

3. Factors Affecting Cooperative Evolution

3.1 An Institutional Framework

In order to determine whether the incidence of cooperatives in New Zealand agriculture gives rise to policy issues for MAF, it is first useful to consider how and why certain forms of economic institution evolve, and the extent to which the nature of economic institutions is economically significant. We propose to examine these two questions drawing on the economic tools provided by institutional economics, which in turn draws on disciplines such as transaction cost economics and agency theory. We begin with a brief summary of the relevant issues and ideas, and then provide a framework that explains why cooperatives arise in certain spheres of economic activity either in association with, or instead of, alternative forms of coordinating institution.

3.1.1 Institutions and Institutional Change

Cooperative as Governing Institution

Institutional economics has developed considerably over the past three decades (Williamson (2000), Joskow (2004)), attempting to understand and explain the importance of institutions to economic performance. Here institutions are defined, following North (1990), as the formal and informal rules that constrain individual behaviour and shape human interaction. Organisations can be defined as sets of actors who cooperate or act jointly in production (Eggertsson (1996)). Cast in this light, agricultural cooperatives are a form of institution, being organisations that shape how farmers interact with other farmers, those who process and market their farm outputs, their ultimate customers, competing organisations involved in any or all of these areas, and regulators, government and the broader society.

North (2003) observes that economic institutions derive from political ones, touching on questions of governance: “who makes the rules and for whom.” Other governance mechanisms include spot markets, contracting, private and public corporations, and bureaucratic hierarchies. Each such mechanism involves increasing levels of coordination. How economic activity is organised around such governance mechanisms is important in considering how institutions such as agricultural cooperatives evolve, and their merit relative to alternative forms of institution (such as IOFs).

Efficiency of Persistent Institutions

How institutions do or do not evolve has important implications for whether their evolution and persistence can be interpreted as economically beneficial or harmful. Fama and Jensen (1983a, 1983b) and Hansmann (1996) argue that, left to natural forces, the productive organisational forms

that survive are those that best meet their consumers' preferences while minimising the combined costs of production and organisation (e.g. ownership/governance costs). However, such organisational evolution and survivorship might also reflect institutional biases, or vulnerability of the political process to capture by interest groups. Hence, to infer the superiority of an organisational form by virtue of its persistence requires the elimination of such alternative explanations.

In relation to agricultural cooperatives, for example, it is pertinent to inquire as to whether any dominance they enjoy over other organisational forms, such as IOFs, in activities such as dairy processing is a reflection of electoral strength (which requires consideration of why cooperatives might dominate in other, non-agriculture, activities). Alternatively it may be pertinent to investigate whether ownership restrictions (e.g. non-tradable and poorly specified property rights) in traditional cooperatives have impeded organisational transformation through ownership change. Evidence on the pace at which cooperatives have merged with others or with IOFs, or have adapted their organisational form, should also be considered. Similarly, where certain organisations involve significant power being held by non-owner managers this can result in impediments to change, although the demutualisation of finance and insurance companies might also reflect such control. Alternatively, under-developed institutions for converting one form of organisation to another might present prohibitive transaction costs, entrenching sub-optimal organisational forms. Questions such as these are discussed further in Section 4.6.

Institutional Change and Public Policy

Richter (2005, p. 18) observes that "Institutional change comes about through 'entrepreneurs in political and economic organizations' who realize that they could do better by changing the institutional framework." Such entrepreneurs, in bringing about new forms of institution, may be behaving opportunistically, but they may also be contributing to dynamic economic efficiency. Competition in product, factor and capital markets is thus an important discipline to ensure that such institutional change brings welfare gains, recognising that there is no universally ideal organisational form.

From a policy perspective it is important to retain what North (2003) terms "adaptive efficiency", allowing for the maximum of institutional choices and room to experiment, while providing institutions (such as bankruptcy laws) that enable failed solutions to be eliminated.

Recognising that hypothetical ideals are rarely achievable, Williamson (2000, p. 601) therefore proposes a "remediableness criterion" for public policy analysts to apply when considering the desirability of an organisational form:

“an extant mode or organization for which no superior *feasible* alternative can be described and *implemented* with expected net gains is *presumed* to be efficient. . . . [public policy] analysts can no longer condemn extant modes because they deviate from a hypothetical ideal . . .” [original emphasis]

This criterion “presses the public policy analyst to display a superior feasible alternative”, allowing also for any costs of implementation in the net benefit calculation.

