY AND QUALITY DEMANDED AND SUPPLIED IN THE SHORT AND LONG RUN

Having laid out the basic picture of Michigan and Norway's apple subsectors, it is now possible to move to the discussion of specific areas within the coordination process. This chapter focusses on the first two of three areas to be studied. The first area concerns what quantity and quality of fresh apples are produced and marketed by each subsector in the short run, and how information on quantity and quality immediately available and demanded is transmitted through the subsector channel to the relevant participants. The second concern is the long-run coordination of fresh-market supply and demand: that is, what quality and quantity do participants in the supply channel prepare to produce and market, what information do participants in the demand channel make available to guide supply decisions, and to whom is this information made available? In terms of the framework for analysis presented in Chapter 1, the chapter will complete the discussion of structure, and cover conduct, as it applies to these coordination areas.

A discussion of trading structure involves a great deal of detailed information. In order to facilitate this discussion, the chapter will consider trading structure from the point of view of each level in the subsector channel in turn, that is, the formal

and informal structures ordering each participant-level's relations with adjacent levels.

Following the discussion of trading structure, this chapter considers conduct, i.e., the objectives, possible paths and actions of each participant-level. The first section of the chapter will be devoted to the Norwegian fresh apple subsector. The second section moves to a similar discussion for Michigan. Finally the two subsectors will be compared briefly. The bulk of comparative analysis will be found in Chapter 5.

I. NORWAY

The previous chapter drew a broad, general picture of the Norwegian agricultural environment. In this section the focus is narrower and more in-depth, taking as starting points the brief treatment given to the issue of quantity and quality of apple production in Chapter 1, and to the Norwegian market and legal structure in Chapter 2. The participant levels to be discussed are: growers - packing stations - Gartnerhallen (or GH; the farmer cooperative) - BAMA (the largest private shipper/wholesaler)- wholesaler/retailers - the government.

A. Growers

Given a particular variety and the effects of weather, growers are the only actors who can influence size and color of apples produced. This is not to deny the advice or influence of non-growers on grower cultural practices, but in the final analysis,

growers are the primary actors influencing the quality of apples produced. In Norway growers have very little influence on the packaging and presentation of apples.

Quality is also a function of random events such as weather. Two farms on opposing sides of a fjord, perhaps 20 kilometers apart, may have very different rainfall patterns (Tjugum). Other contributing factors include water availability, climate, the soil type and geography of the area. Norway in general has a short growing season, resulting in apples that are thin-skinned and easily bruised. All these factors are out of the farmer's control. Factors that <u>are</u> under the farmer's control are cultural techniques, tree maintenance and tree planting/removing decisions. Tree removal is not just a matter of decreasing supply; it is also a matter of maintaining high-quality apples, as old trees tend to produce smaller and less-colored apples. Likewise, planting is not just a strategy to increase supply; it can be to replace old trees with newer ones, to replace trees that are not so old with improved strains, or to change the varietal mix of production.

Improved strains of apples for Norwegian growers are developed in the three government research and experimentation centers for fruit in Norway. Their major focus is the adaptation for domestic use of hardier imported varieties (as opposed to the <u>development</u> of hardier varieties), pruning and shaping techniques, and intensification of per-acre production through smaller trees and denser planting. Research station results are disseminated by the county extension agents, who are responsible for properly

educating the farmers in the new techniques (Husabo). Some farmers are also engaged in experiment circles or "forsøkring", where each will try a new technique or input and share the results with the others. These experiment circles are affiliated with, though not organized by, the research stations.

The primary outside source of information on quality improvement techniques for farmers is the county or "fylke" extension service. The bulk of information on what to produce--as opposed to how to produce it -- comes from Gartnerhallen (GH) and BAMA. GH is concerned mainly with the marketing of apples; insofar as it relates to this concern, it provides its farmers with suggestions of what trees to plant or remove, and may suggest research topics to one of the government research stations. If time permits, the GH representatives may offer production advice, but their primary responsibility is marketing advice and information-gathering. Some information about technological innovations and particularly new improved varieties and strains may also be provided by GH to the farmers. GH advisors have individual telephone contact with the growers, as well as regular group meetings in each packing station at least twice a year. Although non-GH farmers have the right to call on these government-subsidized advisors, they generally do not.

BAMA farmers also have a source of information especially for them, through the annual BAMA-packing station meetings. These meetings concern the economic performance of the previous year, and some information on technical innovations -- generally one

theme per year (Anondsen). In the annual meetings, BAMA also gives information on apple varieties and qualities demanded by the market. Individual packing stations may also hold quality-improvement seminars for their own members. Farmers receive some information about the type of apples demanded through the price variable. Information about the demand for variety and class of apples (i.e., Class 1 vs. Class 2) is relatively clear to detect in the price mechanism, but within a certain class and variety, it is not clear how the different attributes are valued. In this respect BAMA farmers have an advantage over GH, as BAMA practices differential pricing between farmers, rewarding those who produce apples that provide qualities the market is willing to pay for (Anondsen). GH has recently begun looking into ways of implementing a differential pricing policy as well.

Plentiful information about market demand may not lead to the long-run fulfillment of that demand, if incentive structures dictate otherwise. Within GH, the lack of differential pricing for higher-than-minimum quality is a disincentive to farmers shouldering the higher costs associated with the production of higher-quality apples.

The very large number of small growers is a barrier to long run coordination of quantity produced. Even with all the information and predictions at his disposal, as long as each grower sees his own production as being small, he will not change his variety or capacity of production -- especially if the long-run predictions are not yet apparent in the current prices.

The diversified nature of Norwegian farming and subsequent non-crucial nature of apples for family income is another hindrance to grower response to market changes. On the small farms in Norway, growers must allocate the limited household resources (monetary and otherwise) among many competing activities. Assuming that growers have already chosen the product mix and corresponding resource-use weights to maximize expected total utility by equating the marginal utility of each activity, a certain product mix emerges on each farm. In Norway, for instance, this product mix generally consists of 4 or 5 crops. The grower allocates his scarce resources among leisure and these 4 or 5 crops such that the expected marginal return from each activity is equated. This allocation decision is based on a number of factors, including expected price, cost of production and susceptibility to weather damage of each crop. When market demand changes and a different variety or quality of one of the crops are desired, the grower must then reevaluate his resource allocation decisions and decide whether he wants to commit the necessary resources to adapting to this change.

Adapting to market change is a costly endeavor for producers of any goods requiring asset-specific investments. This cost is especially high for assets like tree crops. Although adapting to changes in market demand is costly no matter if a producer is diversified or specialized, this cost is more likely to be a hindrance to adaptation for the diversified farmer.

Adaptation requires a number of investments whose amounts are

independent of the grower's scale of operation. The most important of these is the training (i.e., human-specific assets) needed to learn how to care for new varieties. The fixed costs are lower when a grower is just shifting the weight of his output, i.e., planting more or less of varieties he already grows. The high fixed costs of planting wholly new varieties are easier for larger or more specialized growers to bear, as they can spread these costs over a higher output, leading to lower per-unit cost of adaptation.

Even if diversified growers have invested in the human-specific assets needed to begin producing a particular variety, they may still be at a disadvantage in adapting to changing market conditions. Information about changes in market demand and techniques for adapting to these changes give a higher net return to specialized than to diversified growers (Zeller). This is due to the greater information base a specialized grower starts from. Growing the highest quality or most desirable apples requires a large human capital investment, and given bounded rationality it is much more likely that a specialized grower will have the capacity to invest in this asset-specific investment than a diversified one. The specialized grower can spread the cost of investing in human-specific assets over a larger volume, resulting in a lower per-unit cost than possible for the diversified grower.

Diversified growers must invest in collecting information and skill (i.e., Williamson's human-specific assets) about <u>all</u> the crops they grow, and they spread this cost over a lower volume of

production. Advances in production techniques and varieties are most often simply refinements in existing knowledge; thus they are most accessible to those growers already familiar with the full scope of current techniques. These growers are most likely to be specialized in the production of one or two crops. Thus, given the same farm size, a diversified grower is less likely to adapt quickly to market changes than a specialized one.

Government subsidies, by keeping the price of apples higher than the value placed on them by consumers, also serve to slow down grower response to changes in market demand. Due to uncertainty and asset specificity growers do not disinvest or change production as soon as demand changes: they need to be relatively sure that the demand change is a long-run one. The perceived value of a fixed asset in use (e.g., an apple tree) must fall below its salvage value in order for a producer to disinvest in it. Apples trees have a zero or negative salvage value (cutting down trees costs resources), which is one reason why growers continue producing apples that do not match market demand even if they know market demand has changed. Growers will cut down productive apple trees and replace them with new ones when the expected opportunity cost of the existing trees exceeds their expected value in use, i.e., when:

$$(3.1)\quad E\left[\frac{P'Q'}{(1+r)^{8}} + \ldots + \frac{P'Q'}{(1+r)^{40}} - C'\right] > E\left[\frac{P''Q''}{(1+r)^{40-t}} + \ldots + \frac{P''Q'}{(1+r)^{t-t}}\right]$$

Where:

E = expected value

P′= expected price for apple of new variety

Q′= expected annual yield from new tree, assuming full yield 8 years after planting.

r = grower's discount rate

C′= cost of planting and bringing to bearing age a new tree

P′′= price for apple of existing variety

Q′′= average annual yield of existing tree

t = Age of existing tree, assuming each tree lives 40 years

By raising the price received for existing apples (P′′), government subsidies raise the value in use of existing trees, slowing down both disinvestment of existing trees and investment in new ones. This is not meant to imply that government subsidies are bad; an important point to consider is the reason for having subsidies in the first place. If their purpose is to maintain a given population of growers and to support the production of otherwise unprofitable crops, then the subsidies are fulfilling their purpose. But as far as promoting the production of quality and quantity desired by a changing market is concerned, government subsidies -- as they are currently structured -- act as a hindrance to supply response. In their current form, government subsidies do not differentiate between varieties or qualities within Class 1 apples. This means that Class 1 apples of the type less desired by the market are subsidized <u>proportionately more</u> than Class 1 apples with more widely desired attributes and correspondingly higher price.

B. Packing Stations

Most apple growers, through their packing stations, deliver to either GH or BAMA. GH growers generally deliver to one of three types of packing stations: GH-owned and operated, GH-owned (at least partially) and grower operated, or independent packing stations. The relation of the latter two with GH is that of voluntary membership. The majority of GH growers deliver to the second type of packing station, but all three have the obligation to deliver all their goods to GH. Growers in all three categories have one vote each in GH meetings, but only growers delivering to GH-owned and operated packing stations are direct members. Growers delivering to other packing stations are indirect members of GH, as it is the packing station board that signs the contract with GH. The major difference between these two types of membership is GH's involvement in the internal operation of the packing station. When the packing station signs the GH contract, GH does not interfere in its operations, and the packing station is responsible to ensure that the members fulfill their contractual obligations to GH.

BAMA growers also deliver to BAMA in three ways: through BAMA-owned and operated packing stations, through independent packing stations with BAMA contracts, or through direct delivery to BAMA (this option involves only the larger farmers). In the former two categories, the packing station is obligated to sell 100% of its produce through BAMA. With the large farmers, BAMA does not

stipulate but does encourage 100% delivery. This is expressly a strategy to improve relations with farmers and woo them away from GH.

Packing stations that are at least partially owned by the growers are operated cooperatively by a board of grower-members. The packing station manager is thus an employee of the farmers. Most are located in southwestern Norway, and some are quite small and old. Packing stations transport the apples from farm to packing station, store them, and upon receipt of an order from their shipper-broker, sort and pack them. They also send the Class 2 apples to processing.

Most packing stations are clients of either GH or BAMA. They do not have a direct voice in the sale of their apples. Some independent packing stations also sell to the wholesale-retail market but these are very few and only in close proximity to large urban areas. The sales firm (e.g., GH or BAMA) is formally responsible for delivering the quality specified in the buyer-seller transaction. Once standards have been set, it is the packing stations' responsibility to sort and pack incoming orders to those specifications. Thus although the packing station does pack the apples, it does not decide how or in what form to pack them. It is up to the packing station members to allocate funding for the purchase of specialized packing or sorting machines, although GH may build or purchase certain facilities and lease them back to the packing station.

Packing stations receive funding for their operating costs through government subsidies and a percentage fee from the total revenues received by the packing station's apples. They also serve as a community information network, especially if they are a GH-packing station. Market information, production plans and advice from GH are all channelled through the packing station. So although the packing station itself does not do long-run planning for grower optimal production mix, the shipper's long-run planners do use the packing station structure as a way to reach groups of growers efficiently and easily. Packing stations are an informal but crucial link in the micro-micro coordination of the cooperative.[1]

C. Gartnerhallen (GH)

GH is a centralized cooperative, with the Central Office in Oslo having the power to set and change the boundaries of districts and departments, as well as having formal control over operations in the districts.[2] Districts, in turn, have formal control over the departments. In day-to-day matters, however, GH operates similar to a federated cooperative. For instance, district offices, although formally under direct control of the central office, are actually independent sales desks, and have a

---

1. Micro-micro coordination refers to coordination within a firm (Shaffer and Staatz).

2. Gartnerhallen divides its areas of responsibility into geographically-defined districts, with each district being divided into a number of departments.

great deal of autonomy in their own daily operations. Each district's accounts are held separately. Departments, the smallest GH offices, function mainly as a receiving station for apples en route to the retailer. Packing stations are the primary local point of reference for growers.

As described earlier, most packing stations are farmer-operated GH members. In other words, they are local cooperatives that are in turn members of GH. All members are required to bring to GH their total production in all goods marketed by GH: roadside stands or direct farmer sales to local markets are not allowed. Nor can a member deliver, e.g., his apples but not his pears. GH is responsible to sell all its members' produce, and is the final decisionmaker in packaging and presentation. Each district is responsible for the sale of its own apples. Although it does not generally take physical possession of members' apples, it <u>is</u> committed to selling everything its members produce. Districts may purchase from other districts, and in such cases the GH buying office may take possession of the apples. In general, packing stations are responsible for the storage of their members' produce until GH sells them.

GH can attempt to affect apple condition and appearance by sending marketing representatives directly to the retail store to give guidance on storage, handling and presentation of apples. This can only be done for the 50% of its fresh apples that GH sells directly to retailers (generally the larger retailers). The other 50% of GH's fresh apples are sold to wholesalers who sell in

turn to small retailers. For these sales there is little that GH can do to affect the in-store presentation and handling of apples.

The marketing representatives also channel information on retailer demands back to GH management. GH marketing representatives and farmer advisors are the same people, which allows information on retailer demand to be transmitted directly to farmers in their packing station meetings. GH does very little in the way of demand-manipulation through retail-level advertising or promotion. There is a general fund for generic apple advertising -- i.e., GH's name cannot be mentioned -- but GH itself does not allocate resources to apple promotion. There is no consistent campaign to promote apples and shift consumers' demand curve to the right.

Through its quality research committees, GH-Central can focus on production and marketing issues. One committee focusses on improving marketing methods and on coordinating marketing and extension. Another committee considers the feasibility of introducing new varieties, and does long-range planning for tree plantings and removals. Of relevance to apples is the comprehensive fruit production plan drawn up for each district. The plan spells out what variety of each tree has been planted, how old it is, what is the five-year goal set by GH, and how many trees of each variety need to be cut down or planted. It also shows what the <u>previous</u> plan was, and how the current situation compares to the previously-set goals.

The district-level plan is then broken down to a number of smaller-scale plans that are easier for growers to relate to and (presumably) more likely to be followed. These plans set planting and tree-removal goals for each individual packing station. These plans are then distributed to members through the packing station manager's meetings with the growers. Adherence to the plan is not mandatory and it is presented only as GH's best guess of the future demand picture and where each grower fits in that picture. The only incentives growers have to follow the plan is GH's claim (not guarantee) that this is the mix currently demanded by the market, thus the mix that will command the highest price. Since GH makes the plan only after having studied the market and its growers' present farm profile, it is presumably a reliable claim. But the final decision -- and risk -- is on the grower's shoulders.

The GH advisors also meet together to discuss common marketing and production problems. However, this apparently impressive array of institutionalized communication and research may be little more than a formal shell if the Central's management does not attach importance to these functions. In the past, GH-Central tended to focus primarily on selling whatever its members grew. It gave a high priority to the collection of information on what the members were growing, and in planning the overall volume and variety they should grow. However, little attention was given to the <u>marketing</u> of the apples; that is, targeting markets, finding out what specific qualities (i.e., with respect to

color,size or packaging) the market was demanding, and working on newer or more effective ways of presenting the apples.

The increasingly competitive environment of Norway's fresh produce markets, along with turnover in management, has brought in a more dynamic approach to GH, but the existing series of committees and offices are still often little more than an occasional meeting of minds. The committees are generally staffed by people who already have a full load of responsibilities, and although they may try very hard, the groups may end up meeting for a few hours once every three or four months to discuss two or three issues related to as many products, out of the hundreds of products in which GH deals. Thus, it is not surprising that the work of some of these committees tends to progress very slowly.

Information about current market conditions, e.g., price received and product movement, is distributed from central to district level. Much of this information is the domain of the districts, since they are the cooperative's major sales offices. District managers have the power to decide what information to pass on to the packing stations: GH-Central interferes in district affairs only in the case on unusual problems. One major complaint at the packing station level is that GH provides little or no post-production information: only annual market reports are regularly provided to GH members.

While having post-production information may make little or no difference in grower or packing station production decisions, it does contribute to a sense of belonging and involvement. A

packing station manager admitted as much when attempting to justify his call for more post-production information: almost immediately after voicing the need for this information in order to evaluate GH's production plans, he admitted that the plans were reliable and generally on-target. But, he concluded sadly, the farmers are now little more than paid laborers. Looking from the outside, it appeared that the increased information was desired not in the participants' capacities as growers or packing station managers (since the plans given by GH were considered to be reliable), but as owner-members of a farmer cooperative. Thus, for instance, BAMA giving very little post-production information might not result in the same complaint due to the different expectations growers and packing station managers would have of a private company.

D. BAMA

Insofar as the marketing of quality apples is concerned, BAMA's major differences with GH are its policy of pricing growers' apples differentially by quality, and its right to turn away growers. Much of the information on quality demanded is available to GH and non-GH growers alike, and many of the constraints faced by both groups of growers (e.g., weather) are also very much alike. The difference arises in which growers' apples are accepted, how they are paid for their apples, and how BAMA sells these apples.

BAMA targets its apples: those of average Class 1 quality go to average retailers in standardized boxes labelled "Norwegian Fruit". The higher quality Class 1 apples are separated, packed in boxes labelled "BAMA", and sold for a higher price to the higher-quality retailers. BAMA not only makes its own class divisions within Class 1, it only applies its label to the higher quality, thus building an association of BAMA's name with high quality.

BAMA owns three large packing stations, has exclusive contracts with two others, and has direct contracts with 20-25 of the larger apple farmers in eastern Norway, where fewer packing stations exist. Like GH, BAMA specifies the quality to be packed, the packaging, and also tells the packing station what to pack and what to put in cold storage. Although the private packing stations are not required to use particular machinery, BAMA does make available its preferred grading equipment for them to buy.

BAMA competes actively with GH, being careful to treat the farmers with some lenience and making efforts to build a BAMA group identity between its farmers. It holds annual meetings with farmers, where information on the previous year's market situation is provided, and plans for the future composition of production are discussed. Like GH, regular short-run market information is provided only at the annual meetings. Not being a cooperative, BAMA can more easily make business decisions that might meet with farmer resistance in a cooperative, such as turning away low-quality farmers or maintaining only a few large packing stations

rather than many small ones. It appears that BAMA has been successful in its efforts to balance unpleasant business decisions with the promotion of a positive reputation with growers: BAMA has been in the fruit marketing business for over a century, but it was less than 20 years ago that BAMA began buying and marketing domestically-grown produce. Today it is Norway's second largest fruit and vegetable wholesaler, with 28% of the nation's retail market share in apples.

E. Retailers

The production and marketing efforts of the previously introduced subsector participants culminates -- and their control ends -- at the retail level. The output of each separate subsector or industry, carefully planned and packaged and marketed, meets hundreds or even thousands of other goods. All compete for shelf space, as well as for the limited care and attention available from store employees. The more numerous and smaller are the retailers, the more difficult it is for representatives of particular subsectors to circulate among them, to collect feedback or to attempt to affect the handling and presentation of their particular goods.

In Norway the corner store is still very much a part of the urban scene. Employees of retail stores, large or small, deal with many different goods, each requiring different care. Particularly in the smaller stores where employees are less specialized, the probability of mishandling and bruising the

delicate Norwegian apples is very high. As mentioned earlier, GH does send representatives to the retailers to whom it sells directly, but this involves only 50% of their fresh apple sales. Major wholesaler-retailers may also have their own product promotion programs. NKL, the Norwegian Consumer Cooperative Wholesale Society, has stores all over Norway and periodically sends NKL representatives around the country to help display fruit, to teach proper handling techniques, and so on.

Retailers do not engage in the sort of long-run planning of relevance to growers. The focus of retailer long-run planning is more directed at total store capacity, or total number and types of produce to be handled. They may identify particular characteristics of apples (size, color, even variety) that consumers seem to prefer, but they will not venture to plan how much of which varieties they will want to purchase, which is the sort of information of use to the growers. It has been the role of the shipper to deduce this sort of information through sales to and conversations with the wholesaler- and retailer-buyers, and then to relay it back to the growers via their packing stations.

F. The Government

Government involvement in coordination of quality is important primarily in two areas: enforcement of quality standards and subsidization of apple production and marketing. Government representatives are responsible for monitoring enforcement of standards. They do so primarily at the retail level, but also at

the packing stations. Implementation on a day-to-day basis is the shipper-wholesaler's formal responsibility and the packing station's actual duty.

Of the three standards of apples available, only Class I and II are used, and generally only Class I apples are sold on the fresh market. Although there is a trend towards preference of quality over price in Norway, neither the incentives of shipper-wholesalers nor the quality of available production has been strong enough to cause the use of the highest quality standard available. Differentiation within Class 1 is as far as the wholesalers have gone, but this is purely voluntary and thus not subject to government regulation.

Numerous subsidies exist for the transportation, storage and packaging of apples, with farmers in geographically more distant or harsh areas receiving relatively more money. Recalling that a major goal of Norwegian agricultural policy is to maintain population centers throughout Norway, these higher subsidies can be understood as attempting to compensate inhabitants of these areas for the particularly difficult conditions they endure. Class 1 apples receive subsidies for transport, packing and "materials", while Class 2 apples receive only a juice subsidy. In addition, the Annual Negotiations to ensure income parity concern only Class 1 apples. That is, a farmer growing Class 2 apples is not assured of a wage equal to an industrial worker's. Many part-time farmers with off-farm jobs and limited farm acreage will continue growing the relatively low-cost Class 2 apples,

however, knowing that they are assured of some small amount of money to supplement their income.

There is much debate whether the country can continue the current policy of supporting all the growers, especially the smaller ones. Norway's food prices very are high, even for Scandinavia. The current face of Norwegian agriculture is in large part a reflection of conscious choices embedded in the five goals set out in 1950 -- especially the goals of income parity, rural settlement development, and increased food production. While some argue that the government could support these goals more cheaply by subsidizing only the larger or more cost-efficient growers, others fear that a great reduction in the number of Norwegian growers will mean a loss of the base that makes it politically feasible to maintain popular support for continued subsidies. Losing government funding for all growers if only a few large growers remain in the country is a concern not only for growers but grower organizations like GH or the farmer unions.

G. Conduct

The working assumption about subsector participants is that they are utility maximizers. Most often this can translate to a profit-maximization goal in the short run, subject to individually-determined preferences for security and leisure. As shown earlier in this chapter, the utility-maximizing choice for growers is to diversify to the point where the allocation of resources equates the marginal utility to be derived from each

activity. A common choice of many Norwegian growers is in fact to diversify and grow fruits, vegetables, and also to have a few sheep or cows: in fact, the previously cited survey found over 60% of growers growing fruits and vegetables as well as one or two other products.

Given that the farms we are concerned with are generally 5 hectares or less and are operated primarily by a single family, the farm-level strategy must be to split the limited labor available among the different crops, with those providing a larger proportion of total income receiving proportionally more care and time. Over 75% of growers in the primary apple-growing district of Norway (Vestlandet) receive less than 50% of their total farm income from apples. However, this district is also where more growers are actively involved in their packing station, and actively soliciting market and long-run production information. The highest proportion of Norway's apples come from this district, and relatively more of its growers adapt the new techniques and strains on their farms.

A logical option for hobby farmers (people with full-time jobs who also have a small orchard) may be to grow primarily Class 2 apples, but Vestlandet growers are farmers, first and foremost. The survey conducted for this study found over 70% of growers in Vestlandet reporting that the majority of their apples were in Class 1. However, the lack of incentives to grow the <u>highest-quality</u> Class 1 apples may be reflected in the fact that only 25% of farmers growing Class 1 apples reported growing this quality.

To some extent, the ability to grow the highest-quality apples is limited by the geographical location of the farm: some are naturally more suited to apple production. Predictably enough, however, the weight that should be given to this factor is a point of dispute between and within growers, packing station managers and GH. In general, growers produce average-quality Class 1 apples and rely on subsequent levels of the subsector to care for and sell them.

It might seem that growers would try to increase their own incomes by increasing their productivity at any given price level. Undoubtedly this is a strategy followed by some growers, but it would be surprising to find it occurring on a large scale. This is because the annual negotiations aim at providing growers with a minimum income level. If a grower's average income level is above this minimum, then they will not be able to negotiated for price or input subsidy increases until the industrial minimum wage level reaches and passes the grower's level.

The packing stations, almost all being cooperatively operated by farmers, have much of the same goals that farmers do: to return as much as possible to the farmers. Packing stations also have many of the problems that studies on cooperatives have pointed out. Among these is the difficulty in inducing members to act in the long-term interest of the cooperative firm by investing in it (Staatz, 1984). The different discount rates that participants in the decision-making process are operating under often results in low long-term investment in the cooperative. In the packing

stations, members are required to buy a number of packing station shares commensurate with their patronage. This brings in some funds for investments, and distributes overhead costs. Other funds for investment must come from retained earnings. The packing stations generally take off a flat percentage fee from total returns (rather than charging for individual services), for "operation and maintenance". This percentage fluctuates from 12% to 20% of earnings, and setting the percentage is one of the yearly points of negotiation between the packing station manager and board. However, a look at the current issues facing the packing stations allows the deduction that the packing stations were operating with an implicitly high discount rate that placed low value on investments with short-run costs and long-run benefits.

Most packing stations that are members of GH are small and old. They were built 50 years ago, and most are operating with outdated machinery. In some cases GH builds an addition to an existing packing station and rents it back to the packing station members, thus assuming the risk of investment and helping the packing station overcome the members' reluctance to make long-term investments. GH does this only for the larger or more profitable packing stations, however. A controversial issue within GH today is the plan to "rationalize" the packing station structure: to eliminate many of the small, inefficient, inappropriately-located packing stations and to expand a few of the larger or better-located ones. The fact that close to half of

the packing stations related to GH are slated for closure leads to the deduction that investment in modernization was not their primary goal.

I believe the farmer-operators have one other objective for their packing stations: that they remain under member control. GH is a farmer cooperative, but being as large and as connected to the government as it is, management plays a major role in its operation, and individual farmers do not perceive themselves as having much power. It is in their packing stations that the farmers seem to feel in control of "their" organization. To this end, farmers may resist consolidation of their packing station with another, even if it is the economically wisest choice.

The farmer is the most important participant-group when it comes to quality of apples produced on the farm. But the shipper-wholesaler (GH/BAMA) is the most influential when it comes to presentation of goods and transmission of market information. Although formally this power is vested in GH's central office, in reality each district has a great deal of autonomy in pricing, pooling, deciding what to sell or store, etc. Each district's accounts are also kept separate, so that one district does not inadvertently subsidize another.

GH's mandate from the government is to implement the Annual Agreement on prices (to be discussed in Chapter 4) and also general agricultural policy, among whose goals are the support of rural communities. GH receives various government subsidies to fulfill its role. In recompense, the state requires GH to have an

open membership policy and accept everything its members deliver. Once the price band for Class 1 average price has been determined through negotiations (of which GH is not a part), GH's major objective is to sell as many Class 1 apples as possible at a price within the band. Its incentive is to focus on high quantity at average price, mixing sizes to ensure the sale of the smaller Class 1 apples. Another policy of relevance to GH behavior is that when Norwegian apples are available, apple imports are strictly regulated. This dulls but does not eliminate competition at the retail level, as numerous competing substitutes (imported and otherwise) are available for apples. Finally, an important factor affecting GH's behavior is its vertically-integrated character. A firm considers its own pecuniary net benefits when deciding whether to adapt to market changes or technological advances. By vertically integrating, GH internalizes costs imposed on growers and therefore includes these costs in its decision making. All these forces have worked together in the past to create an environment where GH did not behave competitively. It did perceive the need to affect long-run supply: the annually negotiated price band is a function of the industrial sector wage level, since agricultural incomes are by law supposed to be on parity with their industrial counterparts. At worst, incomes stay constant, and most often, they increase. The subsequent increase in agricultural-sector incomes is provided by price and input subsidy increases, with historically over half of the increase coming from output price increases.

GH thus knows that the future price bands it must work within will be at or above the level it currently faces. Since GH cannot affect the level of the price band, it must pay attention to affecting the quantity and variety planted, to make its task of selling its members' apples a feasible one. For the reasons cited above, formerly it did not have to pay much attention to the active marketing of its apples. But GH, unlike the other major Norwegian cooperatives, only has an average of 30% of farm-gate market share (50% in apples), and increasingly strong competition from BAMA. Thus in order to stay in business it is getting forced to shake loose its complacency and become more competitive.

BAMA, on the other hand, can pick and choose between the growers that come to it, and has targeted its markets, price-discriminating with both growers and retailers. In an increasingly quality-conscious market, BAMA has everything to gain from this strategy. It is also bound by the price band, but since its focus is high profits rather than simply high volume, it has the incentive to aim at the top of the band. BAMA is not vertically integrated to the grower stage and thus has less need to consider the costs imposed on some growers through its use of very high packing standards. Competition with GH, however, brings a grower-conscious attitude to BAMA management. Just as BAMA forces GH to behave more competitively, GH forces BAMA to be careful not to be seen as exploiting the farmers.

II. MICHIGAN

The trading structure that has developed around the apple industry in Michigan has a number of similarities with that of Norway. This section provides an analytic description of the trading structure and subsequent conduct of participants in Michigan. The participants to be considered are : Growers- Packers - Shippers - Retailers - Michigan Apple Committee- Government.

A. Growers

Growers in Michigan influence the size, color, condition and appearance of the apple. As in Norway, the growers have a number of sources for production advice: extension agents are the primary source, and when packer-shippers have field advisors, they can also be a source of production-oriented guidance. The final decision and responsibility for tree planting and cultural practices remain the grower's. Growers can also make requests to their packer to have their apples packed in a certain way, e.g., to pack in tray-packs and not bags, although the packer is under no obligation to fulfill this request.[3]

---

[3]. Apples are generally packed in 3 or 5 pound bags, or traypacks. The latter form involves packing the apples in cardboard trays that have a hollow for each apple. The trays are then stacked in a cardboard box. The number of apples per tray and trays per box depends on the apple size, thus traypacks are typically distinguished by the number of apples per box they contain. Apples that are naturally softer and easier to bruise may be packed in cell packs. In this form, apples are covered from above and below, looking much like a large polyurethane carton of eggs. Cell packs are also ordered by the number of apples per box they contain.

The grower is also not legally obliged to follow the production advice he receives, as long as his fresh apples meet minimum quality standards. Apples that do not meet these standards are sent to processing. The quality standards are defined partly by federal grades and partly by individual packer-shipper requirements. While the potential for opportunistic packer-shippers attempting to extract the value of growers' fixed assets is high with the use of packer-shipper defined standards, extensive interviews with subsector participants did not reveal this to be a problem. As the following sections will show, trust and personal relationships play a major role in Michigan's apple subsector; this is one reason why the opportunistic behavior possible with packer-shipper defined quality standards has not surfaced.

Although weather is an important variable for any agricultural product, it is less of a force in Michigan than in Norway. Michigan does have its share of weather-related problems, especially in comparison to the number-one apple-producing state in the U.S., Washington. The cloudy, rainy Michigan climate makes the achievement of excellently-colored apples difficult compared to Washington. However, county extension agents as well as other subsector participants claim that especially with the new strains of apples being released, weather has less of an influence, relative to cultural practices, on quality.

Packer-shipper field men do not generally provide a great deal of advice on production techniques. However, they do coordinate

their employer's market orders with the volume and maturity of apples available for the packer-shipper to sell. Subsector participants interviewed agree that packer field men are there to promote packer-shipper interests, i.e., to adapt the farmer's actions to the packer-shipper's market orders. Disagreement exists even within the presumably unbiased county extension agents as to the level of coincidence between packer and grower interests. A particularly sore point for many growers is the market demand (communicated to growers by packer-shippers) for apples that are both red and hard. With most varieties already in production, the apples attain maximum color past the time for peak crispness; that is, in order to deliver the reddest apples possible, growers have to let the apples get soft. This may then mean that the apples cannot stand up as well to Controlled Atmosphere (CA -- long term) storage and must be sold within the first few months after harvest, even if at a lower price.

Newer varieties have been introduced that attain color more quickly, but it will take some years before the existing trees are taken out of production. Grower-investors would prefer to wait until they are certain of recovering the costs of taking a productive fixed asset out of production before investing in new ones. Although most packer-shippers will not provide unsolicited production advice, a growing number <u>will</u> suggest what varieties or strains should be planted if the grower requests advice.

Information about current market conditions and price movement is scarce at the grower level. Even more scarce are projections

about the future; for instance, information about what growers as a whole plan to plant or cut down, or what shippers as a whole feel demand will be. The Federal market news service puts out information on current movement and price of apples, by grade and variety. Although it serves a useful function, this service has a number of problems: for instance, the USDA quality grades are used, which are inadequate for an understanding of what quality was actually sold.

The great majority of apples in the market conform to standards far above the USDA minimums. These higher standards are set in negotiations between packer-shippers and retailer-buyers. USDA minimum percentage color for Extra Fancy Red Delicious apples, for instance, is 66 percent. Information stating that x bushels of this category were sold at the average price of y is of limited usefulness when in reality some of these apples were sold at 70% color, others at 85%, and still others at 90% or higher. Finally, price carries many different pieces of information; it reflects the values placed on various characteristics such as size, color, variety, value of substitutes. Price fluctuations reflect both the effects of short-run crop fluctuations and long-run supply-demand relations. Thus, this information is of limited usefulness in helping the grower decide what long-run actions to take.

Many packers will share weekly reports with growers on sales figures for that particular grower's lot of apples. This information does not show what the grower's returns will be,

however. Each variety and class of apple is generally pooled along with all other apples sold in the same period. Growers will thus receive an initial advance payment, then payment for first fall sales (i.e., for apples not put in storage but sold immediately), then monthly payments for cold-storage apple sales, and finally for CA-storage apple sales. All apples of similar variety and quality in cold storage sold by a particular shipper would thus receive the same returns, regardless of whether they were sold in the beginning or end of the period for cold-storage apple sales. Payment practices may, however, differ considerably between packer-shippers. Some packer-shippers also pay growers a bonus for extra-high quality apples.

In short, Michigan growers receive little usable aggregated information about market or price conditions. They receive somewhat more advice about what variety and quality to grow, and even more on how to grow it. They receive the information on growing from extension agents and, depending on individual packer-shippers, from the field advisors. These agents and advisors make their recommendations based on their own interpretation of aggregated longer-term market information, but since growers do not receive this market information, they have no way of judging the (often contradictory) advice they receive. Some packer-shippers constantly encourage their growers to produce higher quality, assuring them that the higher cost this entails will eventually be returned to them. One grower explained his view of why growers were slow to react to this advice: they need at least

two good years in a row to have the cash to innovate and upgrade. However, after a couple of good years in a row, the farmer gets complacent, forgets the need for change or at least decides to take it easy and not work his normal 70 hours per week, and loses his chance. A logical response to this would be to ask why the grower does not borrow to finance upgrading of operations. The above-mentioned grower cited a number of reasons, stated here in slightly different terms. The reasons involve three interconnected components: uncertainty, physical asset specificity, and human asset specificity (Williamson, 1985).

Uncertainty about long-run supply and demand for new varieties of apples and about short and medium-run apple supply (particularly competing states' crop size) for the existing trees' apples are two important reasons why growers may be slow to take out loans to finance an upgrading of their trees. Some growers do take out such loans, depending on their risk-aversity, leverage (i.e., past borrowing) and business acumen. Uncertainty is an argument for not taking out loans because of the costs of a wrong investment decision: trees are highly asset-specific. A marginally profitable apple tree will at least produce relatively certain returns, while cutting that tree down and replacing it with a new one means a <u>negative</u> profit for the first four to eight years.

New apple varieties and planting techniques require, apart from a monetary investment, special care and management. Growers may

be reluctant to cut down trees that they know how to care for--i.e., have invested in with human asset-specific capital -- and replace them with new varieties and higher-density planting techniques requiring different knowledge and management skills.

Another impediment could be that some growers do not recognize a clear goal, like a specific higher quality standard, towards which to work. Growers that take the initiative to ask their shippers for direction do receive consistent advice on size and color. Even now, a farmer who grows high quality is not always sure on which aspects his apples will be promoted: this depends primarily on the negotiation between shipper and buyer.

B. Packers

Ninety percent of Michigan's apple packers are also growers. Generally these packers store their own apples as well as those of other growers. They also sort and pack apples to the specifications of the shipper through whom they sell. Shippers who have field men use them to visit packers as well as growers, mainly to ensure that packing standards are upheld. Less often do shippers look into their packers' storage techniques. Shippers' field men may give advice to growers, but with packers their role is to enforce agreed-on packing standards. Shippers do buy from each other, and in such times the field men will also serve as the buying shipper's eyes in the selling shipper's packing station.

Packers affect the condition and appearance, not color or size, of the apples. They may harm the apples with improperly

maintained storage rooms or careless, rough sorting techniques. They affect the color and size of apples marketed (i.e., presentation) through sorting and packing standards. They most often receive their revenues from flat per-box or bag charges, regardless of the price at which the apples are sold. It is not clear whether the incentive of keeping a farmer's business year after year is sufficient to discipline a packer, as most participants interviewed agreed that there was "plenty of business to go around", implying that competition for volume was not severe at the packer level.

While necessary start-up investment in packing equipment and storage facilities can serve as a barrier to entry and thus restrict competition, packers need to handle a substantial volume to reach economies of scale on up-to-date packing equipment--especially tray-pack equipment. This requires building a reputation as a reliable, quality packer who takes farmer interests into account.

Packers make their money on volume, but maintain it on steadiness of volume. Thus it is conceivable that charges on a per-unit and not percent of price basis would not necessarily lead to packer carelessness in maintaining apple quality. Growers and packers are both constrained by asset specificity, and have an incentive to take each others' interests into account. Shippers also make their money on volume, and to maintain or increase their revenues they must build a reliable supply channel. They do not, however, have substantial asset-specific investments to worry

about. Thus they have greater scope for opportunistic behavior, and can attempt to extract at least part of the value of growers' and packers' asset-specific investments.

Packers are the information link between the grower and seller of apples. Packers' major source of market information is their shipper, from whom they may receive weekly price and market movement information which they can share with their growers. The information is generally not market-wide but only concerning the movement of goods from the packer's supply through an individual shipper. Packers are given information on exact standards and boxes to use by their shippers. If farmers request packer advice on what trees to plant, it is from their shipper that packers find the answer.

C. Shippers

Knowledgeable subsector participants estimated that 75 percent of shippers are also packers, and that 33 percent are grower-packer-shippers. Shippers control the sale and presentation of apples directly, though they have a substantial voice in packer and grower practices as well. They negotiate with buyers on price and packing standards: in effect, they are the sales agent for the growers. To some extent, shippers just provide the apple pack and quality that buyers demand, but they can also play an active role in promoting particular packs, varieties and qualities. Shippers generally have relational (not formal) contracts with "their packers" as a supply source -- who in turn have similar relations

with "their growers" -- and sell primarily to "their buyers". Each buyer will typically use more than one shipper, however, and competition for the buyer's business is fierce.

Shippers generally sell apples based on the average color, minimum color and size contained in a bag or box. A few also use pressure tests; that is, they will try to include apple crispness as a selling point. Such shippers will then institute a pressure test standard for apples coming from the packing house, and the packer in turn needs to pressure test the grower's incoming apples. Pressure tests may be used not only as an entrance requirement, and a selling point, but also as an indicator of what path the apples need to take. Apples that do not pressure test high enough, for instance, would not be put in the long term Controlled Atmosphere (CA) storage. Softer apples may be sold for a lower price to the more price-conscious buyers, leaving the harder apples to be targeted to the quality-conscious buyers. Thus far, the use of pressure tests is limited and the extent of their use differs from shipper to shipper. Although sometimes packers and shippers stress color to the detriment of crispness, there are some shippers who are trying to give crispness a higher priority.

The shipper has a significant voice in the quality and presentation of apples sold in his role as the negotiator for trading standards (above the USDA minimum). In addition to the aspects mentioned above, shippers have some control over the form in which apples are packed, i.e., bags, trays or cell-packs.

There are conflicting views on whether the demand for bagged apples is decreasing. Formal statistics suggest that national demand is decreasing, while individual packer-shippers claim that they have not experienced any drop in demand. Packer-shippers, retailer-buyers and extension agents all agree that Michigan could sell more tray-packs than it is currently set up to provide. Although the cost of packing in traypacks is higher than in bags, the service fees paid by growers for traypacked apples are also higher. In her study of Michigan's apple subsector, Leslie Berger found that the average cost differential for bags vs. traypacks in 1983-84 was $.74/bushel, while the price differential was at least $2/box. Since the packer-shipper passes on the higher cost of traypacking (including a portion of the fixed cost for buying the equipment), the relevant question for him is whether he can maintain the volume necessary to use the equipment at capacity, recuperate the cost of his fixed assets, and make higher net returns than if he had continued to pack in bags. That is, the combination of uncertainty and asset specificity has made some packer-shippers wary of investing in equipment targeted at access to an unsure market. This uncertainty is not only about retailer-buyers' commitment to buying Michigan's traypacks, but also about growers' ability and willingness to produce the higher quality apples needed for traypacks.

Growers are constrained by unpredictable weather, and the marginal net returns of producing for a higher-quality market. Although the recent price spread between bags and traypacks has

been close to $2.00, a growing number of participants believe that once Michigan establishes a reputation as a consistent producer of high quality traypacks, it will be able to command a higher price in the market. Other participants are not so sure that margins will rise sufficiently to merit the investment necessary to grow or pack traypacks.

In general the larger, more dynamic, aggressive shippers are stressing both pressure tests and the expansion of tray-pack capacity. Similarly minded packers are also stressing quality and good presentation, and many growers are actively growing for the high-quality end of the market. A great deal of information passes between retailers and shippers, and packers and shippers, in the almost-daily short chats on the telephone. The content of what is said in these chats is neither organized, regular nor written down, but information is constantly being shared and updated. The lack of formal institutions for the transfer of information does not mean that it is not transferred, only that it is of variable depth and breadth. However, most of this informal information never reaches the grower. To their credit, some packer-shippers will take the time to answer any concerns a grower may raise, once the grower makes the initial move.

Growers are left responsible for growing, and are generally encouraged to grow the best quality they can. They are not encouraged to get involved in their packer-shipper's arena of responsibility, nor do growers generally do so. An awareness of market conditions, however, can lead to more appropriate

production decisions both in the short and long run. The grower's bounded rationality most often leads to a dependency on packers and shippers to take the first step in providing advice (rather than growers having to ask for advice). Packers and shippers, on the other hand, will often say that production decisions--especially concerning planting -- are up to the growers, and that it is not their role to "give growers all the answers".

D. Grower Organizations

1. Patron-owned Firms: Grower cooperatives play a relatively small role in Michigan's fresh apple market. Two firms were interviewed for this study that could be defined as grower organizations. One, Belle Harvest Sales (BH), is over thirty years old and one of Michigan's largest shippers. Formally, it is a patron-owned corporation. The other, Wilderness Fruit, is only three years old, and a relatively small packer-owned shipper cooperative.

BH formally started as a farmer cooperative in 1956, to counteract the substantial market power wielded by the broker-buyers who would visit individual farmers and buy their apples. Today the organization is divided in two: Belding Fruit Storage Co. (BFS), which packs and stores the apples, and its wholly owned subsidiary Belle Harvest Sales, Inc. (BH), which sells fruit for BFS and other packers. BH ships approximately 22% of Michigan's fresh apples, making it the second-largest shipper in the state.

The management for BH adamantly declares that it is not a

farmer cooperative but a stock corporation, even though the stockholders are all present or former growers. Although the 1982 "Agreement Between Stockholders of Belding Fruit Storage, Inc." explicitly defines a stockholder as a person selling fruit through BFS, BH also explicitly calls itself a "Michigan profit corporation". Each unit of stock represents a tonnage quota. The quotas are a function of the number of shareholders and BFS' capacity, i.e., each shareholder is responsible to fill his quota of BFS' CA-storage, cold storage, and fall sales capacity. Quotas represent the minimum requirement, and growers may try to deliver more, but BFS is not obliged to accept it. BFS stockholders are required to deliver to BFS all production from the blocks they had at the time of stock purchase, but the BFS supply constitutes only one-quarter of the volume sold by its wholly owned subsidiary, BH.

Farmers often refer to BH as a cooperative, but the management does not encourage the idea that individual farmers have the right to become involved in the organization's day-to-day operation. The repeated stress is that BH is like any other shipper, and that it treats BFS as any of its other client packers. Given that 75% of BH's volume comes from outside of BFS, the argument is that they cannot afford to be seen treating BFS as a favorite if they want to keep their other business.

BH and BFS both charge in a manner similar to other packers and shippers, treating members and non-members alike. The only apparent benefit given to farmer stockholders is an agreement to provide storage space in BFS. BH pools packer returns by variety,

quality and, after the first fall sales, by sales period. BH also provides market movement and price information to its packers, which they may share with farmers. The BFS packing operation does share this information with its members, and pools member returns. Members are not even encouraged to think of BFS as a cooperative.

The result is an organization with a mixed identity: with a board made up of farmer-stockholders and the roots of a cooperative, but a profit-making focus and a management apparently in charge. The very reasonable logic offered is that a cooperative is also a profit-making organization, with the profits returning to the farmers. BFS returns its profits to its stockholders, who happen to be farmers. The logic <u>behind</u> the formal logic seems to be the need of BFS/BH to act business-like if it is to survive. A not insurmountable difficulty faced by many cooperatives is the reconciliation of group and long-run with individual and short-run interests. Stockholders do not typically interfere in the running of a business: patron-owners can and often do. This interference can be a business asset as well as a liability, but BH seems to have chosen the option of avoiding this issue altogether by calling itself a for-profit corporation.

Wilderness, on the other hand, is an explicitly cooperatively owned shipper: it is the sales arm for six packers, two of whom are farmer cooperatives. In reality, then, it is a packer cooperative. Wilderness is a division of Cherry Central, a large packer-processor cooperative with 18 members, most of whom are grower-owned cooperatives. Wilderness fresh sales division was

set up by its six members in 1984, and though small, is growing quickly. It provides packing materials to its members at cost, and has the unusual practice of charging 4% of each sale as a brokerage fee. Generally, those few shippers who charge a percent fee do so on approximately 6% of the selling price. Wilderness also provides its members with daily information on prices and market movement of each packer-members apples. It does not treat members and non-members alike, openly admitting that it attempts to make a profit off the latter, to subsidize the business of the former.

Both of these shippers have internal organizations affected by their patron-owned status. For instance, both have a supply planning mechanism that is common in cooperatives and very unusual elsewhere in the fresh channel: stock-tonnage contracts. Growers buy shares to correspond to what they want to deliver. The total number of shares and the bushel allotment per share is set by the management and board. In effect, this is the cooperative's long-run contract with its members. Barring very bad weather, the cooperative knows approximately how much capacity it must have to fulfill its commitments. Growers know how many bushels they can deliver to the cooperative. They are not bound to deliver the promised volume if weather does not permit them to grow it, but if they have the volume, they must deliver. These cooperatively operated firms are the only packer-shippers with any sort of long-run arrangement with their growers. In the negotiations with retailer-buyers, however, each shipper has an individual style,

with apparently no special characteristics related to their patron-owned status.

2. Michigan Apple Committee (MAC):

The MAC represents an attempt by Michigan growers to affect the coordination process through demand expansion. Its mandate is to promote Michigan apples, i.e., to increase demand in order to bring consumer demand closer to existing supply as well as ultimately increasing prices. It is financed by a mandatory grower tax; it works for the growers, but with packers and shippers. Promotion involves advertisements, including campaigns and periodic sales on particular varieties. For this latter activity, MAC needs to consult with the people holding and selling the apples, to set appropriate times and contents for sales.

Since packer-shipper profits are positively correlated with volume, MAC also benefits and works for them. While the support of growers is necessary for the legal existence and continued funding of MAC, practically speaking it cannot function without the support of packers and especially shippers. Thus, MAC has historically moved cautiously and diplomatically to garner the support of packers and shippers as well as growers. This requires a very sensitive and tactful manager, as well as a concentration of MAC activities on areas such as demand expansion that have broad support in the grower, packer and shipper communities. MAC has been successful in gaining the trust and backing of packers and shippers. However, its conservative style and focus on building good relations with packers and shippers appears to have

resulted in the lukewarm enthusiasm voiced for MAC by growers interviewed for this study.

E. Retailers

Shippers are the locus of power in the supply chain, and retailer-buyers hold power in the demand side. Negotiations between these two groups sets the price and quality standards for apples. Growers and packers have little voice in determining the characteristics on which the apples will be promoted, nor the price they will receive. As retailers have become ever fewer and larger, their individual demand and bargaining power grows accordingly. Industry sources estimate that there were approximately 4000 buyers of fresh apples in Michigan ten years ago, and closer to 400 such buyers today. The fewer, larger retailers not only have more bargaining power, they have higher standards in quality, consistency and service that must be met. The general consensus among subsector participants is that, for most buyers, quality and service each outrank price in importance, reflecting the increased consumer demand for high-quality fresh produce.