3.1.2 The Economics of Vertical Integration

Considerable progress has been made in the economics of whether a firm should integrate backwards (by owning its suppliers) or forwards (by owning organisations operating further down its supply chain) – the question of vertical integration. The question is especially pertinent where parties in a supply chain must make relationship-specific investments, giving rise to “asset specificity”. For example, if an agricultural processing and marketing cooperative acts as a mechanism for coordinating between consumers and farmers, for example to procure farm outputs that better meet consumers’ product preferences, this may require investments by both the cooperative and its suppliers that have value only in their particular use.

It can be desirable for this coordination to take place through a farmer-owned cooperative if, for example, the alternative is for farmers to contract with third-party processors and marketers to provide the desired products requiring the relationship-specific investments. If such contracts can only be imperfectly specified (i.e. are “incomplete”), or are costly or impossible to verify or enforce, then the contracting parties anticipate that contingencies may arise where their counterparties attempt to exploit their relationship-specific investments. Such “hold-up” problems – being anticipated – lead to suboptimal investments by the parties. Forming a cooperative – a form of vertical integration – can be seen as a coordination solution to the hold-up problem, inducing a more efficient level of relationship-specific investment.¹²

Agricultural cooperatives thus represent a form of governance solution. They lie between spot market transacting (where farmers simply sell their outputs in an unprocessed state on spot markets) and complete vertical integration (where farmers collectively own all stages in the supply chain). Strategic alliances are another form of solution. In each case the costs of non-integration (e.g. hold-up) are balanced against the differing governance costs that arise under alternative governance arrangements in determining the optimal configuration of coordination and ownership.

¹² Boyd et al. (2000) discuss instances where contractual coordination in New Zealand agriculture for various products occurs outside the vertically integrated cooperative model.

3.1.3 The Economics of Ownership

Economics has had much to say in the past few decades on the costs arising where the owners of an organisation are not its managers (Jensen and Meckling (1976), Fama and Jensen (1983a, 1983b)). This separation of ownership and control gives rise to “agency costs” due to the inevitable conflicts of interest that arise between owners and managers, and the costly mechanisms that owners must employ to monitor managerial performance and to induce managers to act in their interest. Such ownership costs must be weighed against the costs of transacting alternatively through markets (whether via spot markets, or contracts).

Hansmann (1996) formalises these tradeoffs as part of a comprehensive review of the various types of organisation that predominate in different spheres of activity (including cooperatives in certain parts of agriculture). Based on the Jensen and Meckling (1976) model of a firm as a “nexus of contracts,” he develops a model of ownership seeking to explain:

- 1) Why ownership generally falls to a firm's patrons?; and
- 2) What factors determine the particular group of patrons to whom ownership is given for a particular firm?

The Hansmann model of ownership begins by recognising that market contracting can be costly (e.g. the hold-up problem, as above). This is especially so where there are market failures, e.g. where effective competition is lacking or one of the parties to the contract is at an informational disadvantage. These costs can be reduced by one party owning the other, diminishing the incentives for the dominant party to exploit the weaker.

He then asks, what is the optimal ownership assignment – minimising the total costs of transactions between the firm and all its patrons? All other things being equal, these costs will be minimised if ownership is assigned to the class of patrons for whom the costs of market contracting are the most severe. But ownership involves costs too, including “governance costs” – such as the costs of making collective decisions, the costs of monitoring managers, and the costs of poor decisions and excessive managerial discretion. Another ownership cost is the cost of risk bearing. These costs can vary greatly between patron classes.

Thus, the least cost assignment of ownership is that minimising the sum of all of the costs of a firm's transactions, i.e. the sum of:

- 1) the costs of market contracting for patrons that are not owners; and
- 2) the costs of ownership for the firm's owners;

noting that the former will depend on which of the other patron classes owns the firm.

With the dynamic view of how institutions evolve discussed above, and an awareness of the conditions under which such evolution can be regarded as optimal (first-best or otherwise), the potential efficacy of cooperatives as a form of vertical integration to alleviate problems of hold-up, and Hansmann's (1996) framework for evaluating alternative ownership assignments, we can now more critically turn to both the common and economic arguments offered in favour of cooperatives in agriculture.

3.2 Arguments for Cooperative Formation

As Reynolds (1997, p. 1) puts it: "Agricultural producers have an incentive to form and support a cooperative when it provides benefits they would not obtain by acting independently. Cooperatives can prosper when producer interests and goals are accomplished more effectively with cooperation than with more individualistic methods of transacting for services." In this section we amplify on these ideas by first setting out the range of cooperative strategies commonly identified as bringing about such benefits from cooperation, including some evidence on which of these strategies cooperatives actively pursue. We then more fully explore when agricultural cooperatives are suggested over IOFs according to the economics of ownership, largely following the framework and evidence presented in Hansmann (1996).