Once the goods reach the retail outlet, however, control over maintenance of quality is out of the apple-supplier's reach. As in the case of Norway, numerous goods enter a single arena, competing for care and shelf space. Apples that are left for too long in room-temperature displays or are not rotated properly will be soft and mealy by the time they are finally bought -- despite

all the care invested in growing, picking, storing, sorting, packing and delivering. Larger retailers tend to have personnel who work solely with fresh produce and are (perhaps) trained and knowledgeable about proper care techniques. However, even they work with dozens of different fresh produce items, having limited time to spend on any one item.

In recent years, retailers have put increasing importance on quality and service -- both high information cost goods -- rather than price. Thus, long-term relations are fostered once a shipper is found who performs satisfactorily in these areas. This is not to imply that price is unimportant: if a competitor could supply the same quality and service at a lower price, this information is relayed to the regular shipper as part of the telephone negotiations. Given the inadequacy of USDA quality standards to the current state of the market, some retailers such as Kroger have their own quality standards. These standards are explained to prospective shippers and expected to be followed consistently thereafter.

Retailer-buyers are generally quite explicit about the quality characteristics they want to buy in the immediate term. For the long run, they will generally stress high-quality, consistency and tray-packs, rather than going out on a limb by suggesting possible specific quantities, varieties, or price ranges.

F. Government

Insofar as quality issues are concerned, the government has historically played a minor role. Once standards have been set, printed up, and circulated there is little else that the government actively does. Federal inspectors are used primarily in cases where one party files a complaint involving quality against another and requests federal inspection. In an industry built on long-term relationships, this is not a common occurrence. Subsector participants generally agree that enforcement of standards is variable; for instance, what one packer-shipper will sell as 85% color, another would call 70% color. However in the fast-moving world of fresh produce, dissatisfied parties generally rely on personal communication or exit rather than calling for federal inspection. Another difficulty with calling federal inspectors is that they enforce federal standards -- which are below what the market uses. The inspector cannot come and enforce verbal shipper-buyer agreements above the federal standards.

The main active role of government is in the collection and dissemination of aggregated information concerning production and crop movements. State crop report surveys are published every four years, providing information on existing numbers, age and location of trees of different varieties and strains, farm sizes, and so on. These surveys are somewhat useful in long-run planning. They give no clue as to what growers are planning to do or are even being advised to do, but they do provide a clear picture of what is currently in the ground. The USDA also puts

out weekly "Apple Market Reports" that provide information on prices and product movement by federal grade and variety. As explained earlier, these reports are inadequate for understanding what quality of apples were actually sold within a grade.

G. Conduct

As was the case for Norway, the analysis of conduct which follows assumes that individuals are utility maximizers. In interpreting what this means for producer it is important to remember that the majority of fresh market apples in Michigan are grown by specialized growers, on farms usually over 65 acres. Growers in highly diversified areas such as southwestern Michigan grow an average of five or six crops, with apples ranking first or second. The 400 growers in the highly specialized area of west-central Michigan grow only one or two crops, with apples ranking first. The climate there is better suited to apple production, and an estimated 80% of Michigan's fresh-market apples come from this area.

The cash flow and asset specificity constraints faced by growers, as well as uncertainty about the future, act as brakes on their adaptability. Adapting to changes in demand can cause the grower either to change the area under production or to replace existing trees with new ones of a different variety/type. Both of these options are costly and neither begins to repay the investment until many years later. Having to bear all the risk of inappropriate decisions also acts as a disincentive to adaptation.

Packer-shippers have historically concentrated their long-run advice on plantings to identifying preferable varieties, rather than advising on volume, and few provide the market information needed by growers to make independent decisions in line with market demand. The reason often given is that "it's the grower's responsibility to get information for long-run planning".

A question that comes to mind in response to this statement is whether grower production decisions affect only the grower. Clearly, they do not. But taking a stand on production decisions is risky, and those who can separate themselves from having to bear this risk will do so. This is apparent from the way charges are set up: shippers and packers make their money primarily from the volume, not price, of apples sold. There is more volume and profits to be had for the packer-shippers who can deliver what the market demands, so there are incentives to try to affect the grower's production decisions, but not to bear the risk. Most packer-shippers will not commit themselves to providing a home for "their" growers apples. In the interest of the long-term relationship, a packer-shipper may try to be a reliable partner, but even the highest-quality grower knows that his packer-shipper is not a guaranteed home for his goods. Only the cooperatively operated firms actually have a contract that involves both sides' expressing a commitment to each other.

In general, no one who can be held accountable wants to give growers long-run advice. Projections and planning for the long run generally fall to the university extension programs, with most

subsector participants being leery of even lending public support to projections offered by the extension service. In the end, decisions about the long run are primarily the grower's problem.

Some growers have joined forces to discuss and attempt to affect the subsector coordination process. The largest broad-based apple grower interest group in Michigan, the Pomesters, has recently become active on issues such as quality standards. Although the Pomesters began as a social group, in recent years they have become increasingly involved in representing grower concerns and trying to initiate action in areas such as increasing grower-shipper communication and increasing the level and consistency of apple quality. Pomesters, although representing only 8% of the growers, produce an estimated 50% of Michigan's fresh apples. Since their recent expansion into controversial areas, they have felt the need for a broader base of support. The success of their efforts to expand membership and generate broad enthusiasm has been mixed, and their willingness to continue putting time and energy into industry-wide issues has dwindled accordingly. It is a classic case of the difficulty with mobilizing large-scale action for a high exclusion cost good.

On the whole, growers concern themselves with apple production and leave marketing concerns primarily for the packer-shippers. Some participants argue that growers' economic difficulties in the early to mid-1980's have caused them to be more critical of their

packer-shippers, and more apt to switch to a competitor if dissatisfied. Larger growers often expand and begin providing packing services for themselves and other growers.

Packers are overwhelmingly either growers or shippers, or both. If they are shippers, subsector participants broadly agree that allegiance to the shipper-identity takes priority over all others. If they are grower-packers, they often identify with the grower-identity. Packers' and shippers' revenues depend primarily on volume, not price, of apples sold. The relation of a shipper's fee structure with his approach to his responsibilities can be illustrated by comparing profit functions under two different structures: flat fee and percentage-of-sale-price charges. Flat fees are levied by pack types, e.g., all apples packed in bags will be charged equally.

Compare:

(3.3) Flat fees:

$$PP' = x'Q - C(Q,q) \qquad dC/dQ > 0 \qquad dC/dq > 0$$

(3.4) Percent-of-value fees:

$$PP'' = x''P(q)Q - C(Q,q) \qquad dP/dq > 0 \quad dC/dQ > 0 \quad dC/dq > 0$$

Where:

x' = flat fee, given pack type

x'' = percent-of-price fee

Q = quantity of a given pack sold

PP = Profits

q = quality sold

C = operating costs

P = sale price

This is an admittedly simplified version of the shipper's incentive structure, but may provide some insights nevertheless.

incentive structure, but may provide some insights nevertheless. Thus with a flat fee (x'), the shipper's revenues (x'Q) are a function of quantity. Price does not enter directly into the profit function, and quality enters only as a component of costs. However, quantity delivered to the shipper by growers as well as the quantity sold to retailers clearly depends on price and quality, and thus are concerns of the shipper. His incentives for price bargaining are contradictory: growers look for shippers who sell for higher prices and retailers patronize shippers who can deliver desired quality at lower prices. With pooling and complicated lagged payment schedules, a shipper can try to postpone or avert growers' negative reaction to low returns while capitalizing on retailers' immediate reactions to price cuts. Finally, shippers will probably be slow to adjust to market changes since it is only when these changes reach a wide scale that the increased volume makes up for the increased costs of handling higher or different qualities.

With percentage fees (x''), a shipper's revenues are directly affected by the price and thus quality of apples sold. If redder, crisper or more uniformly-sized apples sell for a higher price, this returns more to the shipper than with the volume fees. His price-bargaining incentives are also consistent with the growers' interests, whom he is representing. Finally, with percentage fees, the shipper has a greater incentive to make sure that apples are produced, stored and packed in just the way the market demands; thus he will be more likely to take the initiative to

inform his packers and growers of market changes rather than relying on growers to ask first (as is currently the case).

Under the current fee structure in Michigan, packer-shippers have an incentive to exaggerate apple quality to potential buyers in order to ensure faster turnover and higher short-run volume of sales; especially in those aspects not easily measurable. While bruising and size are both visible and unambiguously measurable, color and crispness are not. This, and the effect of fickle weather, have created a reputation of inconsistency in quality for Michigan.

Since the formal USDA grade standards are not adequate for current industry needs, practically each shipper-buyer transaction sets a different quality standard. They are set over the phone, with some buyers checking quality of the apples upon delivery and some going so far as to check the packing house for quality. Given the perishable, variable-quality characteristics of apples and the individually-determined quality standards, trust and personal relationships play an extremely important role all along the apple subsector. This is not meant to imply that opportunistic or exploitative behavior is generally absent, because it certainly is not.

Michigan's apple industry has been making efforts to address the need for more relevant quality standards in recent years. There is a growing sentiment that <u>something</u> must be done about the quality standards, and various participants have been searching for appropriate approaches and leaders for this task. Some

growers point to shippers, saying that since they have the most power, they must also assume the most responsibility. Some shippers point to growers, saying that quality standards will affect growers the most and thus they should be the ones to carry the torch of change. Furthermore, since not all shippers want any changes in standards, no pro-change shipper wants to suggest anything that will alienate him from the others. Politically, visible grower support for change is necessary.

Some packer-shippers point to the Pomesters as the appropriate channel for grower voice. The Pomesters reply that they are only 125 out of 1500 growers, and cannot push for industry change alone. Attention inevitably turns to the Michigan Apple Committee (MAC): it represents all growers, and its area of responsibility might legally be broadened (with a grower vote) to include quality control. But quality control is a very controversial area, and the historically cautious MAC is unwilling to jeopardize either its demand-expansion program, its bureaucratic survival or its alliances with packers and shippers by getting involved. It needs a large number of growers supporting its expansion into the area of quality control, because it is the growers' votes that funds MAC. So far, this support has not been visible.

MAC is an excellent example of the difficulty faced by grower organizations with a large or heterogenous membership. When members have diverse interests and constraints -- which Michigan apple growers do -- then their common organization must play a delicate balancing role in order to maintain the level of

consensus necessary for its survival. The specialized growers constitute a large proportion of Michigan's fresh apples, but numerically they are a minority. In a one-person, one-vote governance structure, they cannot ensure the continuation of MAC funding on their own if it ventures into hostile waters. MAC needs the support of a numerical majority of growers in order to survive, and of the packers and shippers in order to be effective.

Packer-shippers, in their quest for maximum profits, have options for action that are mutually exclusive. In their cutthroat competition for volume, for instance, they sometimes seem to cut prices unnecessarily, just to make short run sales. Participants all along the subsector agree that this harms everyone in the subsector. To some extent, shippers are disciplined by the need to maintain a steady supply of fruit and the growers' trust, but especially in large crop years the intense competition between shippers can cost the growers substantial sums of money. An "invisible fist"[4] situation emerges where everyone competes fiercely because everyone else does, forcing each packer-shipper to cut prices to ensure the sale of their apples.

Shipper's profit goals can also be reached by focussing on gaining market share in the high-quality/price segment of the market, thus attracting higher-quality growers and tapping into the increasing volume of high quality demand. This requires

---

4. Platt defines an invisible fist as a situation where everyone is forced to take a specific action in order to survive, but the result is harmful to all parties involved. Price wars are a common example of a social fist.

especially aggressive, future-oriented shippers with the ability and inclination to bear the higher costs of risk associated with such a path.

One barrier to the expansion of shippers' volume is Michigan's reputation among grocery buyers for inconsistency. To combat this, some shippers have adopted the practice of targeting their customers. This involves making sure that each customer receives the same quality of apples over time. It does not require that the packer accept only high quality fruit, or that the shipper sell only the best. The supply from growers may continue to be inconsistent, but the packer-shipper markets the fruit carefully, making sure that the supply to each retailer-buyer remains consistent.

Shipper behavior in the price-setting process will be discussed in more detail in Chapter 4. In general, shippers share little supply information with each other. In relations with buyers, shippers are fiercely competitive, while with growers they project the (partially illusory) image of a united "shipper community". Recent years have found shippers moving towards closer cooperation on some issues. A Michigan Shipper's Association now exists, where shippers meet with each other regularly and invite others to discuss industry problems and possible approaches. But cooperation comes slowly to a group that has historically operated as fierce competitors. Shippers are not all of one mind on most industry issues, and the Michigan Shipper Association is as much an arena of power-jockeying for state leadership as it is of

mutual cooperation for mutual advantage.

Retailer-buyers benefit from the competition between shippers: even between the six to eight shippers that a retailer may use, there is competition for each to push through as much volume as possible, and the consequence is often price-cutting sprees. When goods are sold at prices below the costs of production or at a level that covers only variable costs, this gives the message to apple suppliers that fewer resources need to be devoted to apple production. This is undesirable for the entire subsector if these prices do not accurately reflect effective demand. Even the consumers do not receive benefits from artificially low prices, as retailers do not generally decrease in-store prices until they know the decrease from shippers is not a fluke.

There have been no claims from interviewers that retailers are making economic profits as a whole. Some do claim that retailers use the produce department (including apples) as a high gross-margin profit center for the store as a whole to subsidize other less profitable departments. While reasonable from a retailer standpoint, higher-than-average margins on the produce department are unsatisfactory from the grower, packer and shipper standpoints. Retailers also cite the need for high markups on produce to pay for the high volume of throwaways from this department.

III. COMPARISON OF NORWAY AND MICHIGAN

The number of similarities in the quality issue between Norway and Michigan are surprising. Both have as their major quality issue the broadness and subsequent inapplicability of existing standards. Both have a reputation for quality inconsistency. Both are experiencing demand shifts towards higher quality produce and consumer willingness to pay more for it. County extension agents are the primary source of production information and the apple shippers are the locus of supply-channel power in both countries. What long-run advice is given to growers comes primarily from the shippers, although in Michigan this constitutes very little advice. In both countries, the shipper-broker function is frequently separated from the packing house. Although the two have ties, and in both countries shippers often also own packing houses, the shipper function is dominant and its interests sometimes are separable from packer interests.

There are also a number of significant differences between the two subsectors. Growers in Norway are much smaller and more diversified than Michigan growers. Within the products grown on the farm, apples hold a lower priority in Norway than in Michigan. Norwegian growers are more certain of the prices they will receive (for reasons covered in Chapter 4), and they are somewhat more informed about what they should plant or cut down. Most packing stations are quite small and still sort the apples by hand. The majority of growers control the packing houses they use, and so can hold the management responsible for poor storage or packing

techniques. The packing house is really the highest level at which most growers perceive themselves as wielding any power. The huge grower-owned cooperative is indeed run by growers (and the management), but the feeling among many growers and even packing station managers is that precious few farmers' voices are heard in the cooperative's decision-making structure.

The largest shipper in Norway is a farmer-owned cooperative, with strong ties to the government. It handles 50% of the nation's apples. Much of the subsector relies on established rules and general standard operating procedures rather than trust and personal relationships. It is not that the latter characteristics are unimportant, but that they are not as central an ingredient as in Michigan.

GH takes an active role in giving long-run production advice to its members. This is due to the structural design that separates the makers of agricultural policy -- of the Annual Agreements, to be exact -- from its implementors. GH must somehow sell its members' apples at prices commensurate with the annual income level set for the farmers. To prop prices up, many apples go to processing; some argue that Class 1 apples are even sent to processing. GH's long-run strategy for fulfilling this responsibility, however, is to try to influence growers' production decisions, so that long-run supply is brought closer to what long-run demand might be at the negotiated prices.

Michigan's apple subsector operates under much more uncertainty than Norway's. This could be the reason why trust and long-term

relations play such an important part in the subsector. But long-term relations are rarely between equals, and one side can generally afford to be more cavalier about adapting to the other's needs. Michigan's growers have little idea what prices their fresh apples will receive, especially at the time of planting. Many growers rely on apples for the majority of their income. The packer-shippers negotiate for prices with buyers, but their income is independent of the price received. Packing houses may be owned by one or more growers but are most often run as private enterprises, not cooperatives. Cooperatives play a small part in Michigan's fresh apple market. Growers have most of their influence in the production arena, but these 1500 growers that comprise about 10% of total national production have very little individual power. Their interests are kept in mind to some extent by their packers and shippers, especially if they happen to be higher-quality growers whose continued patronage is valued. Even the best growers, however, are not fully secure that their packer-shipper will continue to accept their apples or that their apples will bring a profitable price. Only the few cooperatively-operated shippers promise their growers a home. The importance of maintaining the bonds of trust has meant that most packer-shippers will generally work with the same growers from year to year, but there is no formal commitment involved.

The following chapter discusses the structure and conduct surrounding the issue of price determination in fresh and processed channels of Norway and Michigan's apple subsectors.

Chapter 5 then examines how the interaction of participant conduct with the subsector's structural organization and underlying situational characteristics affects performance or coordination.

CHAPTER 4

PRICE DETERMINATION IN THE FRESH AND PROCESSED APPLE MARKETS

This chapter analyzes the process of determining the retail market price of apples and the process of dividing this price between subsector participants. Both the fresh and processed markets are discussed, as the prices in these two are mutually dependent. Although to some extent processing and fresh apples are different goods, i.e., of different qualities or varieties, to some extent the processed market serves as an escape valve, taking out of circulation some potential fresh-market apples and enabling the remaining apples to command a higher price.

As in the previous chapter, the discussions of structure and conduct are organized in a step-by-step fashion, focussing first on Norway, then Michigan, and finally on a brief inter-country comparison. Chapter 5 will then turn to a broader comparative analysis of the performance in each subsector.

I. NORWAY

This section considers the role of each participant-level in price determination. Although many of the institutional structures relevant to the fresh and processed sectors are separate, the participant-levels involved are, for the most part, the same, even though the participants play different roles in the

different structural. The chapter considers each institutional structure in turn, describing the structure and the role of various participants within it. The institutional structures to be considered are: Annual Negotiations: The Process - Annual Negotiations: The Implementation - Annual Grower-Processor Negotiations - Import Regulations. These structures have all been introduced in Chapter 2; the emphasis here will be on providing a more detailed description of the structures and the role of the participants within them. Having introduced the different structures, the chapter then turns to conduct, considering the objectives, paths and actions of each participant-level in turn.

A. Annual Negotiations: The Process

The Annual Negotiations take place between the farmers and the government. The government has three representatives, from the Ministries of Finance, Consumer Affairs, and Agriculture. The farmers also have three representatives, one from each of the two farmer unions, and a third person mutually acceptable to both unions. The negotiations first decide what the income increase should be. Then, this increase is divided between output price increases, which are really per-unit taxes paid directly by apple consumers, and input subsidy increases, which are paid by the government and financed by income taxes paid by all Norwegians. Generally over half the growers' income increase comes from adjustments in output price. These negotiations also decide the amount to be alloted to the green sector's market regulation fund.

Farmer unions are the vehicle for the expression of grower political influence. The income increase is negotiated without reference to specific farm commodities, but the discussion of price and subsidy adjustments is on a sector-by-sector basis. This is feasible for, e.g., the livestock sector because there are relatively few commodities to consider. The green sector, however, encompasses all fruits, vegetables, berries, potatoes, live plants and flowers. This includes dozens of commodities--thus the annual negotiations just set the total amount by which price of all goods in the green sector must be adjusted throughout the year (see Appendix B). The commodity-specific adjustments are decided on later, by a council with 13 representatives from the government, private industry, and farmer organizations (including GH). The individual farmers have a say in the setting of the standard price level, the upper price ceiling, and the weekly setting of the guiding price level only through their representatives. Packing stations also have nothing to do with price determination. GH has very little influence in the annual negotiation process itself, but it is fully responsible for implementation of the resulting agreement.

B. Annual Negotiations: The Implementation

After the general annual negotiations are completed, the work of price-setting for the green sector begins. Soon after the completion of negotiations, the Ministry of Agriculture comes out with the list of green sector target prices agreed on by the

council of 13 representatives. Each commodity has a base target price and ceiling price (12.5% over the base price) identified for every week of regulated imports. The weekly target prices are set for generic Class 1 apples, i.e., with no variety specified. The final result is a target and ceiling price quoted for each commodity, for each week of the domestic season. Thus an average Class 1 price for apples is set from week 32 or 33 (mid-August), through week 5 (early February). The target prices are not actually different for every week of the year; in general, there are two or three target prices, with later target prices being higher than earlier ones in order to pay for storage costs.

It is the job of GH-Central's director of Market Regulations to estimate and disseminate target prices for each domestic variety of apple weekly, aiming to avoid imports during the Norwegian apple season. These specific target prices are used as the starting f.o.b. wholesale prices for Oslo for the following week, and fluctuate according to market forces for the remainder of the week. GH's district offices, which actually sell the apples, thus have some flexibility in setting prices in their negotiations with buyers. If prices fall 12.5% below the base price for two consecutive weeks, GH may use market regulation funds (as long as they are available) to subsidize exports, to have a sale to get rid of seasonal excess volume, or to send off some apples for processing. The result of all this can be seen in Appendix D, with the graphs of target vs. actual prices from 1982 to 1985 for Norwegian fresh apples.

GH pays the packing stations for its apples, after taking out a percentage fee for its administration costs. The packing station then takes out its costs and returns the rest to the growers. Payment by GH and BAMA alike is on a split-season basis, with a base payment made in mid-season, and the balance paid at the end of the year.

Earlier it was pointed out that growers have voice through their unions and responsibility through their cooperatives. The pricing structure illustrates this well: if prices fall too low, it is GH members' apples that are shipped off to processing, to boost prices back up. GH district salesmen have more pressure on them than BAMA salesmen to keep prices close to the quoted estimates from GH-Central. On the positive side, if prices are too low and GH requests funding to subsidize a sale, it is GH members who receive the subsidy even though the price of all apples on the market at that time will fall to the sale level. The market regulation funding serves as a buffer for GH's regulation efforts.

Private-sector wholesalers can also request market regulation funds, but the conditions attached are such that few ever request them. The fund is administered by the Marketing Council (Omsetningsradet), which also provides GH with separate funds for construction of storage facilities and reimbursement for GH's administrative duties.

Individually, the growers have no voice in setting the price, or dividing the price pie. Together, they have a voice in setting

target prices, an institution (GH) to give them both advice on what to grow to make the achievement of that price easier to accomplish, and guidance of market prices towards that goal. They have a source of funds to take some of the pressure off when planning and reality do not coincide. But once the regulation funds have been exhausted, it is the individual growers who must bear the burden of price decreases.

Growers receive small price subsidies for apples that are sent to processing. Processing apples do not receive transport and packaging subsidies, nor are farmers who grow only processing apples be guaranteed any particular income level. The major manufacturer of semi-processed of apples in Norway, Hardangersaft, is owned by GH.[1] Its recent history is a good illustration of the nature of Norway's market regulation, as well as a useful introduction to the annual processor-grower negotiations.

In 1972, Norway was considering joining the European Economic Community (EEC). Such a move would have spelled death for most of Norway's agriculture, with its relatively high costs of production, as well as having drastic effects on the rest of the economy. The question was put to the people in the form of a referendum, and they rejected joining the EEC. Certain trade agreements were made, however. One of these was to open up the fruit market to some extent -- in apples, this meant moving the

---

[1]. Semi-processed apples refer to apples that are processed into a form used by industrial consumers of the good, who then further process and pack the apples into their final form. Processed apples, then, are those that are in a form ready to be sent to retailers.

beginning date for unrestricted imports from April to February 1. This effectively shortened the Norwegian apple season two months, as Norwegian apples cannot compete with the cheaper, higher-quality imports.

Growers protested through their farmer unions, and to compensate them, the government paid GH (and only GH) to expand one of its processing plants to take up the excess supply of apples. Hardangersaft's goal is to aid in the control of the raw market. Its goal is not to compete in the retail market: it is a market regulation device, not a profit-making company. It sells semi-processed apples, primarily to Norwegian bottlers. Because of this, the private industry did not oppose Hardangersaft's role. Today GH's two major apple processing plants supply 60% of Norway's semi-processed apples. Hardangersaft's formal GH-source of raw product is the central office, but in reality apples are delivered to it directly from GH member-packing stations, as well as from independent packing stations and BAMA. There are no formal contracts for raw product delivery: deliveries are primarily based on past years' delivery records. In large-crop years, whose apples are accepted by Hardangersaft is especially a function of who was a reliable supplier in previous short-crop years.

C. The Annual Processor-Grower Negotiations

Early every year, Norway's processors and growers get together to set raw product prices for the coming year. Prices are set

above the level they would otherwise command, and thus include an implicit per-unit tax. First vegetable prices are negotiated, then fruits prices. GH and the Farmer Union represent the farmers, and the Processor's Association represents the processors. This Association was formed primarily due to farmer pressure to have a unit with which to bargain. Although GH is a member of the Association, it cannot sit on the processor's side of the table.

Processors must estimate their input needs before the negotiations begin. These estimates are distributed to the farmers via GH, and whatever cannot be provided domestically may be imported. The negotiations result in two prices set for apples: a higher price before January 1, when Norwegian apples are still being sold on the fresh market and the opportunity cost of processing is higher (at least for those apples that could potentially go to the fresh market). The month of January is the clearing-out period for Norway's fresh apples, and from February 1 any remaining apples compete with imports in the fresh market.

The Processor Association also promises to buy its full domestic needs (i.e., 75% of total needs) from Norwegian apples, although processors are not committed to buying everything that growers produce. GH, in return, promises to support import requests if growers cannot fulfill the Association's needs. Thus, although farmers have little power in the day-to-day decision making, they have significant group power when it comes to policy formulation on major issues of concern to them. The negotiation

format described above sets prices for all processing fruits and vegetables, most of which are used by large private processing firms. For apples, however, GH is actually bargaining on the growers' side for the raw product price it will have to pay, since the majority of processing apples go to GH-owned plants.

The crucial ingredient for the success of Norwegian market regulation efforts is import regulation. These regulations themselves are not a factor in setting either the target price for fresh apples or the fixed price for processed apples. Without the regulations, however, neither price would be achieved.

D. Import Regulations

A complete understanding of the Norwegian coordination process as it relates to price -- and perhaps more important, of the major coordination issues as they relate to price -- requires a discussion of the restrictions on the imports of fresh, half-processed, and processed apples.

Fresh apples may be imported with no restrictions from 1 February to 30 April. For the following three months, imports are restricted so that importers cannot stockpile varieties such as Granny Smith that can be stored for long periods and thus compete with domestic apples in the Norwegian apple season. From 1 May-30 July there are restricted imports: the Ministry of Agriculture designates a certain number of tons that may be imported and the rights to import are then divided up on a quota basis. These quotas are based on a three-year average of free-period imports,

which gives an institutional incentive to increase imports. The farmer unions are trying to change the quota basis to domestic market share, thus giving an incentive for wholesalers to try harder to sell Norwegian apples.

Apple imports are completely restricted after 30 July. Since the first Norwegian apples are not available until mid-August, this allows two weeks for the market to clear of imported apples. After this time, apple imports are allowed only if the average domestic supply price is above the designated ceiling for two consecutive weeks. Private shippers and GH are both bound by this price ceiling.

Imports of fruits not grown in Norway, however, are always allowed. Subsector participants at levels closer to the growers accuse wholesalers and retailers of promoting competing goods, i.e., imported fruits, in the Norwegian apple season. Wholesalers such as NKL (the consumer cooperative), who do not have any allegiance to Norwegian growers, claim instead that Norwegian apples are simply inferior to the imported varieties, and thus do not sell as well. In any case, the ready availability of substitutes for apples allows consumers to avoid the some of the per-unit tax on apples by purchasing other fruits.

Decisions concerning imports are completely out of the domain of growers and packing stations. The GH districts also do not import produce, but they do order and buy it from GH-Central. The other two major importers of fresh produce are BAMA and NKL, the

consumer union: together these three account for 65% of Norway's fresh produce imports.

Imports of semi-processed apples -- i.e., apple pulp and concentrated juice required by manufacturers of apple juice, soda, and other processed apple goods, are also restricted. As long as Norwegian semi-processed apples are available, no more than 25% of the industry's total needs may be imported. This 25% is allowed only because of the high acidity of Norwegian apples. In return for this, producers of goods containing semi-processed apples receive market protection. That is, no one can import processed apples that would compete with its counterpart containing domestic apples. Thus, although apple processors also pay a per-unit tax on the domestic apples they use, they are committed to purchasing these apples. In return, they are given the right to pass this tax onto the consumer. To the extent that consumers shift their purchases away from processed apple goods, the processors and ultimately growers bear the tax implied in price-supports. The incidence of the tax depends on the price elasticity of demand, and hence the price of substitures. In Norway, many of the substitutes for apples also are subject to price supports.

<u>Within</u> Norway, apple processors compete on a level playing field, and are subject to the common input prices set by annual negotiations between representatives of the growers and the processors. The existing arrangement protects both apple growers and processors, so neither has any reason to agitate for change in the status quo. <u>Someone</u> has to pay for all this protection,

however. This "someone" is the consumer, now paying the highest food prices in all of Scandinavia. The result is an annual upward spiral of wages and food prices. This is a major issue in Norway today: the performance of the apple pricing process per se has engendered no major opposition; rather, it is the broader result of this process aggregated over all food crops that is the source of growing consumer dissatisfaction. Norwegians are increasingly questioning the value of continuing this costly agricultural pricing policy.

E. Conduct

This section will consider the objectives, paths and actions of each participant-level in turn. The levels to be considered are: growers and their unions, packing stations, GH, BAMA, the Processor Association, and the government. To the extent possible, they will each be considered separately. The section following this will bring together all these details, and present an overview of the subsector as a whole.

As in the previous chapters, growers are assumed to be utility maximizers, translating here to a profit-maximizing objective, given individually-determined preferences for leisure and security. In terms of price, this means as high a price as possible to have and still sell the domestic supply. It is the aggregate desire of growers for price and stability levels that determines, to a large extent, the outcome of negotiations, and thus price levels, for apples. Norwegian growers have traded the

freedom to seek out and bargain for the highest price individually -- with its concurrent risk of being subjected to monopsonistic relations and low price -- for the security of a stable, predictable, livable income. This income is determined by the level of prices and subsidies (given a quantity to be sold), both of which are set at the annual negotiations.

Norwegian growers generally grow a variety of crops, and their representatives at the negotiations are the farmer unions, who represent the general grower. Thus in the annual negotiations, the push is not for a high price for any particular crop, but for a high income increase, which translates into higher prices and subsidies for all produce. This push is met by the competing interests of consumers and the spending priorities of the government, as represented by the government's representatives. In negotiations for processing-apple prices, the push is specifically for high raw product price, met by the competing interests of private processors.

Some subsector participants believe that given the current system, the most profitable option for most growers is to grow low-quality Class 1 apples and sell them through GH or BAMA. Once the negotiations have been completed, most growers have the choice of selling through BAMA, which prices individually and gives the grower of apples with more desired qualities a better price, or through GH, which treats everyone the same but is the distributor of many subsidies. GH's job of maintaining price within the agreed-upon area is more feasible the more volume it controls, so

growers with an interest in supporting the price band may see it in their best interests to support GH. The free rider problem, however, may prevent growers from acting in their best interests in this case.

Tax evasion is one factor contributing to the decision not to sell through GH: tax rates in Norway are very high, and especially for smaller farmers the opportunity to sell produce under the table and avoid the income tax is more attractive than the subsidies they qualify for through GH. Finally, GH's policy of not using a differential pricing policy makes BAMA an attractive option for growers who can produce apples with characteristics most desired by the market. The result of these factors is that GH handles only 50% of Norway's apple production.

Although an important structural link and information channel for the subsector, packing stations are not much involved in the price determination process or its implementation. Their participation in GH, for instance, is limited to letting the district office know how much is in cold storage, or to pressuring that office to sell faster.

GH district offices are the actual salespeople for most GH apples. Given the weekly indicative price from GH-Central, they individually negotiate for prices with retailer-buyers. Each district's accounts are held separately, and remuneration for its operating expenses come from percentage-of-sale-price fees. Thus

the district offices each have an incentive to negotiate for as high a price as possible, while being conscious of the GH mandate to control prices.

The considerable autonomy given to district offices despite GH's formally centralized structure, represents an attempt to deal with the problem of economic organization as outlined by Williamson: to "economize on bounded rationality while simultaneously safeguarding transactions against the hazards of opportunism" (1985, p. xiii).

GH's centralized structure gives a core management group the ability to draw up and implement large-scale plans for, e.g., long-run supply, and to coordinate the activities of the local and regional units. But in day-to-day activities, it is judged to be a more efficient use of mental and physical resources to allow districts room to maneuver according to their knowledge of their own areas' conditions rather than to require that daily stock information and price negotiations all go through one central office. Since districts are still part of the cooperative, growers are still safeguarded against the "hazards of opportunism", while the cooperative as a whole economizes on its resources and bounded rationality by giving districts the authority to run their own daily affairs.

GH management does not receive monetary rewards for getting a high price or staying within the price band. Managers are censured, however, if they fail to accomplish these goals. When asked about the negative effect this might have on management's

incentive to do more than minimally well (minimizing risk of failure), participants were invariably indignant. Even BAMA management disagreed with the need to provide a monetary reward for exceptional performance. The general consensus was that the desire to do a good job and get a promotion was sufficient incentive, and that extra bonusses for specific actions were culturally uncommon.

In years past, GH was accused of paying little attention to the quality of apple pack and presentation of goods. GH fees are based on percent of sale price, which were suggested earlier to promote a greater shipper (GH) focus on quality and presentation. At first glance this appears to contradict the fee structure-shipper behavior relationship put forth in Chapter Three. This is not the case, however, since GH's revenues are not just a function of price and quantity sold. A significant portion of GH's budget is paid by the government through subsidies, administrative compensation, and market regulation funds. The continuance of these payments to GH depends on GH's ability to fulfill its role as implementor of national agricultural policy. Part of this role requires GH to sell as many Class 1 apples in the fresh market as possible, at prices within the price band. In order to ensure that most are sold in the fresh market, GH has an incentive to mix the various qualities under the Class 1 standard.

Mixing of quality enables GH to label a box as containing apples of a certain quality, while mixing in lower-quality apples (within the limits of legal standards) that might not have been

purchased on their own merits -- at least, not at that price. Critics argue that if GH did not mix sizes, it could secure a higher price for larger apples that would more than compensate for the lower price of smaller apples. This criticism is gradually being taken seriously by GH as consumer demand moves more clearly to a preference for quality over price.

However, GH-Central's maintenance of itself as an effective implementor of agricultural policy requires a high market share. Efforts to increase its market share have the dual effect of making GH's policy-implementation job easier to accomplish, and of building public confidence in and respect for this weakest of the national grower cooperatives. Although the management at GH-Central had been relatively passive and complacent about its roles, the recent combination of increased competition, national economic difficulties, and management turnover has resulted in what participants call a much more dynamic and aggressive core at GH-Central. Today the effort is not only to keep prices within the price band but to promote actively the cooperative character of GH to growers, to streamline operations, and to recruit new members.

Hardangersaft, GH's processing plant, is operated as a separate business unit. Its major objective is to stay solvent and to dispose of the domestic Class 2 and excess Class 1 supply. Class 2 apples are sent directly from packing house to semi-processors, and Class 1 apples experience the same fate in periods of seasonal oversupply. Its efforts are <u>not</u> directed at

expanding market share, or at recruiting delivery, any more than necessary to achieve the aforementioned objectives. Raw product prices for apples are set at a fixed level; thus it is not necessary for the cooperative to control a large portion of the market in order to implement agricultural policy.

BAMA is bound by the Agricultural Agreement's price band, just as is GH. It is not, however, responsible for implementing it. BAMA prices differentially between growers in its drive for maximum profits and market share; it only need aim for an average price within the belt. This policy of pricing differentially is a definite competitive advantage for BAMA (Nodenes). It may also be seen as an advantage for consumers who would be willing to pay a higher price for higher quality. BAMA is, in effect, capturing some of the consumer surplus by separating apples of different quality and selling each type where it is most valued. In order to get the high quality apples from growers, BAMA passes on some of this consumer surplus back to the higher-quality growers. Given the current subsidies and regulations, it is profitable for BAMA to handle Norwegian apples in this way, but many believe that the day import regulations are removed, BAMA will not touch Norwegian apples.

The Processor Association has three stated objectives: to negotiate annual prices of raw products for processing, to allocate import quotas, and to act as an intermediary between the government and Association members. Although it does try to negotiate prices downward in the annual negotiations, it does not

face intense pressure from its membership to do so. All Norwegian processors will face the same price at any rate, and all receive the same market protection.

The government has to walk a narrow line in the price area: yearly it must balance consumer and producer interests and national and individual interests in the negotiations with farmer unions. Costs of production are very high on the small, diversified Norwegian farms, especially in the geographically harsher and more isolated areas. It is precisely these areas, however, that are the highest priority to maintain for national security. As incomes rise faster than productivity increases, farm labor costs and thus the costs of production rise on these small farms.

In the apple subsector, the combination of fresh and processed import regulations, and annually-increasing target incomes for farmers result in high costs for Norwegian consumers. The desire to achieve income parity between the industrial and agricultural sectors in order to maintain population centers in remote rural areas and to increase food self-sufficiency has thus far outweighed the concern for high food costs. Industrial wages increase to keep up with the rising cost of living, and agricultural wages increase to keep up with industrial wages.

In recent years, high food prices have led to increasing popular pressure on the government to re-evaluate its costly agricultural policy, especially since the fall in oil prices (Norway is an oil exporter) and subsequent government efforts to

cut back on spending. The pressure to re-evaluate has not yet reached the level to cause changes in basic policy and national priorities, however. Until the time when deep policy changes are made, the conflict of interests and priorities continue to be resolved through the interaction of ministries and unions representing the competing interests. As the pressure from each Ministry's constituency and the conflicts between the Ministries grows, Norwegian governmental policy will have to change as well. Increased economic and political pressure makes it likely that the issue of joining the EEC will be raised again in Norway. Even if it does not join the EEC, Norway will have to address somehow the problem of an increasingly costly agricultural policy in an increasingly troubled economic environment.

II. MICHIGAN

In Michigan, formal (legal) institutional structures are not as numerous as they are in Norway. Rather, participant relations are ordered through informal "gentleman's agreements" and private treaty negotiations, particularly in the fresh market channel. This makes it feasible to consider each participant-level in turn, discussing how they relate to the structure of price determination in fresh and processed channels. Due to the prevalence of private treaty contracts, participant relations are revealed more clearly in the discussion of conduct that follows the section on structure. The participant-levels to be considered are: Growers-

Packers - Shippers - Retailers (fresh) - MACMA - Private processors - Farmer Cooperatives - Manufacturers/Retailers (processed).

A. Growers

In the fresh market, growers have the choice of selling their apples directly to consumers, selling wholesale to packer-shippers, or consigning their apples to packer-shippers. The latter is by far the most common method used and thus is the path described in this section. In the processed market, growers may sell to private processors individually, through their packer-shippers, or deliver to their cooperatively owned processors.

When growers sell their fresh-market apples through consignment, they often have little or no involvement in the price determination process. They give this right up to a packer-shipper, who by representing a large volume of apples can presumably market and bargain for price more effectively with the large retailer-buyers. When a grower decides to consign his apples to a particular packer-shipper (or several packer-shippers), he is in effect making a one-year commitment, with no certainty of what his returns will be. As discussed in Chapter 3, it is difficult for a grower to decide which packer-shipper is the "best" without trying his services first. This high information cost is due in part to the pooling of returns and the myriad of ways packer-shippers charge for their services.

Many growers have also opted to pass on the responsibility of selling their processing apples. For the past 25 years, some growers have attempted to bargain collectively with processors for price and terms of trade; the history of grower efforts in collectively bargaining with private processors was discussed in Chapter Two. Despite the current non-mandatory status of bargaining in Michigan, MACMA still bargains annually for its members. The bargaining sets floor prices that can be but are generally not undercut by individual growers and cooperative processors. MACMA has always tried to get cooperatives to agree publicly to the bargained prices in order to decrease the chance of such undercutting.

Approximately 65% of Michigan's apple growers are members of MACMA's apple division, the Michigan Processing Apple Growers (MPAG). MPAG committee members are elected grower representatives who work closely with the MPAG Secretary-Manager. In essence, MPAG is a grower bargaining cooperative, with the Committee being the board of directors and the Secretary-Manager, the cooperative's manager.

B. Packers

Packers per se are not involved in the selling price determination process. If they are also shippers, they negotiate with retailer-buyers in that capacity. If they are grower-packers, they will use a shipper to sell their apples for them. Most packers charge for their services on a per-box or bag basis:

that is, their revenues are a function of volume handled, not price received. Implications of this charging structure were discussed in Chapter Three. Fees are differentiated according to the type of storage and pack, with lower handling charges for processing apples.

There is a high information cost to finding out how a packer treats individual growers' apples. If a grower feels that a packer is not fulfilling his responsibilities, his options are to complain, to switch to a different packer or to integrate into packing. He does not have the option of paying the packer less (more) for inferior (superior) service. This payment structure is enforced by the procedure for payment: money paid by retailers to shippers goes to the packer, not the grower. The packer then pays the grower for his apples after deducting service charges. Growers' evaluation of their packer's performance is complicated by the fact that a high sort-out and subsequent low returns to the grower may be because the grower has delivered low quality apples and not because of poor packer performance. Establishing the reasons for poor grower returns is thus difficult to do.

A packer wishing to expand on even maintain a given volume will have to persuade the growers that he is fulfilling his responsibilities. This persuasion may take the form of open communication, or complicated justifications, or some combination of the two. Successful packers cultivate a relationship with their growers, convincing them that high-quality packing and fair treatment of growers are the major concerns. This may or may not

actually be the case, but while packers may be concerned about treating the apples well, they do not typically go so far as to make their charges directly dependent on this treatment.

C. Shippers

Shippers are the main supply-side participants responsible for marketing and pricing in the fresh channel. It is at the shipper-buyer transaction point that the price for each shipment of apples is determined. Shippers' revenues are also based primarily on volume, not price. Shippers might not see the apples themselves; they sell according to the qualities and quantities demanded by the retailer-buyer with those available, as communicated to them by their packers and field men.

Sales of packed apples take place through the negotiations of individual shippers with individual buyers. Shippers are usually bargaining with a clear idea of the general market conditions, but little idea of the price and quality of their buyer's immediate alternative supplies. Soon after the sale, shipper's terms of trade are often known by his competitors, but at that point it may be too late to correct an artificially low price. In the past, most shippers did not know what the nation-wide or even state-wide stocks were. Through grower encouragement and shipper influence (through the Shipper Association), weekly sales information and bi-weekly stock information are gathered and disseminated to the shippers. Although this increased information helps shippers bargain more knowledgeably with buyers, there is still a tendency

for rumors and misinformation to be spread (sometimes on purpose, sometimes not). The misinformation then leads to shipper bargaining tactics that would not have been made if more complete information had been available. This combination of bounded rationality and cutthroat competition leads to what every participant-level from grower to retailer say are frequently depressed prices that do not reflect the true market value of the apples.

The discussion in Chapter 3 on the relationship between fee structure and packer-shipper behavior is relevant here to understanding shipper behavior in the pricing process. Chapter 3 argued that with the current flat fee structure, a packer-shipper wanting to increase his revenues had contradictory incentives that could lead to inattention to quality and a willingness to cut prices in order to make a sale. It was also argued that packers are much more constrained by asset specificity than are shippers, and will thus be more likely to take their grower-clients' interests into account than will shippers. This is corroborated by the fact that grower-packers tend to have lower service charges for their packing fees than do packer-shippers.

Low physical investment requirements and low asset specificity would seem to imply that there are low barriers to entry for potential shippers, but this is not the case. Due to the importance of high information cost aspects of the shipper-retailer transaction like service and quality, and the resultant high search cost retailers must pay to switch shippers, retailers

prefer and tend to find a few satisfactory shippers and cultivate long-term relationships with them. Thus the barriers to entry for new shippers are personal connections, not monetary investments. Buyers will typically have relations with more shippers than necessary for their volume of demand as a supply insurance. The total volume of a buyer's purchases are then divided between these shippers, which leads to a situation of fierce competition between the shippers.

D. Retailers

The food retailing industry in the United States is becoming concentrated increasingly in the hands of a few large chains. In 1982, the twenty largest chains accounted for over 35% of U.S. grocery sales (Marion, 1986, p.332). Since many of the large chains exist only in particular regions, local concentration is actually much more concentrated. These large grocery chains often vertically integrate into wholesaling, developing a widespread procurement system using buyers specializing in fruits or dairy or some other area. It is with these buyers that Michigan's shippers make most of their sales.

Some shippers argue that buyers use their superior market knowledge to encourage false rumors of oversupply in order to play shippers off on one another and force prices down. Buyers reply that shippers deliberately undercut each other to make a sale. It is likely that there is truth in both of these claims. All agree that shippers do not communicate much with each other.

Private treaty pricing systems, such as the pricing of fresh apples in Michigan, are not governed by formal, structured rules. Thus there is not much that can be discussed in this stage of the chapter: it is the conduct of negotiating parties that affects the price outcome.

E. MACMA

The prices of Michigan's processing apples are determined through a system of grower bargaining, with Michigan's PA#344 setting the legal ground rules and MPAG negotiating with individual processors for floor prices and terms of trade. Although MPAG-negotiated prices now apply only to MPAG members' apples, in practice MPAG negotiations affect non-members' apples as well. MPAG growers represent over 55% of Michigan's processing apple supply. In addition, packing houses with some MPAG members will typically sell all their processing apples under MPAG-negotiated terms. Finally, even though cooperative processors have traditionally been exempt from PA#344 negotiations, MPAG always includes them in the proceedings and attempts to get verbal support for the prices and terms of trade negotiated with the private processors. The verbal support is then publicized in the MPAG newsletter, presumably making it more difficult for cooperatives to undercut the target floor prices.

Before negotiations with processors begin, MPAG representatives engage in a series of information-gathering sessions, in their capacity as members of the American Agricultural Marketing

Association (AAMA).[2] Representatives from all ten AAMA states travel to each member state and visit orchards, grower committees and processors to find out what the crop supply and market demand look like in that area. The AAMA group then meets with the local grower group, sharing the information and discussing its implications, after which the local grower group meets and makes a price recommendation. Finally all the AAMA meets at a national meeting in order to try to come up with a coordinated set of grower prices for processing apples of different uses. Despite the different costs of production and transportation in different states, the AAMA meetings aim for pan-territorial pricing. This aim is not achieved in practice, due in part to the different bargaining power of growers in the different states and in part to the different quality and variety of the apples. The set of prices that emerge from the national AAMA meeting are targets that the MPAG committee uses in negotiating the state's processors.

The standard operating procedure is to approach the largest users of Michigan's processing apples first. Once an agreement is reached with them, the effort is to get other processors to accept the agreed-on terms. The processors who have agreed to the price floor are announced, along with the cooperatives who support it, in the MPAG newsletter. Negotiations begin in August and continue into September, generally being completed by the start of harvest (mid-September). Until the end of March, the negotiated

---

[2]. The AAMA consists of growers from Michigan, New York, Virginia, West Virginia, New Jersey, North Carolina, South Carolina, Georgia, Pennsylvania and Maryland.

floor prices are the minimum market prices. After that time, prices can and often do rise above that level.

F. Private Processors

MPAG contacts all major private processors in Michigan for price negotiations, starting with the larger ones like Gerber's. MPAG's aim is to stabilize apple prices from processor to processor, so processors will treat their inputs of apples the same way as inputs such as tin cans and sugar. Processors pay common prices for these latter inputs and, the argument goes, their paying common prices for apples as well will increase the certainty of their total costs and facilitate long-run planning and provide a floor for pricing of processed apples within that year's marketing season.

Before organized grower bargaining became widespread, processors often approached growers with a take-it-or-leave-it offer. Search costs for alternatives were much higher for growers than for processors -- at least, when measured proportionally to total revenues. As a result, processors could practically dictate prices to growers. Now processors calculate the expected average retail price for their goods, subtract their other costs and needed margin, and come up with the price they would like to offer the growers. MPAG and the processor bargain, essentially, over the size of the processor margin and the retail price of the product (since some processors can affect retail price). A price is finally negotiated for each variety, type and use of apple.

G. Cooperative Processors

In just fifteen years, cooperative processors have moved from handling a negligible part of the Michigan processed apple volume to handling over 35% of the state's processing. This includes not only cooperative processors which sell their own goods but also joint ventures of cooperative processors with private companies which label and market the goods. Although various factors were cited by subsector participants as reasons for this change, the dominant reasoning was that apple processing was not as profitable as it used to be. Demand for all forms of processed apples except juice have been steady or declining, and although demand for juice has been increasing, since 1980 this increase has been met almost completely by cheap juice imports. Despite the relatively lower value of the dollar in 1987, the volume of juice imports rose relative to 1986, but one could argue that with a strong dollar even more would have been imported. This may have more to do with the lags involved in adjusting to the lower dollar; it takes some time for manufacturers to overcome the transaction costs of setting up relations with new suppliers. It remains to be seen whether a continued low value of the dollar will reverse the juice imports trend.

Many private companies sold their facilities to farmer cooperatives in the 1970's, and existing processing cooperatives increased their apple volume. By purchasing these facilities rather than allowing them to close, growers hoped to guarantee

themselves a home for their apples. Farmer cooperatives also have potentially lower requirements for returns to investment than do private companies. An unprofitable venture for a private company might be considered a feasdible one for a cooperative. Many private companies require that an investment earn a rate of return equal to its opportunity cost: when the rate of return falls to the point where the estimated Present Discounted Value of the processing factory is below its salvage price, the private company may disinvest and move on to another investment opportunity. Patron-owners in a cooperative, however, consider not only the rate of return of their investment but also the value to them of having a guaranteed home for their product in whose services, fees and pricing policy they have an input.