3.2.1 Survey of Theoretical Cooperative Strategies

Peterson and Anderson (1996) survey and categorise the common theoretical strategies attributed to cooperatives, and compare them with strategies identified by interviews with 21 US agricultural cooperatives. They contrast the objective functions usually assumed for cooperatives and investor-owned firms: the former seeking to maximise joint returns to both the cooperative and its owner-patrons; the latter assumed to maximise firm returns only.

Theoretical cooperative strategies are divided under two headings:

- 1) *Return strategies* – to increase future returns; and
- 2) *Risk-management strategies* – to make future returns more certain.

Included under *returns strategies* are:

- 1) Countering market power:
 - a) *Competitive yardstick* – introducing competitive discipline on prices in an industry otherwise suffering from market power, by displacing non-cooperative market share through *vertical* integration;
 - b) *Counter-veiling power* – securing bargaining strength to move market equilibrium towards the competitive ideal through *horizontal* integration;

- 2) Improving cost efficiencies:
 - a) *Deal costs* – securing economies in contracting, monitoring, planning, communicating, and enforcing exchanges;
 - b) *Agency costs* – achieving economies in monitoring managers and strategies, e.g. due to direct governance participation and the monitoring value of patronage returns; and

- 3) Serving missing markets:
 - a) *Member demand* – securing information economies in communicating member product preferences where “the market” otherwise fails to meet them; and
 - b) *Consumer demand* – achieving information economies in the reflection of consumer preferences in farm activities and product specifications.

Included under *risk management strategies* are:

- 1) Direct strategies:
 - a) *Pooling* – averaging prices across time and markets;
 - b) *Savings “bank”* – saving member returns in good times and paying them back in bad times;
 - c) *Maintain the market* – producing returns in times when non-cooperative firms would abandon a market; and

- 2) Indirect strategies:
 - a) *Conservative investment* – restricting cooperative investment to “safe” assets;
 - b) *Diversification* – expanding cooperative investment to include risk-reducing, non-member centred assets; and
 - c) *Selective vertical integration* – integrating into markets with negative covariance between cooperative and member returns (another form of diversification).

Peterson and Anderson’s survey of actual cooperative strategies adopted by 21 US agricultural cooperatives strongly supports some of the more commonly suggested theoretical strategies:

- 1) 100% of the cooperatives examined pursued a competitive yardstick strategy, seeing their role as one of introducing competition in a part of the supply chain – e.g. dairy processing – that might otherwise expose farmer suppliers to market power abuse by an IOF processor;
- 2) 95% adopted a conservative investment strategy. Consistent with the capital constraint and portfolio problems discussed in Section 2.4 regarding traditional cooperatives, in practice the cooperatives surveyed compensate for the effects on owner-patrons of cooperative property rights limitations via investment strategy;
- 3) 81% attempt to maintain markets where non-cooperative firms would abandon them. This is important for farmers with product-specific, farm-level investments who need the surety of a guaranteed market for their products (otherwise facing stranded investments); and
- 4) 76% adopted a diversification strategy, with similar effects and rationale as the pursuit of a conservative investment strategy.

3.2.2 Applying the Economics of Ownership

General Observations about Agricultural Cooperatives

Hansmann (1996) provides an extensive survey of the incidence of (mainly US) agricultural cooperatives, and of the various costs of market contacting and ownership that, when weighed, suggest that cooperatives are the most efficient organisational form for the activities considered. He notes that such cooperatives account for significant proportions of agricultural output in both the US and Europe (see Section 5 for figures and comparisons), and have exhibited increasing vertical integration over time (see Section 3.4).

Hansmann begins by observing that there are good reasons for family-owned farming to remain a viable form of economic organisation. An ability to secure borrowings against farm land and equipment means access to capital is not a constraint given the current efficient scale of farming. Inputs are often simple and standardised, and farm outputs are readily marketable due to their relative standardisation and the ease at which their quality can be assessed. Conversely, using hired labour on farms can be problematic (problems in monitoring effort, and discerning output variations arising from effort and chance/weather), making owner-family labour an important farm input. With close ownership and labour supply there is little need to engage in costly monitoring of management, and collective decision-making is similarly low-cost. While family-farms require owners to bear risk, this can be offset by effort, crop/stock insurance, supply contracts, or

ownership of downstream processing/marketing to manage output price volatility, and in some countries, government support. Industrial farms are becoming more common in some countries (e.g. Cargill Inc. in the US, and in Russia following the restructuring of former collective farms), but family-owned farms remain viable, especially in the presence of forward integration by farmers into downstream activities. This viability is reinforced by continuing farmer preference for the autonomy and lifestyle aspects of family-ownership in farming.