The difficulty for growers to enforce contingency pricing contracts results in an unwillingness to accept prices lower than the going market price in order to keep a private processor in business. First, there is no way for growers to verify whether the private company is really experiencing financial difficulty. Second, even if growers share company losses by accepting lower returns in order to keep the private company in business, there is no guarantee that the company will not later exit or that it will share later profits with the growers. In a cooperative, however, representative patron-owners sit on the board, have access to their cooperative's financial statements, and hire and fire the management.

Farm-level market prices for processing apples are essentially bypassed by many cooperatives. Cooperative managers sell the processed apples for the highest price possible, deduct operating costs and return the rest to growers. Pooling arrangements, retained earnings and distribution of profit differ from cooperative to cooperative. Payments to growers are generally on a split-season or monthly basis, with a down-payment made upon delivery and the final payment made upon sale of all the crop's inventory.

H. Manufacturers/Retailers

Cooperative and private processors alike often sell to manufacturers and retailer-buyers with no written contract. For canned products, the buyers can simply state what amount they foresee wanting for the entire year, without negotiating on prices or delivery dates. When the buyer desires a delivery, he calls the processor and at that time they discuss prices. In order to keep the buyer's business, the processor must have the amount ordered in inventory, despite the fact that the buyer may change his mind and buy less. The processor has already processed the apples when price negotiation takes place, so buyers can attempt to exploit the sunk cost of processing by claiming to have found a better deal elsewhere and demanding a lower price. As a short-term strategy this is an option that some buyers might choose, but then in short crop years they will be likely to find themselves with insufficient processed apples.

I. Conduct

The majority of growers in both fresh and processing channels delegate the power and responsibility for selling the apples to other parties. In the fresh channel shippers negotiate with buyers for price and other terms of trade, and in processing it is usually either through MACMA negotiations or the cooperative that f.o.b. prices are determined. MACMA and cooperative processors are run by grower representatives and managers hired by these representatives, whereas shippers are almost all privately owned and operated.

A major difference between shippers and grower-run structures in the options available to dissatisfied growers. With shippers, very large or high-quality growers may be able to effectively exercise the voice option, but for the majority of growers the only practical option is exit.[3] In MACMA and grower cooperatives (both processors and shippers), growers' voice is potentially a powerful force, despite the fact that in practice this force is not used very much. Although trust and personal relationships are important in MACMA and grower cooperatives as well, between growers and shippers these relationships take the place of highly

---

[3]. The terms "exit" and "voice" are taken from Hirschman (1970). The exit option involves members leaving an organization, or former customers no longer purchasing a given good or service. The voice option involves members or customers expressing their dissatisfaction directly to the management or some other authority.

specified long-run contracts and short-run guarantees that grower interests will be protected.

To maximize their profits in the short run and their security in the long run, growers attempt to find the shipper who gives them the highest returns, and stick with that shipper. What sort of shipper this will be depends in part on the quality of the growers' apples. A very high-quality grower will prefer the shipper who divides the apples discriminatingly and targets the highest-quality goods to the high-price market, while an average grower may do better with a shipper who mixes high and medium-quality apples and sells to the price-oriented buyers.

Subsector participants agreed, however, that growers had become much less blind in their loyalty to shippers since the economic difficulties of the 1980's. In the past, shippers could count on a relatively free hand in their sales, marketing and pricing with buyers. Now an increasingly loud clamor can be heard calling for shippers to be held accountable. That is, some growers want shipper service charges to be affected in some way by the level of prices shippers agree to, or for there to be greater ways of including growers' voice in the negotiation process. In response, many shippers have been attempting to communicate with their growers more. Shippers that were already fulfilling grower interests relatively well experienced an increase in business from growers. Some of these shippers oppose changes in the current pricing structure, pointing to their own growth as proof that the system is responsive to dissatisfaction.

Some growers, not fully convinced of the desirability of the current structure, continue to agitate for change. The Pomesters, for instance, are attempting to encourage more complete market information and communication between shippers, so that they can approach sales and pricing with buyers from a more complete base. This would help to avoid the recent situation, where one shipper's oversupply can lead to a price war. That is, at least until 1986, shippers bargained with buyers knowing primarily what their own supply situation looked like. The shippers' situation is easier in years with a clear high or low crop, but in an average year with short periods of over and undersupply, it is difficult to know what price to start at, and where to stop, in the weekly negotiations with buyers. A recent increase in sales and stock information started by the Shipper Association is likely to help reduce price wars. Another solution offered by some participants was a single state-wide information and sales desk, surprising because of the very high level of free market philosophy normally espoused by the same people.

The shipper-retailer transaction point, as pointed out earlier, is the primary point for price determination in the fresh apple channel. Shipper-retailer relations are cultivated over years by both sides, and many participants are reluctant to cut relations over occasional disagreements or dissatisfaction. It may be that this is a condition to be found in all fresh-produce subsectors, where quality can vary from day to day, where in the absence of trust, governance costs can be extremely high, and where

perishability gives quality of product-handling and speed of service a very high value. Edward McLaughlin found the same high reliance on trust and personal relationships in his in-depth study of the United States fruit and vegetable industry. In the apple subsector there is a mix of close personal relationships and intense competition. This is not only because the few shippers that each retailer-buyer uses are all striving for more of the retailer's business, but also because most shippers try to break new ground and get new accounts -- which means breaking into existing retailer-shipper marriages. This provides the undercurrent of suspicion with which shippers view each other.

The Michigan Fresh Apple Shipper Association represents a recent effort by shippers to try to address some of the issues facing the subsector, particularly issues that affect everyone and that no one can solve alone. Chapter 3 mentioned the Association's consideration of the lack of relevant quality standards. The Association has also begun talking about ways to affect the price determination process. Although shippers vehemently oppose any changes in the process itself, i.e., changes in the fee structure or in who can be involved in the process, they are increasingly amenable to considering sharing stock information. To this end, they have made efforts to bring about changes for more complete market information through the USDA Market News Service.

Both these issues are sources of transaction costs in the subsector, and addressing them would be a step towards decreasing

these costs for all participants. More relevant quality standards would decrease information costs and governance costs for buyers of fresh apples, and more complete stock and price information would decrease shipper uncertainty about market conditions. Change in the conduct of shippers will come very slowly, however. This is especially true because of the increasing awareness that the state can support only a few very large shippers. The increasing size of retailers and the higher transaction costs of dealing with more than one shipper means that retailers will patronize shippers who can supply a larger proportion of their needs reliably and satisfactorily. As a few shippers get larger, some current shippers will be forced out. The major question is who will be forced out. It is understandable that shippers asking themselves this question are likely to be distrustful of other shippers.

For many retailers of fresh apples, the most important considerations today are quality, service and price -- in that order. This means that a shipper who can deliver higher quality and better service may get a higher price and a greater volume of business. This affects the content of shipper-retailer trading relations. It appears that buyers cannot play shippers off on each other as easily as in the past, simply by quoting competitors' lower prices. The astute, high-quality oriented shipper presses the buyer to be clear on the quality he wants and offers lower-priced apples of lower quality if the buyer prefers that option.

In the processing channel, a major point for price determination is the MACMA-Processor negotiations. MACMA represents grower effort to establish a single sales desk. By consolidating regional (AAMA) and state (MPAG) information on apple supply and demand, grower representatives can bargain with a clearer idea of their buyers' market alternatives. By representing a significant portion of the state's crop, MPAG can attempt to push for a higher price rather than be a price taker, but since Michigan's apples represent only 14% of the U.S. processing apple supply, it is not clear that MPAG could artificially increase price. It is more likely that the otiated pices are able to approach the true opportunity cost of the apples.

Some participants claim that private processors who have quit business have done so because of MACMA's effect on raw product prices, and that cooperatives have an advantage because they are exempt from negotiations. Although MACMA may have been one of many factors influencing private processors' decision to disinvest, it seems very unlikely that it was a deciding factor. MACMA attempts to get the support of cooperatives in price negotiations. One large cooperative processor claims to have paid the negotiated price level every year since 1975 and continues to do so. Another telling fact is that when the MPAG Secretary, who is responsible for negotiations, offered a private processor the option to pay growers the average of three cooperatives' grower price as a floor price, this offer was rejected. A more logical

interpretation of the situation seems to be that apple processing is an area of dwindling profitability, and cooperatives are more willing to operate in such an environment.

Nevertheless, the market structure of the processing industry is changing in Michigan. These changes are also changing the realm of the possible for MPAG. In the 1970's, demand for processed apple products was high and indications were that processor profit margins were also relatively high. Now, demand for U.S. processed apples are declining, profit margins have shrunk, and cooperative processors are a rising force in the market. In such a changing environment, MPAG faces the danger of becoming obsolete. In the 1970's, MACMA as an institution was relatively confident of its own survival, and could devote all its attention to representing grower interests. Now MPAG's interests are being jeopardized, so its attention is necessarily focussed on ensuring its own survival as an institution. These concerns partly explain MPAG's drive to bring cooperatives into the negotiations and the attempts at extending MPAG into the fresh channel. MPAG offered its services in the fresh sector as the institution capable of organizing and implementing relevant quality standards. This offer was met with an extremely negative reaction by shippers, and MPAG withdrew from the picture.

MPAG is certainly not obsolete yet; it still represents a majority of the state's processing apples and affects the price that all processors, including cooperatives, pay for apples. Managers of the processing cooperatives interviewed for this study

held different opinions about the usefulness of MPAG. One held that there was a need for MPAG as long as private processors remained a major force, particularly in the setting of a price floor. The other was more critical, maintaining that MPAG affects only the short-run price, that in the long run supply and demand eventually rules, that MPAG-negotiated prices hurt some farmers because prices are set too low, and finally, that price negotiations were ineffective anyway because processors are not limited to buying Michigan's apples.

Cooperative processors have the best of both worlds in the current structure. Their private competitors are, for the most part, bound to a floor price through negotiations with MACMA. Management personnel of cooperatives are involved to some extent in determining this floor price, but if worst comes to worst, they are not bound to it. In order to keep its members, a cooperative must pay its growers at least the same price (on average) as private processors. But due to its grower-owned character, a cooperative may have the ability to pay members less than market price for short periods, if necessary, without losing their business.

Cooperatives' management often argue that the firm's grower-owned status is the reason why they <u>cannot</u> bargain with MPAG, as they would in effect be bargaining with themselves. This argument seems, at best, weak. First of all, cooperatives are already negotiating with MPAG. According to some participants, cooperatives' management even get quite upset if left out of the

negotiation process. Second, a cooperative is by nature a continual balancing of grower interests with the business needs of the cooperative; negotiations of the management with MPAG grower representatives is just an explicit form of what the cooperative does implicitly every day.

Admittedly, a large body of cooperative theory argues that profit-maximizing behavior for a cooperative is different from a private firm, that a cooperative can charge lower for its services and pay more for its members' raw product than a private firm. Typically, however, a cooperative will pay the going market price for its members' raw product. Profit margins are then returned through patronage rebates, subsidized goods such as insurance, or through some other method, giving growers higher returns on their apples. Having cooperatives bargain for raw product price is thus justifiable both theoretically and practically.

Another reason voiced for cooperatives' inability to negotiate formally with MACMA is the Bank for Cooperatives' requirement that the cooperatives not formally commit themselves to any agreement that might result in a significant likelihood of operating on a loss. This reason is more compelling than the first, since cooperatives do rely on the Bank for much of their financing needs and thus need to fulfill the requirements to continue being eligible for loans. It is likely, however, that cooperative processors would argue for a change in this restriction if they felt it necessary. The Bank for Cooperatives is itself a cooperative, and sources familiar with the operation of the Bank

agreed that attempts were made to design loan requirements so they fit the needs of borrower-members. Borrower requests for redesigned loan requirements are considered on a case-by-case basis, and approved if they make "business sense". Thus although the restrictions pointed at by cooperative management may indeed exist, they are also convenient for the cooperative to have.

III. COMPARISON OF NORWAY AND MICHIGAN

With the very different economic policies and market structure of Norway and Michigan, it is not surprising to find vast differences in the price determination process. What is noteworthy are the similarities. One obvious similarity is the division between producing and selling responsibilities. Apparently, the skills and information base needed for producing apples are very different from those needed to market them. In both Norway and Michigan, in both fresh and processing channels, most growers have relinquished the job of selling their apples to specialized sellers. In both countries, private sector involvement in selling is stronger in the fresh channel. Perhaps the situational characteristics of fresh apple marketing is particularly suited to private entrepreneurs. There is high variability possible in the quality of perishable goods, and there are potentially high profits available to sellers who can target the sales of particular qualities to those willing to pay the most for them.

It is interesting to note that in both countries, the income of apple sellers is relatively independent of price received, and that in both, the majority of apples are sold by shippers historically more concerned about volume than price. This and the relative advantages enjoyed by these shippers led to a complacency about price level and quality. Norway's GH had the advantage of protected borders, price negotiations, and little competition. Also, GH's responsibility is not price but the selling of Norway's apples at prices determined by grower-government negotiations. As the emphasis of consumer demand shifted from price to quality, and as BAMA began aggressively pursuing the retail market, GH had to focus more strongly on quality of marketed goods.

Michigan's shippers had a locational advantage relative to their biggest competitor, Washington. Michigan's proximity to large markets enabled it to offer lower prices for apples than Washington, whose price has to cover high transport costs. When price was more important than quality, Michigan's shippers could focus on moving a high volume at a low price, being rewarded for the former and not bearing the cost of the latter. Now that price is cited by buyers as <u>third</u> priority -- after quality and service -- Michigan's low selling prices are not as strong a selling point. Once they were hit where it hurt -- in volume of sales-- many shippers shifted their priorities and began to adjust to this new high quality, high price demand.

Both Michigan and Norway are also feeling increasing pressure from international competition. This pressure shows itself

differently in the two countries due to the different structure to which it is applied: in Michigan the free and abundant flow of cheap imported juice is making juice processing less of a viable enterprise, reducing the demand for Michigan's processing apples. In Norway, the trade barriers and annual negotiations ensure a steady income and sure market for apple growers, but the resultant high food costs are causing political pressure and popular dissatisfaction.

Most of the differences between Norway's and Michigan's price determination processes stem from the very different economic and legal structures concerning agriculture. The different structures, rooted in the histories and conditions of these areas, are faced with very different issues. But a look at the structures and related participant conduct clearly illustrated one simple point: participants put their efforts into affecting those aspects of market transactions that enter most directly into their utility functions. In other words, what participants do can be understood by looking at their incentives and constraints.

The interrelatedness of situational characteristics with structural form and related conduct continues to be illustrated when the outcome of all these components -- performance -- is examined. In the following chapter, the performance of Norway and Michigan's apple subsectors is examined in relation to the issues discussed in the previous two chapters.

CHAPTER 5

PERFORMANCE AND COMPARATIVE ANALYSIS

The previous three chapters went from a very broad overview of Norway and Michigan's subsectors to an in-depth treatment of specific coordination processes. This chapter takes a step back again, to examine the consequences of previously examined processes for: (1) short-run and (2) long-run matching of supply with demand in the quality and quantity of fresh apples marketed, and (3) the price determination process for apples and related marketing services in the fresh and processed channels. Discussion of performance involves a description of the general market outcome, and of the specific outcomes for market participants. The description is limited to six characteristics or descriptors: price, specification, transparency, adaptiveness to market changes, distribution of the costs associated with risk and uncertainty, and bringing consequences to bear on behavior.

The next two sections will describe performance in Norway and Michigan's apple subsectors, examine the implications of this for subsector participants, and identify the role of farmer cooperatives as coordinating mechanisms. Following that will be a comparison of institutional arrangements in the two countries. One question to be considered in this section is the extent to which differences or similarities in market performance can be

seen to be a result of the different institutional arrangements. The different role of cooperatives and their potential in each country will also be examined and compared.

Finally, this chapter will propose approaches to dealing with current subsector issues, based on the ideas of each country's own participants and on comparison with the other country's subsector. There are limits to the comparisons that can be made, however, due to the very different social and historical bases of each country's agricultural sector.

I. PERFORMANCE: NORWAY

A. Prices: Costs of production and subsequent market prices for apples are relatively high in Norway. Nevertheless, the annual price negotiation process seeks to set a target price band that will provide returns to growers that cover costs of production for the average farmer growing Class 1 apples. Charts depicting GH prices for apples, 1982-1985 (Appendix D), show that fluctuations around the weekly target price generally remained within the target band set by negotiations. On average, annual prices were easily within the 25% price band allowed for the subsector (12.5% above and below the target price).

Prices were invariably at their lowest in the month of September, when supply is at the highest. To some extent, this reflects planners' recognition that prices later in the year need to be higher in order to cover storage costs. The fluctuations in

actual prices (as opposed to target prices), illustrated in Appendix D, go beyond these planned price differentials. This suggests that despite the control aimed at with the use of target prices, some price fluctuation to reflect market conditions is still possible. Available information is limited to prices for generic Class 1 apples, so it is not possible to determine whether prices for different varieties were flexible enough to reflect consumer preferences. Price data for the private sector, specifically BAMA, were also not available, but BAMA's stated policy of pricing differentially makes it likely that the prices received by BAMA growers are more unstable and less predictable than those of GH growers. Prices received by BAMA growers are also more likely to reflect the preferences of consumers -- at least, if BAMA uses its price differentiation policy consistently.

B. Specification: As defined in Chapter 1, specification concerns the extent to which characteristics of products supplied match those desired by users of the product, at each stage in the commodity subsector. In essence, this was the topic of Chapter Three. Shaffer (1987, p. 72) discusses the types of information relevant to specification. The information can be categorized as answers to four general questions, although Shaffer does not categorize them thus. The last question is, in effect, the result of answering the first three questions. The four questions are:

1. Do suppliers of goods know consumers' preferences?

2. Do consumers recognize what characteristics are being supplied?
3. Do consumers know the costs associated with their preferences?
4. Given the above, do product characteristic supplied match those demanded?

In neoclassical theory, price is assumed to carry this information. In the real world, however, where market imperfections are the rule rather than the exception, price carries confusing and even distorted signals. When growers experience a drop in price for their apples, it is not clear if this is because the apples did not have the desired size, color or crispness, or because the shipper agreed to a very low price in the negotiations in order to make a sale, or because of an oversupply of apples. Relying on price alone, a grower would have little idea of what the market wants.

In Norway, participants responsible for selling apples to retailer-buyers are well aware of consumer preferences. The incentives of BAMA and GH to pass on this information and to see that the preferences are fulfilled differ, however. Being a farmer cooperative with a mandate to carry out national agricultural policy, GH has been most concerned with selling all its members' apples at prices consistent with the results of the Annual Negotiations. The negotiations are also the mechanism for transferring information on what consumers want (through the representative from the Ministry of Consumer Affairs), and on what

it costs to supply these characteristics (through the representative from the farmer unions).

These negotiations have the potential to transmit the information needed by consumer representatives to choose which characteristics they would prefer and be willing to pay for. But since all domestic agricultural products are being discussed, the likelihood that much detailed information is being transmitted on preferences for individual products (especially the more economically minor products) is very small. Cost information is transmitted more systematically through the Budget Commission on Agriculture, a government office with the sole purpose of collecting cost-of-production information and providing it to the negotiating parties. Thus most information on what consumers want is transferred at the shipper-retailer point, while the information on what these characteristics cost to produce is transferred in the Annual Negotiations.

GH regularly passes on information concerning preferred varieties and qualities, but it has neither rewarded those who adapt to this information nor punished those who do not. Rather, the most common policy is to pool all Class 1 apples in a district. Since growers who would be willing to adapt their production do not receive benefits for this until a great many other growers follow suit (thus raising the total pool), there is little incentive to follow the information given.

BAMA prices apples differentially, rewarding higher quality with higher returns. Specification coordination concerns not only

condition of apples grown but also the way these apples are packed and presented, and BAMA is quick to implement information gathered on this latter aspect. In the past, BAMA has practiced targeting, so that different markets receive apples having the characteristics most preferred by the customers of those markets. Since the distribution of profit is over a very small population (BAMA is owned by 2 families, with over 75% of shares belonging to one family), the drive for profit maximization is strong relative to GH, where profits are divided among hundreds of people. Thus although GH does have incentives to distribute information on changes in market demand and to push for this information to be used, the incentives are much stronger in BAMA.

BAMA has a greater market share at the retail level than at the farm-gate level. It buys much of its needs from GH, repackaging the apples it according to BAMA's own standards. This means that aggressive implementation of information on changes in market demand is more prevalent in the marketing rather than growing of apples. At the farm level, GH is by far the largest and most influential shipper. Historically, it has been slow to press for changes in the growing and marketing of apples, taking a passive role and concerning itself mainly with selling existing apples and advising on what varieties to plant. While some might argue that such passivity is an inherent characteristic of a grower-owned marketing firm, many participants interviewed blamed the passive, cautious management prevalent at GH until the early 1980's. These

participants felt that much about GH's approach to marketing had changed since 1981, and credited the new core management and director for this change.

C. Transparency: This refers to "the extent to which the terms of all transactions are open to observation by all potential participants in the market" (Shaffer 1987 p.71). Transparency is a function of numerous factors, including the existence and relevance of market news reports, the existence and use of quality standards -- i.e., where standards exist, do they match the needs of buyers and sellers, or are individually-negotiated standards more prevalent? Where individually-negotiated standards are common, market news reports using, e.g., federal standards, cannot accurately reflect what quality of product was actually transacted. Transparency and uncertainty -- thus transaction costs -- are inversely related.

In the processed apple channel, terms of trade are negotiated and a fixed price is set for the raw product. The results are widely publicized and no price negotiations, private or public, normally take place after the agreement has been reached. Processors know exactly what price they must pay, and growers know what price they will receive. The major variable is how much of the domestic crop will be allocated to processing. This is a function of crop quality and quantity -- largely the result of weather conditions -- as well as market demand. In high-crop years, some Class 1 apples go to processing in order to prop up

the fresh-market price, while in short-crop years some Class 2 apples make it to the fresh market. This is a decision made by those responsible for selling the apples, i.e., GH or BAMA. But in the processed market as a whole, there is a very high degree of standardization and transparency.

In the fresh market, the price band is arrived at through widely-publicized negotiations. The negotiations and results are fully transparent. The final sale price of individual apple orders are arrived at by private treaty, however, and are widely reported only in annually aggregated form (i.e., annual statement of weekly average prices for generic Class 1 apples). The GH director of Market Regulations receives information about all sales prices in order to set the starting target price for the following week, but this information is not disseminated on a local level. In BAMA, both prices to retailers and to individual growers are set in private treaty negotiations. Growers of different qualities receive different returns. Although the differential pricing policy itself is well-known, the contents of individual BAMA contracts with retailers and growers are not.

In general, neither GH nor BAMA transmit detailed market reports to growers on prices received. GH contracts with its growers are standardized and its contents commonly known. On the whole, the fresh subsector is the most transparent at the grower-GH point the least transparent at the shipper-buyer point.

D. Adaptiveness to Market Changes: As argued in Chapter 3, government protection and subsidization of agriculture in Norway weakens incentives to adapt to market changes. Since adapting to certain changes can mean no longer being a grower, the Norwegian policy has in this sense fulfilled its goal of supporting the rural population. In the fresh market, GH is now struggling to find a way to protect the survival of small family farms and also reward those who are willing or able to grow the qualities most preferred by the market. The existence of a strong private firm with incentives to adapt to and capitalize on market changes, as well as increasingly difficult economic conditions, give GH a push to encourage grower adaptiveness where possible. Some growers are limited by geographical location, but many do have the capacity to produce apples with more highly demanded qualities. Chapter 3 showed that information on what attributes are desired by the market is widely available at the grower level, but that incentives to follow this information are not.

The processed market in Norway is very small and protected from competition by import restrictions. Products identical to those produced using domestic apples cannot be imported, but other products containing processed apples may be. Thus processors are still subject to some of the pressures of changes in market demand. Adaptiveness is very much a function of the incentive structure. Although not necessarily the case, adaptiveness and stability do not seem to occur together. Historically the focus

in Norway has been on stability rather than adaptiveness, although there are indications that this is changing.

E. Distribution of the Costs associated with Risk and Uncertainty: The process of coordination is to a great extent the process of decision-making under risk and uncertainty. That risk and uncertainty exist is immutable: what can be changed is its level, how much of it each participant operates under, and who bears the cost of decisions that, with hindsight, prove to be inappropriate. The power distribution in a subsector is reflected in the distribution of these costs: each participant wants to bear as little of the costs as possible, but at the same time, if too much of the costs are borne by one participant, he may choose a path detrimental to the interests of others relying on his production. Thus even the relatively powerful participants may choose to bear some costs associated with risk and uncertainty if this is expected to encourage others to behave in a way advantageous for the more powerful.

The source of risk in decisions is, in general, uncertainty about future product supply and consumer demand. Uncertainty about future supply is in turn related to the unpredictability of weather. These factors interact to create considerable uncertainty regarding future prices. The following three general categories of decisions that growers must make are affected by these areas of uncertainty:

1. Investment/Disinvestment: What variety or quantity of trees should a grower plant (or cut down)? What sort and how much new machinery should a grower or packer invest in?
2. Output: Given an orchard capacity, how much should a grower grow? What qualities should he focus on? What volume will be demanded by consumers?[1]
3. Distribution: Which apples will go to the fresh or processing market?

Participants have only partial information about these subjects when they make their decisions. In Norway, growers receive a great deal of information on how much and what qualities of apples to grow. Through GH, they have a guaranteed home for their product, regardless of whether this information was correct or whether they followed it. So GH shoulders some of the costs here. The growers also shoulder some costs, since apples that do not correspond to consumer preferences cannot command a high price. On the other hand, GH decides on packaging and presentation techniques, and if these do not correspond to consumer preferences, the apples will still get a lower price. Growers bear some of the risk of their cooperative's management decisions as well.

Packing houses generally decide for themselves whether to invest in new machinery or not. The volume they receive does not

---

[1]. Output is related to, but not completely determined by, investment. Given an orchard, a grower can decide <u>each</u> <u>season</u> to encourage fewer high-quality apples or more apples of average quality. Given a bearing tree, a grower can focus on color or crispness, depending on which quality is demanded.

change dramatically from year to year, but most are too small to use modern packing equipment to capacity for more than a few weeks per year. GH helps shoulder the risk of asset-specific investments on occasion, for instance by building storage facilities adjoining a packing station and leasing those facilities back to the station. But in helping packing stations in this manner, GH also has a voice in packing station operations. One of the current sources of controversy within GH is its decision to "rationalize" the packing station structure, i.e., to close some down and expand others so as to cut down on transportation and overhead costs, and to allow the use of modern packing equipment. But in general, GH helps shoulder the costs associated with risk and uncertainty in the areas of investment, output and also weather.

Through the Annual Negotiations and the Market Regulation Fund, taxpayers help shoulder the burden of price and distribution uncertainty. In both the fresh and processed markets, apple prices are decided on by negotiation, although in the fresh market prices are allowed to fluctuate slightly. GH helps smooth these fluctuations and reduce the risk their members operate under by pooling returns. When an oversupply of apples threatens to pull fresh-market prices down, the Market Regulation Fund can pay extra subsidies to GH growers whose Class 1 apples are sent off to processing, thus easing the cost to growers of propping up prices.

In reality, the taxpayers help ease the burden of risk and uncertainty in all of the three previously mentioned areas. Their

contribution is in paying the tax implicit in the price of apples they buy, and in paying income taxes that finance government market regulation efforts. Fellow growers also share this burden, since pooling spreads the costs associated with all three areas. As pointed out in Section 4 of this chapter, the safety and stability ensured by the current structure also means that the potential gains to growers from bearing risk are dampened.

The very high variability in product type and quality in the fresh produce sector, as well as the potential profits available to growers willing to bear the costs of risk and uncertainty, are factors contributing to the low rate of cooperative membership in this sector. Participants in various levels agreed that produce growers have historically been the most independent in Norway. Especially if located close to major urban centers, it is feasible for growers to make their own market connections with the many small retailers in these areas. In this way they would bear more of the risk but also more of the potential profits from acting alone or in small groups.

F. Consequences Brought to Bear on Behavior: This category has some overlap with the previous section, but the two are by no means identical. This category focusses more specifically on the distribution of costs or benefits associated with particular actions. Who gets to impose externalities on whom? For instance, by pooling member returns, growers of lower-quality Class 1 apples impose a negative externality on higher-quality growers. Or

conversely, high-quality growers provide a positive externality to other growers. Either way, individual GH members do not fully bear the cost or receive the benefits of their production decisions.

GH bargains for prices, and sets packaging and presentation standards that its member packing stations must follow. Regardless of prices received, or how well (or poorly) presentation style matches retailer preferences, GH as a cooperative receives its operating revenues and GH management receives the same salary. Since growers and packing stations have no contact with retailers, they cannot judge whether prices received are "too low" because of poor presentation or poor quality. But GH growers do have contact with non-GH growers, thus GH growers may know about the pricing, or the sort of packaging and presentation, done by BAMA.

A common complaint heard at levels closer to the farm was that GH did not put sufficient care in setting packaging and presentation standards, for instance by encouraging too much mixing of sizes within one box. One could argue that the reason is that the consequences of poor packaging or presentation are not brought to bear fully on GH. It <u>does</u> hear complaints by growers and packing station managers, and this exercise of the voice option does appear to have some effect on the cooperative's management -- especially as external conditions make the threat of grower exit more real.

Some consumers argue that since growers do not bear the cost of

inefficient production practices, they have less incentive to look for cheaper ways to produce. Growers' production costs are taken into account when setting the annually negotiated target price, with little investigation into why costs are what they are. In other sectors such as dairy or meat, there are "model farms" drawn up on paper, that set out minimum efficiency levels for farms of different sizes in different parts of Norway. The fresh produce sector is so complex, however, that no model farms have been drawn up. Once subsidy levels have been set, a potential grower strategy could be to cut production costs as much as possible, thus increasing their own net revenues. Some participants argue that given the current structure of incentives, there is greater incentive to maintain the farms at average (not lowest) cost. That is, the marginal savings from cutting costs to the minimum are less than the marginal costs involved in achieving these savings.

II. PERFORMANCE: MICHIGAN

A. Prices: There is no institutional mechanism to ensure that prices for fresh apples will reflect the growers' costs of production in Michigan, since the people who bargain for prices are generally not the ones who grow apples. Final prices are a function of shippers' perceptions of market conditions, their market power and bargaining skills relative to the retailer-buyers, rather than being a function of the costs of production

and marketing as well. Marketing costs are taken off by packers and shippers regardless of price received for the apples.

Since fierce competition exists between shippers, fresh-market prices are quite flexible in response to market changes. Some argue that prices are more flexible downward than upward, as shippers undercut each other to make a sale. With the increasing weight given by retailers to factors other than price (e.g., quality and service), some shippers are becoming less inclined to cut prices, attempting instead to focus the bargaining on quality and service. In the past, shippers bargained with little idea of market-wide supply, and even with the increased information now available shipper incentives are to cut prices if in doubt about true market conditions. Many participants argue that this leads to unstable prices that reflect neither market conditions nor costs of production very well.

In the processed apple market, MACMA negotiations with processors serve as an effort to include grower concerns, including the costs of production, in determining prices. Prices remain flexible since MACMA does take into account overall supply and demand conditions, and negotiates only a floor price. Prices can and do rise above the floor, and if the floor is set too high, processors can import apples from other states. Some participants argue that raw-product prices for apples have been too low, but this price level is not necessarily inappropriate.

Prices for processing apples may indeed be too low relative to the costs of production of some growers, but if this is an

accurate reflection of market conditions and not a result of poor negotiation, then the resulting difficult times for some apple growers are a signal for them to exit, not a signal of poor performance. If the maintenance of a population of processing-apple growers is a goal of the community, the difficult times could be construed as poor performance -- but there is no such population goal in Michigan. At any rate, Michigan's growers received an average price for their processing apples higher than the national average every year from 1976 to 1986 (AAMA 1987 Crop Statistics). While this may be explained in part due to a prevalence of the highly-demanded Northern Spy variety in the state, some participants argue that it indicates the success of PA#344 in increasing grower bargaining power and thus prices.

B. Specification: Some consumer preferences are communicated to growers via their packer-shippers, who receive this partial information from the retailer-buyers with whom they negotiate. The preferences communicated are primarily on short-run characteristics like size and color, rather than long-run preferences on quantity or variety. Traditionally the stress has been on color, with crispness holding an increasingly important position. A problem with the preferences on color and crispness communicated to growers is that they are mutually incompatible after a certain point: with many varieties currently in production, maximum color is attained after the point for maximum crispness. Thus growers have to choose which one to focus on: the

short run sale is usually more dependent on color than crispness (although this may be changing), but long run demand is affected by crispness. Thus although growers know that consumers prefer red, crisp apples, they have not been able to do both consistently. New varieties have been developed that attain peak color more quickly, allowing growers to maximize both color and crispness, but it will be some time before a significant number are planted and brought to fruition.

The problem with crispness is that, unlike color and size, it is not visible; i.e., even if consumers prefer crisper apples, they cannot recognize them by sight. Crispness can be made visible with the use of pressure tests. While the information cost on crispness is high for individual consumers to bear, at the shipper-retailer point it is quite easy to communicate pressure-test information. That is, a retailer can screen incoming apples by including a minimum pressure-test level for his apples. Or, a shipper can make a sale by focussing on the pressure test level of his apples as well as price. The cost of this screening is then passed on to the consumers at a much lower individual cost than if each had to pressure-test their own apples.

Packer-shippers are also aware of the packaging preferred by retailers, for instance less size variation within a box, but many find it difficult to use this information. The reasons for this were discussed in Chapter 3, and have to do with the pricing policy for their services: quality of presentation enters into their profit function only as it affects quantity demanded, not

price received.

C. Transparency: One of the major issues in Michigan today is the inappropriateness of current official quality standards and the resultant difficulty for growers of comparing terms of trade obtained by various shippers. Michigan's fresh apple subsector is characterized by private treaty markets, which are minimally transparent without the help of market information reports. When the few available sources of information are based on broad quality standards and non-standardized packer-shipper fee structures, the transparency level is low. Such is the case in Michigan.

Information on market movements and f.o.b. prices according to class and variety are published by federal market services, but these have not reflected what qualities were actually sold: shippers negotiate deals and standards individually with retailer-buyers, so a traypack of Extra Fancy Jonathan apples sold to different retailers can differ considerably. Helpful information that is currently unavailable includes actual quality of apples exchanged, amount of each quality-category exchanged, and average grower price received broken down by quality and variety.

At the packer-grower transaction point, the fee-charging structure is ostensibly very easy to observe since with many packers this information is clearly laid out on paper. However there are numerous services that the packer performs, and numerous ways to charge for each; there are practically as many charging

structures as there are packers. Each weights the charges for different services in his own way, and the final amount that the grower pays depends on the packout, i.e., the proportion of his apples allotted to traypacks vs. bags vs. processing. In such a situation, growers cannot compare the returns they would get from different packers simply by looking over the formal charging structure. Within a packing station, charging practices are standardized and some level of pooling is common. At that limited level, the market could be considered transparent.

In the processed channel, MACMA's annual bargaining for price and terms of trade serves to make the market more open to observation than is common in the fresh channel. Prior to bargaining by MACMA, growers charged that the prevalent private treaty system resulted in impacted information and market power greatly weighted to the processors' benefit. Now even though PA #344's exclusive agency clause has been nullified, MACMA bargains with processors for the majority of Michigan's processing apple crop. By representing such a large portion of the state's crop, MACMA serves to standardize the prices and terms of trade. It also publicizes the negotiation results to members and non-members alike, functioning as a market information source. Finally, through its involvement in the ten-state American Agricultural Marketing Association, it helps put Michigan's subsector in a broader context and adds to regional transparency.

Processor cooperatives provide a level of transparency for their members comparable to what MACMA provides for the rest of

the market. Given the existence of MACMA, it is not clear that cooperatives add to market transparency: the impetus for their formation and strength must be looked for elsewhere.

D. Adaptiveness to Market Changes: Chapter 3 argued that historically, Michigan's fresh apple subsector has not been very adaptable to market changes. Two reasons offered were the pricing structure that makes packer-shipper returns relatively independent of price received, and the transportation cost advantage that allowed Michigan to undercut the price offered by distant competitors on the West Coast. There are limits to how long the state can drag its feet and still remain competitive, however. First of all, the transportation cost advantage has waned in importance as quality and service have become valued over price. As a matter of fact, when Norway imports U.S. apples, it does so from Washington, despite the high price. The reason cited was the consistently high quality of goods Norway had received from Washington, a reason also cited by retailer-buyers in the United States. Also, while packer-shippers are not vulnerable to price changes, when the inappropriate quality or form of apples affects the quantity of apples demanded, they are very much affected.

Given these changes, Michigan has been adapting to the new preferences during the last five years. That is, Michigan has not been a leader in adaptation, but eventually the threat of losing market share spurred Michigan's packer-shippers to start adapting. This is not to imply that all Michigan packer-shippers are

sluggish to adapt to change, but that on average, most have not been very eager to make the changes necessary to conquer new markets.

Growers have historically relied on their packer-shippers for advice and direction concerning adaptation to market changes. After all, it is the packer-shipper who has his hand on the pulse of the market, and it is he who will sell the growers' apples. Of course, growers who are most willing and able to adapt their production to market demand will seek out like-minded packer-shippers. Looking at Michigan's fresh apple market, one could not accuse it of being unresponsive to changing preferences. Being only a small part of the national supply, and surrounded by competition from near (New York) and far (Washington), Michigan's growers, packers and shippers cannot ignore changes in market preferences. One could argue that a change in the incentive structure could make Michigan even more responsive and thus more successful in competing in the national and international markets.

In the processing channel, the issue at the grower level has not been so much a change in the varieties or qualities demanded as it has been in the total quantity demanded. There are some varieties that remain particularly in-demand for processing, but on the whole, demand for domestic processed apples is flat or declining, while supplies are increasing. Many private processors adapted to this change by simply selling the business and moving out. Many cooperative processors, on the other hand, have adapted by implementing stock tonnage contracts and limiting the amount

each grower can deliver. One cooperatively owned processor recalled 20% of all its stock tonnage, thus giving a clear message to its members to produce less.

Cooperative processors are the most suited to deal with such long-term changes because they are the only ones with long-term commitments to the grower. These commitments result in a structure that eases the short-term cost to growers, while still resulting in a longer-term decrease in supply. Private processors can also encourage a decrease by various methods, the most extreme of which is going out of business, but many of these methods have a much more severe effect on the growers.

E. Distribution of the Costs Associated with Risk and Uncertainty: Three categories of grower decisions associated with the risk and uncertainty were identified in the beginning of this chapter: investment, output and distribution. In Michigan, growers are essentially on their own when it comes to long-run planning for the fresh market. They do receive some advice from county extension agents, packers and shippers, and they receive crop surveys every four years to see what has been planted or removed. But since no one wants to be held accountable for inaccurate advice about an unclear future, most participants are reluctant to give clear direction on supply and demand outlook and on what growers should plant. Growers are expected to collect the necessary information to make these decisions on their own, and they bear the costs if their information or analysis is wrong.

Even the grower-owned packer-shippers generally accord a low priority to researching what growers are doing, intended to do, or should do -- while at the same time admitting that such research would be very helpful to the grower.

Packers also must bear the risk on their own when it comes to investment in new machinery or storage facilities. Since long-term contracts are not used in the privately-owned packing houses, packers rely on their personal relationships with the growers, as well as on their own performance in fulfilling grower needs, to keep a steady supply coming. Shippers have very little capital investment needs, but they do need a steady, reliable supply source and a set of reliable buyers in order to succeed. One factor in gaining and keeping packer-clients is the shipper's willingness to share information with the packers, which aids them in investment decisions. Available evidence shows that the largest or fastest-growing shippers do communicate actively with their packers. None, however, will link their own profits to their packer-clients' investment decisions. This clearly reflects the power of the different participants to make their wishes count.

In the processing channel, only the cooperative processors offer an avenue for mutual insurance. Growers are assured a home for their product within the limits imposed by stock-tonnage contracts, and the processor is often assured of input supply through these same contracts. Private processors, like packer-shippers, rely on trust and personal relationships. In processing

there also exists a grower-financed bargaining and marketing agency (MACMA) for the collection and dissemination of market information. Although most information provided to growers by MACMA is short-run in nature, some may also be helpful to growers trying to decide on long-term plantings.

In the short-run, growers receive more guidance on the quality (not quantity) to produce. As mentioned earlier, some of this guidance is contradictory: when given the advice to grow crisp, red apples, the grower must often choose between these two characteristics. If the shipper emphasizes color and then cannot get a high price for the apples because they are not crisp, it is the grower who receives lower returns. He will not even know when this happens, since the returns are pooled and divided up through the season.

A grower who focusses on growing traypack quality apples is not assured that his apples will be packed in trays. So although the packer-shipper may contribute to decreasing the uncertainty under which a grower operates, the cost is still borne by the grower. Once the grower consigns his apples to a packer-shipper, the latter's major concern is to move the apples out.

A similar argument holds for the distribution of apples between fresh and processed markets. Packer-shippers do have an incentive to send as little as possible off to processing, since they make very little money on that volume. However, a packer with storage facilities will want to fill that capacity, and especially in short-crop years may encourage storing apples that

are not in a condition to withstand storage. If a grower's apples go from storage to processing due to poor storage practices, or because they were of a quality that should not have been stored in the first place, the packer-shipper is still paid in full for the cost of storage.

In the processing channel, the burden of some price uncertainty is borne by private processors: they commit themselves to a price, which sometimes turns out to be too high. This does not happen often, however. If the growers belong to a cooperative and prices are dismally low, at least the cooperative bears some of the cost by retaining less for investment. In the long run, the costs associated with underinvestment in the cooperative are borne by the grower-members, so this strategy is necessarily one to be used sparingly if the cooperative is to remain in business. All in all, growers bear most of the costs associated with risk and uncertainty.

F. Consequences Brought to Bear on Behavior: In the fresh market, shippers bear little of the cost associated with their price-cutting behavior. Growers' options are to stay or leave, and since most shippers follow similar price-bargaining patterns, leaving often does little good. Between growers' (particularly the Pomesters') pressure and the shippers' increasing acceptance that their isolated price bargaining is to the detriment of the subsector, slow changes are being made. None of the changes involve making the shippers bear the cost of price-cutting

behavior. Rather, the focus is on greater sharing of market information to aid shippers in the price discovery process. Although switching packer-shippers may not help the grower, it can hurt the packer-shipper. This could be one more reason why shippers are slowly inching towards cooperation.

Packers also bear the consequences of poor storage or rough handling only to a limited degree. A grower would have to be especially alert even to suspect that the level of his returns are a result of poor packer performance (rather than market demand, competition, or the quality of apples delivered by the grower). He would then have to express his discontent through exit or voice. If the grower exits, the packer bears the cost of poor performance. However, competition for grower business exists, and packers must prove that they treat the growers' apples well in order to build the trust and personal relationship so necessary in the subsector.

In processing, MACMA does bear some of the consequences of its behavior. If it negotiates a price below what emerges as the market price (which has been known to happen), it usually receives strong feedback from irate growers, since the negotiated floor prices are the market price for the first few months of the season. If the negotiated floor price is too high, processors will buy fewer Michigan apples, which also results in grower discontent.

Unless they belong to a cooperative with stock tonnage contracts, growers do not feel the full consequences of

overproducing already abundant processing apples. Since total volume not allotted to cooperatives is taken into account in MACMA negotiations with processors, the grower who cut back production bears some of the cost created by his fellow growers' overproduction. This free rider problem is one that MACMA cannot solve easily. The inability of growers to capture the benefits of cutting back -- or conversely, the ability of growers to spread the cost of not cutting back -- is a factor contributing to the continuation of apple oversupply in the United States in general and in Michigan in particular.[2]

III. INSTITUTIONAL COMPARISON

Taking a step back to look at both countries simultaneously, differences and similarities in performance emerge that can be related back to the situation, structure and conduct in each country. Given the particular situational characteristics, it is clear that the structure of incentives has a great effect on participant conduct and resultant performance. For instance, we find in both countries evidence of inadequate quality standards. Reasons for this undoubtedly include the high variability in quality possible with any agricultural product, changing consumer demand, and the constant improvements being made through breeding that render quality standards obsolete soon after they are set.

---

[2]. Oversupply is defined here as a condition where the marginal cost to the grower of producing one more unit of apples is greater than the marginal revenues the grower receives from selling those apples.

Apples are being sold above the formal standards in both areas, and in neither area do the shippers want to be bound to sell at higher legal standards -- the risk of quality variability due to weather is high in both Norway and Michigan.

The sellers of fresh apples to retailers in both areas are the shippers, and in neither area do their revenues depend primarily on price received. Given a quantity of apples to be sold, price is directly related to quality, both of the apple itself and of the packaging. Thus in both Norway and Michigan the majority of apple sellers have focussed on selling maximum quantity, giving less attention to quality and price of the apples, with the result that the quality of apples marketed in both countries has much room for improvement. Both eventually did have to pay attention to quality, since lower quality affects the quantity demanded at some point.

This shows the importance of looking at the structure of incentives under which the participants are operating. That shippers are the relatively powerful participants in the channel from grower to shipper is shown by their ability to pass on the risk of price variability to the grower. The research in Norway shows that even if information on consumer preferences does reach the relevant participants, they will not use this information if appropriate incentives for doing so do not exist.

Looking at both countries also shows that consideration of growers' costs of production will not necessarily be included in the price determination process without mechanisms designed for

the voicing of this information. While growers' costs of production are implicit in their supply function, biological constraints associated with apple production mean that grower supply responses are lagged a number of years. This situational characteristic contributes to the widely observed oversupply-undersupply cycles experienced in agriculture, particularly in perennial crops such as tree fruits.

In Michigan, growers have relatively little voice in determining the price of fresh apples, at least in the short run. If a shipper happens to also be a grower, he will have access to his own cost-of-production information, but otherwise this information does not enter the price negotiations. When grower groups are involved in the price determination process, as in Michigan's MACMA or Norway's farmer unions, the cost of production concerns have at least the potential to enter into the discussion.

It can be argued that grower involvement creates inflexible, excessively high prices. Although some have accused MACMA of having such an effect, it is doubtful if MACMA's effect has been so strong, since Michigan has open borders and a great many competitors. Norway, however, strictly controls imports of fresh and processing apples. This control, along with grower involvement in price determination, does appear to result in higher prices. There is good reason to believe that prices are high in Norway because of the high costs of production rather than the growers reaping monopoly profits, although the latter factor may also be at work. Since supporting its agricultural population

has been a central goal of the Norwegian government, the price distortions could be considered useful or necessary. It is not clear, however, that subsidized prices are the best way to reach this goal. Grower involvement in price determination also contributes to transparency in the market, as MACMA and both fresh and processed markets in Norway show.

IV. COOPERATIVES AS A COORDINATING MECHANISM

Chapter 1 discussed the theoretical potential of farmer cooperatives to act as a coordinating mechanism, and the theoretical obstacles in this path. This section will compare that discussion to the reality in Norway and Michigan, in order to discover whether the contributions of cooperatives and the obstacles they have faced match the earlier predictions. This section will follow the same format as Chapter 1, Section C.

A. Transaction Costs and Asset Specificity:

1. Decision Costs: A comparison of BAMA and GH clearly reveals the higher decision costs faced by GH. BAMA's aggressiveness in marketing, while certainly a function of its incentive structure, is also a function of its centralized decision-making structure. For any significant action, such as rationalization of the packing station structure or implementation of narrower quality standards, GH-Central's management must first confer broadly with other management and board members.

Michigan's shippers illustrate that cooperatives do not have a

monopoly on slow decision-making when adapting to changes in market conditions; the incentive structure of these shippers causes them to avoid substantial risk-taking and change. However, a shipper who does perceive a need to adapt to market changes can do so more quickly than a cooperative. This may be a reason why cooperatives are generally weak in the area of fresh produce marketing. Fresh produce is a subsector with wide variations in quality, involving highly perishable commodities that must be moved quickly. The slowness with which some Michigan shippers adapted to changing market demand was not due to cumbersome decision-making procedures. Rather, these shippers were waiting until they perceived it to be in their interests to adapt.

In a cooperative, the presence of decentralized decision-making procedures that involve a large number of people means that decisions take a longer time to be made. Experience shows that cooperatives have a greater chance of succeeding in a competitive market when the members are willing to allow some centralization of decision-making. The time and resources saved through centralization become relatively more important as the decisions involve more specialized information. Time is a particularly important factor in the fresh fruit and vegetable industries, where the many site-specific and time-specific decisions made daily are poorly suited to lengthy decision-making procedures. The danger with centralization is that members may lose control of their cooperative, resulting in a patron-owned firm that is hard to distinguish from an investor-owned firm.

At any rate, the necessity to economize on transaction costs make the centralization question an important one for the cooperative to address. When the cooperative has a large market share, as does GH, it may be more able to afford the time and resources it needs to come to agreement within a decentralized structure. GH, for instance, has now reached the point where it can discuss ways to implement differential pricing, and it is also going ahead with the packing station rationalization plans.

The pace of change in GH reflects many factors, some that are characteristics of cooperatives in general. Being an integrated firm, GH considers a wider range of costs than would a non-integrated firm considering change. Being a cooperative, it has a decentralized decision-making structure. Participants in the cooperative's decisions have a broad range of interests and discount rates, thus adaptations with short-run costs and long-run benefits are likely to be opposed by some members. Finally, being partially supported by the government gives GH a margin of security and thus potentially a complacency that may slow down reaction to market changes.

No shipper in Michigan has the market share or public support enjoyed by GH. The costs of slow adaptation can be bankruptcy or at least a significant loss of market share. The largest and most successful shippers in Michigan are the ones who have adapted quickly to market changes, and who cultivate relationships with like-minded growers and packers. The need for rapid decision-making ability in the fresh apple channel and the lack of

protective buffers (such as government support or legislated price negotiations) for cooperatives in Michigan thus appear to have been factors contributing to the lack of grower marketing cooperatives in this channel. Even with its buffers, GH has the lowest market share of the major national grower cooperatives in Norway.