Hansmann surveys agricultural cooperatives involved in bargaining, handling, processing and/or marketing/distribution (which we collectively refer to as *farm output cooperatives*), and then *farm supply cooperatives*. He observes that there are only three common types of producer-owned organisation – those owned by investors (i.e. IOFs, which can be regarded as capital-supply cooperatives), workers (labour-supply cooperatives), and farmers. Conversely there are many types of consumer cooperatives (including farm supply cooperatives, but also mutual banking and insurance companies, cooperative hardware chains, etc). He attributes this incidence of producer-ownership in various agricultural sub-sectors to four defining attributes:

- 1) Highly homogeneous inputs;
- 2) Multiple producers, none of which is able to efficiently supply the market by itself;
- 3) Compelling efficiency reasons for individual rather than collective ownership; and
- 4) Some degree of market power working against farmers in the purchase of their outputs if they relied solely on market contracting.

One of Hansmann's more interesting conclusions is that the latter consideration appears less decisive than the other three in the incidence of farm output cooperatives. In other words, within his framework of balancing the costs of market contracting and ownership, agricultural cooperatives often thrive relative to IOFs where the costs of market contracting due to market power in activities downstream of farming are not in fact high. Rather, they thrive because the costs of farmer ownership of downstream activities can be particularly low, especially where the producer-owners have highly homogeneous interests (which typically coincides with them having highly homogeneous farm outputs). We further examine evidence on the governance of farmer-owned organisations in Section 4.4, which includes evidence in support of Hansmann's conclusion, or suggests reasons why any additional governance costs associated with cooperatives (relative to IOFs) remain sufficiently compensated for by other considerations other than simple market power arising in downstream activities.

Hansmann's analysis of farm output and supply cooperatives is discussed in greater detail and expanded upon below.

Farm Output Cooperatives

An important consideration in the formation of farm output cooperatives is the competitive structure of farming relative to that of agri-food chain activities downstream of farming, such as processing and marketing. Farming is traditionally very competitive, with multiple farms producing relatively homogeneous outputs, many of which are often highly seasonal and perishable (e.g. milk, fresh fruit and vegetables) and hence offer farmers little scope to identify better options when confronted with an unattractive sale contract.

Agricultural processing, by contrast, is often much more highly concentrated due to large economies of scale, with few or perhaps only one feasible processor for perishable or otherwise costly to transport farm outputs in any given geographical region. Such concentration often arises in declining industries, where consolidation in or exit from processing leaves few competing buyers for farm outputs in a region. Agricultural producers in countries like New Zealand are also exposed to market power arising from scale economies and coordination/consolidation issues in international shipping (whether by sea or air), given much of the nation's output is destined for time-sensitive overseas markets. They are also often exposed to concentration in major overseas marketing channels such as supermarket chains.

These competitive imbalances expose farmers to potential market power abuse by concentrated processors and other downstream agents raising the costs to them of market contracting and make farmer ownership a natural hedge against such abuse. Farmer-owners influence the objectives of the downstream agents through the governance process, return any excess profits due to downstream market power to themselves via patronage returns, and/or improve their bargaining position relative to downstream agents they cannot own or otherwise control. Notably, some of this incentive for farmers to collectively own concentrated processors is diminished where there are liquid forward and/or futures markets for farm outputs, since in this case farmers can time the forward sale of their outputs and diminish their vulnerability due to seasonality and perishability. It is also diminished where domestic, trade area, and international competition laws develop in ways substituting for ownership protections.

Other costs of market contracting that farm output cooperatives can alleviate include those arising due to:

- 1) *Asymmetric information* – e.g. regarding output attributes or market conditions, can expose farmers and/or buyers/handlers to exploitation by each other when the other has superior information. Farm output cooperatives can provide information channels between farmers and customers that alleviate the costs of informational asymmetries otherwise held by intermediaries (although improved communications technologies can also significantly reduce farmer search costs, potentially at less cost).

- 2) *Risk-bearing* – farm output cooperatives can pool multiple output types to diversify farmer supply risk arising from volatile output prices. Alternatively, when outputs are storable (e.g. wool) they can stockpile more economic lots of output classes, time sales to avoid market flooding, or otherwise secure pricing premiums from more orderly sales of output.