2. Information Costs: Both Norway and Michigan's apples subsectors illustrate that where cooperatives or grower groups exist, information costs for growers and even shippers has been less than where they do not exist. This contributes to the transparency of the market.

3. Enforcement Costs: In Michigan growers' bargaining with processors, grower group involvement significantly reduced the costs to growers of enforcing their agreements with processors. After the passage of PA #344, for instance, growers had recourse when processors were lax in returning pallet bins at agreed-on times. Where private participants perform their role with no grower interference, as Michigan's shippers do, grower enforcement costs are very high. There is no way to check to see if a shipper is fulfilling his agreement to try to bargain for the highest possible price.

While enforcement costs are high for growers, the shippers' need to be able to trust growers creates a situation of mutual dependency that can lessen the need for formal governance structures. A shipper needs to be able to trust his packers and growers to deliver the quality of apple he has promised to a

retailer, just as a grower needs to be able to trust that a shipper will try his best to sell the apples for a high price. Trust without some means of verification is difficult to sustain, however. In Michigan, a shipper may use a field man to check on packing station and even orchard management practices. A grower, on the other hand, has no means of verifying the sincerity of shipper effort. This would not be the case (or at least would be less severe) in a cooperative, as grower representatives sit on the board and work somewhat closely with the management selling growers' apples.

4. Asset Specificity: Processor cooperatives in Michigan have proven their insurance value for growers. The cooperative provides both a home for the growers' apples and some guidance in long-run planning for investment in asset specific items like apple trees (through stock tonnage agreements). The contracts also insure the cooperative against opportunistic behavior by growers.

There are very few grower cooperatives in Michigan's fresh market. When asked for possible reasons for this, some participants said the growers' insistence that managers accept poor-quality apples killed the cooperatives. Chapter 1 also suggested that this is one shortcoming of cooperatives as coordination mechanisms. Upon reflection through this research project, it now seems that this is not a shortcoming of cooperatives, but of quality standards. If standards are sufficiently well-defined, a cooperative can accept all of its

members' apples and sell the mediocre quality for a mediocre price. Since pooling is generally for apples of the same quality standard and variety, growers of high quality would not have to subsidize lower-quality growers.

Fresh fruit and vegetable marketers can more easily adapt their produce to market demand if precise quality standards are used. However, some cooperatives may be poorly equipped to implement precise or rigid quality standards that are above what is legally required. One reason for this is the vertically-integrated nature of a cooperative, which leads it to take into account the costs to all its growers of fulfilling precise standards. However, growers of high-quality apples may protest the situation which leads to them subsidizing the lower-quality apples produced by other grower-members. This may lead to a more precise definition of quality standards that results in narrower pools and decreased cross-subsidization. Whether a cooperative maintains broad quality standards to pacify growers of average-quality apples or precise standards that restrict cross-subsidization will depend on the proportion and decision-making power of the growers of high vs. low quality goods. Another possible strategy for grower cooperatives may be to lobby for the state or national government to establish more precise standards for the whole industry.

The quality issue in Michigan lends credence to the assertion that the lack of well-defined quality standards is a more relevant culprit than the cooperative institution. Shippers in Michigan are not cooperatively owned, but they have long been accused of

selling bags and traypacks with large variation in size and color. The problem is more that federal quality standards are of limited relevance to subsector needs, and shipper incentives have been to promote quantity even if at the expense of quality.

B. Trust and Frequency of Transactions: Trust is the foundation of Michigan's fresh apple subsector, in and out of cooperatives. As explained earlier, shippers and growers both need to be able to trust one another, but shippers have a means of verifying the trust. Apples are a non-standardized good involving infrequent but repeated transactions, and the consignment method of sale is an incomplete loose contract with price contingencies related to uncertainty. According to Shaffer (1987), these are both factors that can make a cooperative an attractive option for growers. In Michigan, these factors have not led to the establishment of grower cooperatives. Dissatisfaction with shipper performance has sparked some action from the Pomesters, a grower interest group, but despite their privately-owned status, shippers still seem to have the growers' trust.

Processing cooperatives in Michigan have served as a source of services previously purchased by most growers from investor-owned firms (IOFs). Interviews conducted for this study showed that trust was and is an important ingredient in cooperatives' operation, although this trust must be backed up by proof of performance satisfactory to the grower.

It is difficult to gauge the role of grower-trust in GH, for

two reasons. First, GH operates within a price band handed to it from the annual negotiations, which it has no part in setting. Second, GH is a very large organization and individual grower perception of their own power to affect GH is low -- in which case trust may also be low (Shaffer, 1987, p. 76).

C. Multiple Objectives: Norway is a good example of the differences between cooperatives and IOF's in reconciling conflicts between grower interests, and between growers' and consumers' interests. BAMA more readily caters to changing consumer demand, maintaining relations with growers who can fulfill this demand. Facing the same change in demand towards higher-quality produce, GH's approach has instead been to struggle to find a way to cater to this demand without abandoning the smaller or lower-quality growers. The conflict accompanying this struggle has been painful, for example as GH tries to cut costs by consolidating the packing stations.

GH has exploited its potential as a forum for discussion and dissemination of information on what growers should grow, but not on what the cooperative as a business is going through. The result is that when business decisions have to be made that hurt some growers, the members do not understand the basis for this, adding to the estrangement they feel from their cooperative.

V. OF LESSONS AND LIMITS

This section looks for lessons and suggestions for the apple

subsectors of Norway and Michigan, based on discussion with participants and comparison between countries. Comparison is possible only to a limited degree, however, due to the significant differences in the basic conditions of the two countries. So that these differences will be kept in mind when reading the suggestions, the section will begin by discussing the limitations to comparison and then turn to a few suggestions for changes that have the potential to redistribute resources and risk in the subsectors.

A. Caveats: The first and most obvious point is that Norway is a country, and Michigan is a state. Norway can restrict imports and implement nationwide policy, while Michigan has open borders and is a state within a sovereign nation. It is constitutionally forbidden to implement a state policy similar to Norway's agricultural policy. The implications of this have been seen in the operation of coordination mechanisms discussed in the previous two chapters. Norway and Michigan are also very different climactically and geographically: Norway is very mountainous and its summers are short compared to that of Michigan.

For a number of reasons, but particularly due to being occupied during World War II, Norway has an explicit policy of supporting through government policies its rural population and its agricultural production. To date, these two policies have been joined, so that supporting the rural population has to a great extent been seen as synonymous with supporting agriculture. GH

and the farmer unions have been major actors in these policies, with the farmer unions being the avenue for the expression of voice in national policy, and the cooperative being the mechanism for its implementation. Many of GH's actions and restrictions stem from being not just a grower cooperative but also a government-supported tool for the implementation of national agricultural policy. From these basic differences stem the structural mechanisms discussed earlier: the Annual Negotiations, the Market Regulation Fund, restricted imports, and so on.

The quality of Norwegian apples does not allow the use of Controlled Atmosphere storage. Thus the domestic apple season for Norway is 5 months, while for Michigan it is almost the whole year. Michigan apples have more paths to which they can be allocated. Whereas Norwegian apples go either to the fresh market or to juice, Michigan's apples also go to applesauce, pie filling and frozen slices. Finally, Norway is a country with a long history of government involvement in the economy and broadly defined social welfare; the United States is not.

B. Norway: Given its national goals for agriculture, Norway has devised an ingenious system of checks and balances. By separating the grower representatives for the annual negotiations from the implementors of its results, a number of issues are resolved. First, to have grower marketing cooperatives be the grower representatives for price negotiations might create incentives to distort data on operating costs in order to push for a higher

price. As it is, all growers together negotiate for an income level, using cost of production data provided by an external source and open to criticism by growers.

For reasons discussed in Chapter 3, subsector participants are generally reluctant to make predictions on future market conditions that could be used by growers for long-run planning. Since no one wants to be held responsible, the final decision is left to the grower. The separation of powers in Norway forces GH to become involved in long-run planning on orchard plantings in order to make its mandate a feasible one to fulfill. The final decision is still the growers' but this decision is made with more information on market conditions and future demand outlook. It would seem, however, that the assurance of income parity gives growers little incentive to follow these plans very closely. The same type of information provided to Michigan growers might be followed more closely, since they bear a higher proportion of the costs of changes in consumer demand than do their Norwegian counterparts. In some of Michigan's processor cooperatives, where pooling returns also provides growers with a disincentive to adopt their production, stock tonnage contracts are used to make each feel individually the decrease in consumer demand.

Using such contracts in GH would not be impossible, but it would raise some sticky issues. For instance, GH's policy is currently to accept everything its members produce, and with stock tonnage contracts this would no longer be the case. Also, if members can only deliver a set quantity, they will try to sell the

rest themselves locally, most probably undercutting GH's price. Finally, since need in Norway is not to cut back production but to change its composition, GH would have to sell stock tonnage contracts by variety, recalling only the stock of particular varieties and issuing new stock for more desired or newly improved varieties. Stock tonnage contracts are essentially a tool to control supply, and since oversupply is not a problem in Norway, this tool may be an expensive and inappropriate one to use. Differential pricing is a tool more suited to quality control, and thus may be more appropriate for the Norwegian apple subsector's needs. Regardless of the tool chosen, GH will continue trying to adapt growers' production to consumers' demand. Some of the push to do this comes from BAMA.

One of the major rationales for the existence of cooperatives is that they contribute to market competitiveness. This rationale can also be posed as justification for the existence of private firms when cooperatives have significant market power. The competition provided by BAMA pushes GH to take into account consumer demand to a greater extent than the cooperative would otherwise have done.

In competing with BAMA, GH as a cooperative has certain advantages and disadvantages; to overcome its disadvantages with respect to its competitors, GH needs to use its advantages to the fullest. It is only in the past few years that GH has begun focussing on one of its greatest potential advantages as a cooperative: its relations with its patron-members. The

alienation of growers from their cooperative was reflected by their responses to the survey conducted for this study: over 65% said that their primary loyalty was to their packing station, and only 22% said it was to GH. This alienation can hopefully be reduced with a continuation of attention being paid to member relations and mutual communication.

Most of the government's support of agriculture is through output price supports rather than production subsidies. These two have very different effects on consumption. From a consumer's point of view, price supports are a specific tax, and production subsidies are funded through general income taxes. Tax incidence theory shows clearly that specific per-unit taxes inhibit consumption of the taxed good and that general taxes do not. This is also intuitively clear: an individual can avoid paying a per-unit tax by shifting his consumption away from that good, but a general tax cannot be avoided by changing consumption habits. While it is true that all food prices are supported in Norway, it is doubtful that they are all taxed at equal proportions. Thus, the taxing of all goods does not mean that price supports can be considered a general tax. It would be instructive to look into the effects on consumption of supporting growers completely with direct subsidies rather than price supports. Other factors, for instance political considerations, may make it difficult to raise personal income tax rates, even if food prices are allowed to fall.

No matter what kind of taxes growers are supported with, one

fact has emerged in Norway: it is simply not possible to ensure the continuation of a dispersed population by focussing only on agriculture. Rural development includes but is not limited to agricultural development in the United States, Norway, or anywhere else. The reality is that most Norwegian rural families have at least one member working part-time in an off-farm job. This is widely recognized in Norway, but there does not appear to be any well-defined policy or institutional mechanism in place to support rural non-agricultural development. To date, GH has not been actively involved in this area either. No GH participants interviewed said that they would advise a grower to get out of agriculture: that was not seen to be their role. But GH would be very well suited to play a role in promoting rural development; it has the institutional and physical infrastructure to enable it to reach the small villages scattered throughout Norway.

Such action by GH has many potential benefits. Grower surveys in Norway and empirical evidence in Michigan showed that specialization is an important factor in growing high-quality apples. Growers in Norway are generally very diversified; this is primarily a risk-management strategy. With appropriate training and off-farm job opportunities, growers could specialize in one or two crops and also work outside. Thus a grower with a 12-acre farm could plant (for instance) 10 rather than 4 acres of apples, devoting himself to producing high-quality apples for part of the year, and working in an off-farm job during the remainder of the year. This would raise the average quality of Norway's apples.

Land in areas least suited to apple growing could be devoted to other crops. The farms most costly to operate could be taken out of production, thus reducing the average cost of production and the amount of subsidies needed. It would also mean an explicit recognition by the grower-cooperative of its members' needs.

The farmer union is likely to oppose such a change in GH, and to charge that this amounts to abandoning Norway's growers. Political considerations may make the promotion of non-agricultural activity by GH infeasible. It would be unfortunate if GH did not seriously consider such action, however. The uproar over GH's plan to rationalize the packing station structure is only partly due to grower loyalty to their packing stations and poor communication with GH. Participants within GH admitted that what growers were really protesting was the deterioration of the communities. One village that was cited as an example had in recent years lost its post office, church and school. Losing the packing station was one more blow to the viability of the community. No matter what agricultural subsidies are provided to growers, they cannot be expected to continue living in towns consisting solely of themselves and their farms.

C. Michigan: As much as growers are protected in Norway, they are unprotected in Michigan -- at least, in the fresh market. The costs of most types of uncertainty are borne by the growers. These costs are borne less by the growers in the processing channel, supporting the idea that if growers do not band together

to protect their interests, no one else will do it for them. It is clear that fresh-market growers have the least market power, since they bear most of the costs associated with risk and uncertainty. It is also clear that they have the least market power despite being numerous because they are fragmented. The only grower interest group, the Pomesters, represents a scant one-sixth of the state's apple-grower population and its actions are not oriented towards increasing grower market power. However, concerted grower action generally shows results; even this small group has been able to affect some minor changes.

It is neither possible nor necessarily desirable for Michigan's fresh apple subsector to be as protected as that of Norway. But there are certain conditions existing that would be beneficial to change, from the growers' and possibly packers' and shippers' standpoint. First is the inadequate quality standards. Every person interviewed for this study agreed that current federal standards do not accurately describe what is being bought and sold. This decreases market transparency, allows for inconsistency in what is marketed, and increases uncertainty on both the buying and selling sides.

The question is not whether higher standards are needed, but from where the impetus for change should come. MACMA is willing but politically unpalatable. MAC is politically palatable but unwilling to jeopardize its demand expansion program to take on a quality-improvement role which is likely to be highly controversial. The Pomesters are both willing and palatable, but.

(so far) unable to bring about the change on their own. One feasible line of action would be for the Pomesters to pressure MAC to get involved in the issue. There are indications that MAC would be willing to get involved if strongly supported by growers. This is the only option that, when suggested to various participants, did not meet with vehement disapproval.

Another area of uncertainty that growers must bear but cannot control is the price level for their apples. Shippers bargain for price and sell apples to buyers, without having their own returns be affected substantially by the price levels to which they agree. Growers argue that shippers often agree to overly low prices and engage in cutthroat price-cutting. Individual shippers argue that they bargain as best they can, and that they must take grower interests into account if they want to keep their business. It is true that shippers need growers' business and that they do take growers' interests into account to some extent, but it is most likely that shippers protect their own interests first and foremost. Given the highly competitive shipper relations, price-cutting is not only possible but very likely. Growers might wish to have shippers' revenues be affected by the prices they agree to, and this could well be the long-run goal of a grower interest group. But given the current distribution of rights and resources in the fresh market, it does not appear to be a feasible short-run goal.

One goal that is feasible to accomplish in the short run is to have shippers bargaining with a more complete picture of at least

the state's supply situation. Some steps towards this goal of more complete market information have even been taken. The Pomesters sponsored a meeting of shippers in 1985 to discuss subsector issues, and through grower pressure MAC sponsored another shipper meeting to discuss information-sharing. Shippers have made moves to institutionalize information-sharing on sales and stocks. Further efforts by the Shipper Association, the Pomesters and MAC have a very good chance of furthering progress towards the goal of more complete market information.

There is a deficiency in the sort of aggregated information growers need to make their long-run planting decisions. The state Orchard and Vineyard Survey that is published every 4 years provides some useful information on number, variety and age of existing trees. The 1986 survey also included a brief outline of growers' stated planting intentions. According to growers, county extension agents and some shippers, more information on present supply and future demand outlook would be extremely useful to growers making planting investment-disinvestment decisions. No one wants to make demand predictions and be held responsible if these are incorrect, and while this reluctance is understandable, it does leave the grower with little direction or basis on which to make decisions. The increased availability of information relevant to long-run decision-making might be another goal for growers to pursue.

Two institutions already have the infrastructure to carry out the role of information-gatherer to aid in long-run planning for

grower plantings; the State Department of Agriculture, which publishes the crop survey, and MACMA. It is true that MACMA's apple division is by name the association of processing apple growers, but all apple growers in the state deliver some apples to processors whether they plan to or not -- it is just not possible to grow an entire crop of fresh-market quality. A market information-gathering role would not only give MACMA a new area of responsibility but would also give it a chance to communicate more closely with fresh-market participants, and perhaps to decrease some of the suspicion and animosity with which it is viewed. Shippers and others could voice their long-run projections without fear of being blamed later, and by aggregating all these predictions a reasonably well-founded long-run projection might be made.

D. Concluding Comments on the Analytical Framework: The research for this study was done using the framework for analysis developed in Chapter One. The framework was particularly useful in generating hypotheses and in guiding the collection of data; it was somewhat less helpful as an organizing tool in writing the thesis. Using the framework helped to organize the complexity of agricultural subsectors into a relatively coherent set of categories and subcategories. These categories and subcategories, used with specified behavioral and environmental assumptions, allow predictive statements to be made about the form of organization likely to emerge in the subsector. Predictions

about the consequences of this organization for specific participant groups can also be made. This study showed that the predictive statements made with the use of the analytical framework are in general proven valid. Detailed predictions are less likely to be exactly correct, due to the many conflicting or issue-specific forces at work.

One of the advantages of this framework is its ability to reveal similarities and differences in coordination processes where they are not immediately apparent. Even what appears to be the same outcome can be shown to be very different if only one looks beneath the surface. For instance, to say that shippers in both Michigan and Norway adapt slowly to changes in market demand and to delve no further is to miss important differences in the reasons for slow adaptation in each area and the consequences of this for subsector participants. To say that growers have cooperatively integrated forward into packing and shipping in Norway but have relied on the market in Michigan is also to miss revealing similarities in the way responsibilities are divided in the two areas. Finally, to say that either area is more efficient that the other is to neglect the important question of what costs and benefits are included in the calculation of efficiency.

The insights offered by transaction cost economics (TCE) have been a valuable and central contribution to the approach offered in this study. By itself, however, TCE neglects certain important distributional issues. It also fails to detect certain similarities and differences when doing comparative studies of

economic organization. The approach used here is a useful modification of TCE that can be a valuable tool in approaching the often daunting subject of economic coordination.

APPENDICES

APPENDIX A

Excerpts from the "Main Agricultural Agreement, 1950":

What follows are excerpts from a paraphrased translation of the "Main Agricultural Agreement, 1950", from Jordbrukavtalene, 1945-1970 by Karl Bonden, pp. 56-61. This Agreement is the enabling legislation for the Norwegian annual price negotiations.

Introduction:

From now on, we must realize that production and demand, without regulating devices, will be problematic. There will be a need for activities to secure for the farmer a decent income relative to incomes in other sectors. Therefore, we have to ... perform many regulations that aim to influence ... agricultural production. Activities of this kind must be implemented partly by the state, partly by the farmer organizations, but always with close cooperation between the two. The state should plan and implement .. regulating devices in cooperation with farmer organizations. The farmer organizations .. should seek to coordinate their activities with the general economic policies of the nation. This cooperation should be .. brought into stable, formal structures.

Chapter 1: Price Negotiations

This is an agreement between the Ministry of Finance and the farmer unions Norske Bondelag (NB) and Norske Smabrukerlag (NS): the Norwegian authorities, NB and NS are to negotiate prices for agricultural products. Such negotiations are to be performed annually, unless the parties agree to a different period.

The negotiations aim at getting agreement on general or specific guidelines for the determination of prices. The negotiations are to be closed before 1 April. The Ministry may decide that certain negotiations are to be carried out by other state institutions.

NB and NS are to negotiate through a common negotiating body. The two organizations are to have three members, and can use as many experts in addition as they find necessary. Both the farmer unions and state authorities have the right to demand negotiations with the other party about other issues or market regulatory devices than prices.

The price authorities (not the negotiating body) decide the prices and specific regulatory activities consistent with the agreement that comes out of the negotiating body. NB and NS are to carry out regulatory activities in line with the agree-upon guidelines from the negotiations. The two organizations should also see to it that other institutions in agriculture do the same [N.B.: this becomes the clause that, in practice, involves farmer cooperatives in implementation of regulatory activities].

The economic organizations [i.e., the cooperatives] should participate in implementation of the results of negotiation to the utmost of their ability. The economic organizations are required to send all their suggestions or demands about price and other market regulation activities to the Negotiation Committee, as well provide information relevant to negotiated issues to the negotiators.

When an agreement is reached, each economic organization must decide for itself the necessary details concerning pay by quality, season, etc., of product. The prices must be fixed by the economic organization in such a way that the average is the price agreed upon by the negotiating body.

APPENDIX B

Sample Norwegian annual agricultural agreement:

What follows is a slightly edited version of the English translation of the Agricultural Agreement of 1980-1982, published by the Ministry of Agriculture.

The Ministry of Consumer Affairs and Government Administration on the one part and the Norwegian Farmers' Union and the Norwegian Small-holders' Union on the other part have concluded the following Agricultural Agreement for the period July 1, 1980-June 30, 1982, pursuant to resolution passed by the Storting [Parliament] on June 11, 1980, cf. Committee Report S. nr. 345 (1979-1980)...

4. Potatoes, Fruit, Berries, Vegetables, Live Plants and Parts of Plants.

4.2. Periods of Regulation.

The periods of restricted imports of the various commodities are:

1. Greenhouse vegetables:

Tomatoes	May 10 - October 14

2. Vegetables grown in the open:

Carrots	June 1 - May 31

3. Fruit:

Apples May 1 - January 31

4. Potatoes:

June 16 - June 15

4.3. Standard Prices.

Standard prices and upper price ceiling for the most important commodities shall be fixed weekly in accordance with the Import Council's proposal for the established periods, in order to form the basis of price determination.[1]

The basis for the Import Council's calculations will be the quality grade Standard 1 of the representative items; apples, tomatoes, and carrots... According to proposals made by the Import Council, the standard prices of potatoes, vegetables, fruit and berries shall be adjusted by Norwegian kroner (Nkr) 74.7 mill. throughout the year. Upper Price ceiling will be fixed at 12% above current standard price.

4.5. Imports.

When the price of a Norwegian commodity in two consecutive weeks is above the upper price ceiling, restriction of imports shall be removed. The import ban shall be re-introduced when the price of the Norwegian commodity is at or below upper price ceiling. Goods ordered during a period of unrestricted imports shall be cleared within a week after the suspension of unrestricted imports. The

---

1. The Import Council is a group of 13 representatives from private industry, farmers, farmer cooperatives, and government. They and their deputies are appointed by the Minister of Agriculture.

upper price ceiling may be fixed as maximum price. The price quotations used as a basis are the prices of goods delivered c.i.f. Oslo. The prices are quoted every Tuesday.

The Import Council will propose quantity and time for supplementary imports, needed to secure a reasonable supply to the market in regard to the standard prices mentioned in 4.3. The Import Council will make proposals for distribution and marketing of the supplementary imports as well. Except during the regulation period, imports are free.

4.6. Production Support, etc.

4.6.6. Regional Support and Freight Support for Fruit. The grant from the concentrated feed levy for regional and freight support for fruit of a fixed quality will be increased by Nkr 5 mill. to Nkr 11 mill. per year.[2] The regulations will be set by the Ministry of Agriculture in consultation with the Norwegian Farmers' Union and the Norwegian Small-holders' Union, cf. Protocol 14.

4.6.7. Support for Storing of Fruit. The support for storing of fruit will be increased by Nkr. 0.5 mill. to Nkr 4.5 mill. per year. The amount will be granted in the Budget.

4.6.8. Packing Support for Fruit, Vegetables and Berries.

---

2. The "concentrated feed scheme" is the arrangement by which farmers pay a fee that is gathered and supplemented by the government. It is administered by the Marketing Council for the purposes of market regulation and promotion. The small and scattered fresh produce farmers no longer pay this fee, due to the prohibitively high costs of collecting this fee from them. Instead, these growers are given a grant corresponding to the amount they theoretically would have paid in fees.

The grant from the concentrated feed levy for packing support for apples, pears, tomatoes, cabbage heads, cauliflowers, cucumbers, leeks and head garden lettuce, and plums, cherries and strawberries, will be increased by Nkr 2.0 mill. to Nkr 18.5 mill. annually.

6. Marketing and market regulation measures.

6.4. Administration.

Grants for marketing schemes, regulation plants (e.g., apple processing plants built for regulation purposes) and marketing measures will be disposed of by the Marketing Council pursuant to regulations laid down in this agreement. Money that has not been spent during the first year of the agreement period, may be used for the agreed purposes in addition to the means mentioned above in the second year of the agreement period.

The Ministry may, if the Norwegian Farmers' Union and the Norwegian Small-holders' Union agree, decide that money not needed for one of the listed purposes, shall be spent for another purpose. Funds, that according the rules have been granted for marketing schemes, shall not be used for regulation plants or for other purposes.

6.5. Operational Credits for Market Regulation.

At the request of the Marketing Council, the State Bank of Agriculture may give loans to ... the Sales Organization of Horticultural Producers in Norway (Gartnerhallen)... up to Nkr 80 mill. in total, to cover operational credits for regulating

measures during the agreement period.[3] The money shall be lent on interest and otherwise on usual terms for cash-credit loans in banks at that time, cf. earlier recorded minutes.

9. Social Welfare Schemes.

9.2. Holiday Fund for Farmers.

It has been proposed to increase the grant for the Holiday Fund by Nkr 20 mill. to Nkr 280 mill.

9.3. National Insurance Membership Levy.

Nkr 197 mill. will be granted per year as National Insurance membership levy - an increase by Nkr 12 mill. The arrangement is based upon the following principles:

1. The individual farmer shall pay a levy to the National Insurance, equal to the levy paid by wage-earners, on pensionable income within agriculture, animal husbandry, horticulture, and forestry...

2. The difference between the levy fixed for self-employed tradesmen and the levy to be paid by individual farmers pursuant to item 1 has in the current agricultural agreement been fixed at Nkr 197 mill. per year.

9.4. Sickness Benefit Scheme for Agriculture.

The refund scheme for expenses paid for hired workers during sickness will remain unaltered.

---

3. Not to be confused with the market regulation funds described earlier, which are granted (not loaned) to GH.

10. Other Grants in the Budget and from the Concentrated Feed Levy.

10.1. Fund for Rationalisation of Agriculture.

The Fund for Rationalization of Agriculture will be granted Nkr 424.6 mill. per year. The maximum support for reduction of prices will be as follows:

North Norway Nkr 200,000 per holding

South Norway:

Zone 1 Nkr 180,000 " "

Zone 2 Nkr 160,000 " "

The following changes have been agreed upon:

- Field leveling.

  The maximum basis for support will be raised to Nkr 1,200 per decare [about 1/4 acre].

- Support for Farms in Less Favored Areas.

  An increase in the support by Nkr 25,000 to Nkr 125,000 per holding has been proposed.

12. Decisions for the Second Agreement Year.

The following decisions have been made for the second agreement year:

Negotiations between the Government and the Norwegian Farmers' Union and the Norwegian Small-holders' Union about decisions for the second agreement year shall be opened before July 1, 1981. The basis of the negotiations shall be:

- The decisions and principles made by the Storting for achieving the standard-of-living and income parity objectives of the agricultural policy.
- The adjustment in income for agricultural workers will be allowed to develop in accordance with the expected income adjustment for industrial workers.

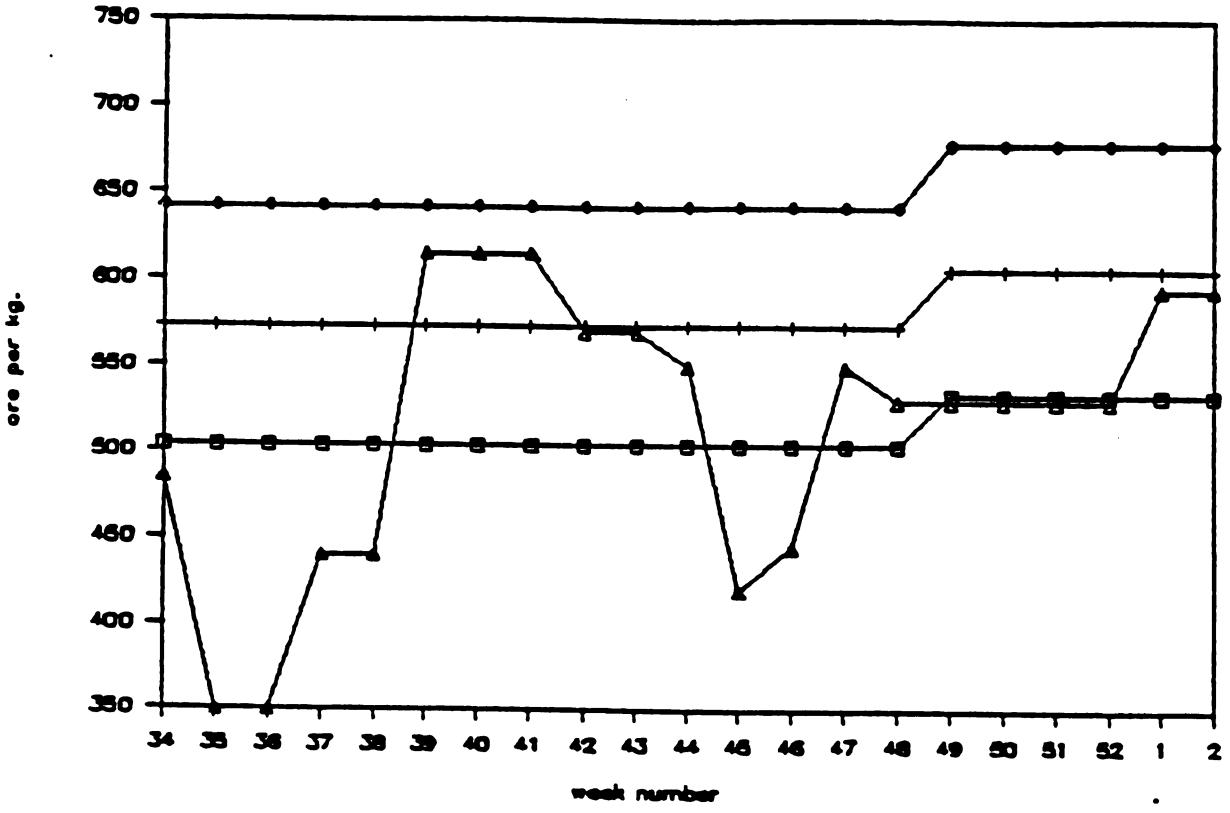
13. The Basic Agreement.

The Basic Agreement of 1950 will be prolonged for the duration of this agreement. The Basic Agreement's references to the "Ministry of Finance" shall be replaced by whatever Ministry the King at any time decides.

APPENDIX C

Graphs of actual and target prices for Norwegian fresh apples, 1984 and 1985:

1. 1985 Prices:

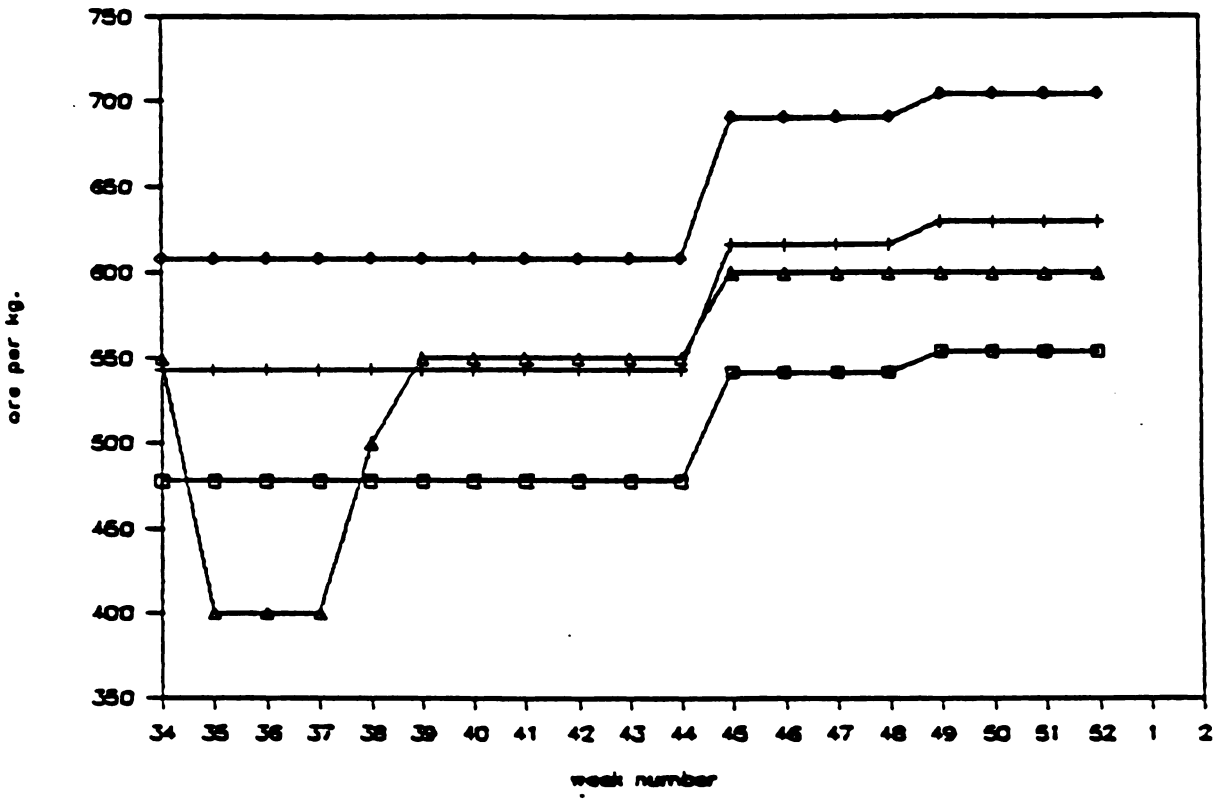


Legend:
- o : ceiling prices
- + : target prices
- □ : floor prices
- Δ : actual prices

APPENDIX C

Graphs of actual and target prices for Norwegian fresh apples, 1984 and 1985:

2. 1984 Prices:



Legend: ◇ : ceiling prices
+ : target prices
□ : floor prices
△ : actual prices

APPENDIX D

Data Collection Methods:

1. Interviews: Norway

The majority of information on the Norwegian apple subsector contained in this study was gathered from twenty six interviews conducted in the summer of 1986 and January 1987. My contact person in Norway was Dr. Per Ove Røkholt, a professor of agricultural economics who has worked with Gartnerhallen (GH) and has done extensive research on cooperatives in Norway. After numerous sessions to familiarize me with the Norwegian agricultural sector, he arranged interviews for me with various subsector participants. Interviews were arranged with people who (a) worked with or were familiar with the issues relevant to this study, and (b) spoke English. Interviewees often suggested other participants who could contribute to the study, which led to more interviews.

With the help of Dr. Geir Isaksen, head of GH's Department of Member Relations, a four-day trip was arranged to Norway's west coast. The purposes of this trip were to visit a local packing station and regional GH office and to conduct further interviews. The language constraint limited the range of interviews and especially limited the amount of independent reading I could do. In January of 1987, with the help of a Michigan State University Department of Agricultural Economics grant, I returned to Norway

to conduct further interviews. Again, my contact person was Dr. Røkholt. He helped arrange meetings with BAMA, the Processor Association, and the Norwegian Consumer Cooperative. Further interviews were also held with GH, focussing this time on their apple-processing activities.

The interviews held in Norway lasted from one to six hours, with the majority lasting two and a half hours.

2. The GH grower survey:

In July 1986, a grower survey was carried out with the cooperation and financial support of the Department of Agricultural Economics at the Agricultural University of Aas. This survey also benefitted from the backing and logistical support of GH. The purpose of this survey was to gather background information on the apple growers' general situation, and to get GH growers' views on two issues: (a) upgrading of the Class 1 standard for fresh apples, and (b) the plan to rationalize the GH packing station structure by closing some stations and enlarging others.

The survey consisted of twenty six multiple choice questions, which were formulated and translated into Norwegian with the assistance of Dr. Per Ove Røkholt. The survey was accompanied by two cover letters; one from Dr. Isaksen, GH's director of member relations and the other from Dr. Røkholt.

Growers were chosen from the three major apple-producing districts of Norway. Due to budget limitations, only half of the growers in Vestlandet (the largest apple-producing district) were

included. These (approximately 500) growers were chosen at random, by selecting every other name from an alphabetical list of growers. All of the GH-registered growers of the Oslo and Vestfold/Telemark districts were included in the survey. A total of 575 surveys were mailed out, and 224 or 39% were returned. The results were put at the disposal of GH, the Department of Agricultural Economics at the University of Aas, and me.

3. Interviews: Michigan

A great deal of information on the apple subsector of Michigan was gathered from twenty three interviews conducted in the summer and fall of 1987. My contact person in Michigan was Dr. Donald Ricks, a professor of Agricultural Economics at Michigan State University, who has many years of experience as an extension specialist in the Michigan fruit industry. After six interviews with Dr. Ricks to familiarize me with the Michigan apple subsector, he provided me with a list of key participants in the apple industry. Some interviewees were interviewed more than once, others suggested additional participants, some of whom were interviewed later. Interviewees were chosen such that at least one person from each participant group and level of the subsector channel was included.

Interviews conducted in Michigan ranged from one to three hours, with the majority being two hours long.

4. Confidentiality:

For the sake of confidentiality, this study has avoided identifying interviewees by name.

BIBLIOGRAPHY

Aanonsen, Arnt (Manager, Producer Organization Division of Banan Matisse Corporation). Personal Communication: Oslo, Norway, 13 and 14 January 1987.

Armock, Don. (General Manager, Belle Harvest Sales, Inc.). Personal Communication: Belding, Michigan, 16 and 22 September 1987.

Arney, Mark (Executive Director, Michigan Apple Committee). Personal Communication: DeWitt, Michigan, 21 September 1987.

Bain, Joe. Industrial Organization, 2d. ed. New York: John Wiley and Sons, 1968.

Belding Fruit Storage, Inc. "Agreement Between Stockholders of Belding Fruit Storage, Inc." Belding, Michigan, 1982.

Belt, Jan (Gartnerhallen grower advisor, Vestlandet district). Personal Communication translated by Hilde-Marie Birkeland: Bergen, Norway, 30 June 1986.

Berger, Leslie A. "Orderly Marketing: A Comparative Institutional Analysis of Coordination Performance in the Apple and Celery Subsectors." Master's Thesis, Michigan State University, 1986.

Bergfløt, Ottar (Director, Omsetningsradet). Personal Communication: Oslo, Norway, 11 June 1986.

Boatwright, Earl (Field Buyer, Kroger-Wesco). Personal Communication: Greenville, Michigan, 28 September 1987.

Bradford, Larry (County Extension Agent) Personal Communication: Hart, Michigan, 24 August 1987.

Butler, Thomas C. and Craig E. Anderson. 1987 Processing Apple Crop Statistics and Marketing Analysis. American Agricultural Marketing Association, Inc. Lansing, Michigan, July 1987.

_____. "Michigan Processing Apple Growers Newsletter." Vol. XXIII, No. 55. Lansing, Michigan, August 1987.

(Chief, Michigan Processing Apple Growers). Personal Communication: Lansing Michigan, 1 September 1987.

Cherry Growers, Inc. "Membership Application and Marketing Agreement." Traverse City, Michigan, no date.

Christy, Ralph and Donald J. Ricks. "The Michigan Apple Marketing System." Agricultural Economics Staff Paper No. 81-80. Department of Agricultural Economics, Michigan State University, 1981.

Coase, R.H. "The Nature of the Firm." Economica, New Series 4 (1937): 386-405.

Daelen, Per (Director, Norske Bondelag). Personal Communication: Oslo, Norway, 20 June 1986.

Dege, Jan Tormod (General Manager, Konservefabrikkenes Landsforening). Personal Communication: Oslo, Norway, 19 January 1987.

Forbruker- og administrasjondepartment. Jordbrukavtalen 1984-86. Storting prp. nr. 3. Oslo, Norway, 1985.

Forsell, Leif (Chief, Agricultural Negotiations Section, Ministry of Agriculture). Personal Communication: Oslo, Norway, 16 June 1986.

Friedman, Lee S. Microeconomic Policy Analysis. New York: McGraw-Hill Inc., 1984.

Gartnerhallen. "Charter and Bylaws." (translated by Solveig Volle). Oslo, Norway, 1981.

_____. "Produksjonplan for Fruktdyrkinga i Oslo Distrikt." Oslo, Norway, 1984.

_____. "Produksjonplan for Fruktdyrkinga i Vestlandet Distrikt." Oslo, Norway, 1984.

_____. "Arsmelding 1982-1984." Oslo, Norway, 1985.

_____. "Prisvurdering for ukeintervaller (epler), 1982-1985." Oslo, Norway, 1986.

German, Dave (Owner, German Orchards: Grower-Packer). Personal Communication: Greenville, Michigan, 16 September 1987.

_____. Personal Communication: Belding, Michigan, 22 September 1987.

Girardin, Mark (Manager, Wilderness Foods Fresh Produce Division). Personal Communication: Muskegon, Michigan, 1 and 15 September 1987.

Government Administration Department. Agricultural Agreement: July 1, 1980-June 30, 1982 (English version). Oslo, Norway, 1980.

Hirschman, Albert O. Exit, Voice, and Loyalty. Cambridge: Harvard

University Press, 1970.

Husabø, Per (Research Scientist, Njøs State Experiment Station). Personal Communication: Hermansverk, Norway, 27 June 1986.

Isaksen, Geir. "Political Support for Farmer Cooperatives in the United States." Department of Agricultural Economics Report No. 45, Agricultural University of Norway. Aas, Norway, 1983.

_____.(Managing Director, Gartnerhallen Member Relations Department). Personal Communication: Oslo, Norway, 29 August 1986 and 16 January 1987.

Johnson, Glenn L. and C. Leroy Quance, eds. The Overproduction Trap in U.S. Agriculture. Baltimore: Johns Hopkins University Press for the Future, 1972.

Kallevig, Arild (Assistant Imports Manager, Gartnerhallen Imports Department). Personal Communication: Oslo, Norway, 3 July 1986.

Kelly, Frank J. "Attorney General Opinion No. 6450." Department of Attorney General. Lansing, Michigan, 1987.

Klackle, Steve (Owner, Klackle Orchards: Grower, and President, Michigan Pomester Apple Committee). Personal Communication: Greenville, Michigan, 16 September 1987.

Konservefabrikkenes Landsforening. "Avtale for 1986/1987 pa baer og pressfrukt mellom Gartnerhallen og Konservefabrikkenes Landsforening." Oslo, Norway, 1986.

Kropf, Roger (Owner/Manager, Kropf Fruit Company: Grower-Packer-Shipper). Personal Communication: Lowell, Michigan, 17 September 1987.

Layard, P.R.G. and A.A. Walters. Microeconomic Theory. New York: McGraw Hill Inc., 1978.

Løtveit, Helge (Section Leader, Gartnerhallen Fruit and Berry Plant Development Division). Personal Communication: Oslo, Norway, 23 and 24 June, 1986.

Løvstad, Jon Petter (Staff Member, Norske Bonde- og Smabrukerlag) Personal Communication: Oslo, Norway. 12 June 1986.

Marion, Bruce W. "Vertical Coordination and Exchange Arrangements: Concepts and Hypotheses". Coordination and Exchange in Agricultural Subsectors. NC-117 Monograph 2, University of Wisconsin-Madison, 1976.

_____. The Organization and Performance of the U.S. Food System. Lexington: D.C. Heath and Company, 1986.

McLaughlin, Edward W. "Buying and Selling Practices in the Fresh Fruit and Vegetable Industry: Implications for Vertical Coordination". Ph.D. Thesis, Michigan State University, 1983.

Michigan Crop Reporting Service. Michigan Fruit Tree Survey. Lansing: 1973, 1982.

Mish, Frederick C., ed. Webster's Ninth New Collegiate Dictionary. Springfield: Merriam-Webster Inc., 1983.

Morrison, Terry (Manager, Cherry Growers Inc.: Grower-owned Processing Cooperative). Personal Communication: Traverse City, Michigan, 6 October 1987.

Nicholson, Walter. Microeconomic Theory. Chicago: The Dryden Press, 1985.

Nodenes, Martin (Director, Gartnerhallen Market Regulations Division) Personal Communication: Oslo, Norway, 18 June and 29 August 1986, 12 and 16 January 1987.

Norges Standardiseringsforbund. "Norske Standard for Frukt of Baer". Oslo, Norway, 1976.

Norske Kooperative Landsforening. "The Consumer Cooperative Movement in Norway". Oslo, Norway, 1985.

Platt, John. "Beyond Freedom and Dignity -- A Revolutionary Manifesto." The Center Magazine, March 1972, pp. 34-52.

Pro-Fac Cooperative, Inc. "Certification of Incorporation, Bylaws and General Marketing Agreement." Rochester, New York: 1985.

_____. "1986 Michigan Apple Agreement." Benton Harbor, Michigan, 1986.

Renkema, Bill and Jim Wilson (Pro-Fac Member Relations and Curtice-Burns Vice-President of Raw Product: Pro-Fac/Curtice-Burns Michigan Fruit Canners joint venture). Personal Communication: Benton Harbor, Michigan, 25 September 1987.

Ricks, Donald J. and Thomas R. Pierson. "Coordination of Long Run Supply and Demand for Perennial Crops". Department of Agricultural Economics Leaflet Series. Michigan State University, 1983.

_____ and Donald Hinman. "Industry Approaches for Fresh Market Quality Improvement." Department of Agricultural Economics unpublished paper. Michigan State University, 1987.

_____ (Professor, Department of Agricultural Economics, Michigan

State University) Personal Communication: East Lansing, Michigan, 27 May, 2 June, 9 and 15 and 27 July, 7 August 1987.

Rhodes, V.J. The Agricultural Marketing System, Second Edition. New York: John Wiley and Sons, 1983.

Royal Norwegian Ministry of Agriculture. "On Norwegian Nutrition and Food Policy: Report No. 32 to the Storting" (English version). Oslo, Norway, 1975.

_____. "On Norwegian Agricultural Policy: Report No. 14 to the Storting" (English version). Oslo, Norway, 1976.

_____. Agriculture in Norway. Oslo, Norway, 1983.

Røkholt, Per Ove. "Cooperation -- A Strategy of Organizing." Department of Agricultural Economics unpublished paper. Agricultural University of Norway. Aas, Norway, no date.

_____ (Professor, Agricultural Economics, Agricultural University of Norway). Personal Communication: Aas, Norway, 30 May, 10 and 17 June 1986 and 20 January 1987.

Samuels, Warren J. and A. Allan Schmid. Law and Economics. Boston: Kluwer.Nijhoff Publishing, 1981.

Scherer, F.M. Industrial Market Structure and Economic Performance. Chicago: Rand McNally, 1980.

Schmid, A.A. Property, Power, and Public Choice. New York: Praeger Publishers, 1978.

_____, et. al. Community Economics: Predicting Policy Consequences. Unpublished text. Michigan State University: 1983.

Schotter, Andrew. The Economic Theory of Social Institutions. New York: Cambridge University Press, 1981.

Schwallier, Phil (County Extension Agent) Personal Communication: Grand Rapids, Michigan, 26 August 1987.

Shaffer, James D. "Does the Concept of Economic Efficiency Meet the Standards for Truth in Labelling When Used as a Norm in Policy Analysis." Dept. of Agricultural Economics Staff Paper #85-67, Michigan State University, October 1985.

_____. "Thinking About Farmers' Cooperatives, Contracts and Economic Coordination." Cooperative Theory: New Approaches. ed. J.S. Royer, pp. 61-86. Washington,D.C.: USDA Agricultural Cooperative Service Report 18, July 1987.

_____, and A.A.Schmid. "Community Economics: A Framework for

Analysis of Community Economics Problems". Unpublished paper. Michigan State University, No date.

_____, and John M. Staatz. "Potential Coordinating Functions of Farmer Cooperatives." Farmer Cooperatives for the Future: A Workshop. Sponsored by the North Regional Research Committee. St. Louis, Missouri, 1985.

Simpson, David. General Equilibrium Analysis. London: Basil Blackwell Publishers, 1975.

Staatz, John M. "A Theoretical Perspective on the Behavior of Farmer's Cooperatives". Ph.D. Thesis and Department of Agricultural Economics Staff Paper No. 84-27. Michigan State University, 1984.

Stuckman, Noel (General Manager, Michigan Agricultural Commodities Marketing Association). Personal Communication: Lansing, Michigan, 21 August 1987.

Swindeman, Bernie (Owner-Manager, Applewood Orchards Inc.: Grower-Packer-Shipper). Personal Communication: Deerfield, Michigan, 31 August 1987.

Teien, Tor (Manager, Norges Kooperative Landsforening Fresh Food Department). Personal Communication: Oslo, Norway, 13 January 1987.

Thomas, Mike (County Extension Agent). Personal Communication: Pau Pau, Michigan, 25 August 1987.

Tjugum, Lars (Fruit Storage Manager, Leikanger Packing Station: Gartnerhallen member station). Personal Interview: Leikanger, Norway, 27 and 28 June, 1986.

Verlo, Karsten (Vestlandet District Manager, Gartnerhallen). Personal Communication: Bergen, Norway, 1 July 1986.

Williamson, Oliver E. "Transaction-Cost Economics: the Governance of Contractual Relations." The Journal of Law and Economics 22 (Oct.1979): 233-261.

_____. "The Modern Corporation: Origins, Evolution, Attributes." Journal of Economic Literature 19 (December 1981): 1537-68.

_____. The Economic Institutions of Capitalism. New York: The Free Press, 1985.

Zeller, Manfred. (Agricultural Economics Ph.D. Candidate, University of Bonn). Personal Communication, October 1987.