Regulation has played a role in cooperative development. In the US, for example, fruit and vegetable cooperatives have sometimes been formed as a means to secure federal or state marketing orders under which farmers enjoy minimum/favourable output prices. Also, the exemptions offered to US farmers to collectively set output prices (such as through horizontally-integrated bargaining cooperatives) under the 1922 Capper-Volstead Act apparently encourage the formation of bargaining cooperatives. But Hansmann suggests such cooperatives are typically unable to effectively cartelise to inflate output prices, not least due to open cooperative membership and cooperatives' inability to restrict farmer output increases elicited by such increased prices. Indeed, he offers Ocean Spray as an example where low prices due to oversupply in the cranberry industry was remedied by product and brand development rather than attempts to cartelise.

Taxes and subsidies can also sometimes favour cooperative development. Low-interest loans, state funding for agricultural research programmes, or cooperative formation grants, are obvious examples. The relative tax advantage of cooperatives versus IOFs in the US may also play a role, but not in all countries where cooperatives arise. However, cooperatives have formed and flourished without such incentives, so while they might explain additional cooperative formation at the margin, they do not fully account for the existence of cooperatives.

Following Hansmann's model of ownership set out in Section 3.1, any advantages farmer-owned cooperatives offer versus IOFs in areas such as farm processing and/or marketing must also consider the relative costs of ownership arising under each type of organisation in determining which form is most efficient. Despite common arguments to the contrary (see Section 4.4), Hansmann suggests farm output cooperatives enjoy significant advantages relative to IOFs regarding ownership costs, which largely account for their existence and persistence.

As to farmers' ability to control their output cooperatives (cf Cook's (1995) "control problem" in Section 2.4.2), there are good reasons for them to enjoy advantages over investor-owners, with correspondingly *lower* agency costs arising from the separation of ownership and control. Farmers commonly produce only a few outputs which constitute the majority of their income, raising their incentives to monitor cooperative performance. They repeatedly patronise their output cooperative, typically over many years, making them very familiar with its operation and managerial performance. While the dominance of cooperative boards by owner-patrons can be said to limit useful aggregations of owner interest and the skills of those boards, they also bring a very strong

commercial focus and understanding of the cooperative and its industry, as well as of member interests. Finally, the geographical concentration of many cooperatives, or the use of cooperative federations for multi-region cooperatives, mean that farmers have both the opportunity and incentive to closely and actively monitor cooperative performance. Hansmann observes that farm output cooperatives tend to predominate where farmers produce one or only few commodities, enhancing owner-patron homogeneity and thus intensifying these advantages.

As to the costs of collective decision making in cooperatives versus IOFs, Hansmann suggests that (p. 136) “A critical advantage for farm [output] cooperatives, it appears, is the extreme homogeneity of interest among the typical cooperative’s members.” This interest alignment reflects the predominance of cooperatives handling only one type of highly homogeneous product (often to the point of fungibility among producers – e.g. milk), and hence a sole focus on maximising the returns from that commodity. Where farm output cooperatives handle multiple products (or product qualities), they typically ring-fence costs and returns for each as a means of mitigating conflicts between farmers supplying the different products (or qualities).

On the other hand, Hansmann echoes the caution raised in Section 2.4.1 regarding traditional cooperatives’ constraints in raising equity capital, and the “portfolio problem” discussed in Section 2.4.2. Farmer-owners of traditional farm output cooperatives have limited surplus capital for investment in their cooperative, and often worsen their overall portfolio risk by cooperative investment when, as commonly occurs, farm and cooperative output prices are positively correlated. However, despite these problems, cooperatives continue to develop and grow (see Section 4.5 for more). Evidently this constraint – which is not shared by IOFs – is not sufficient to outweigh the ownership cost advantages farm output cooperatives enjoy relative to IOFs.

Before turning to farm supply cooperatives, Hansmann addresses the question of why farmers should own downstream activities to secure these benefits, rather than farmers being owned by such downstream activities. In short, the answer appears to lie in the preservation of strong efficiency incentives and low agency and other costs arising under family-owned farming, as well as the economisation of both market contracting and ownership costs. As mentioned earlier, corporate farming is a viable competitor to family-owned farming, often with forward integration into downstream activities, but family farming persists as a viable model where farmers exploit the ownership and market contracting advantages offered through their ownership of farm output cooperatives.

Farm Supply Cooperatives

Farm supply cooperatives often arise in areas such as fertiliser, farm chemicals, livestock feed (for non-pasture based farming), seeds and in some countries, petroleum supplies. Increasingly they also arise in areas such as stock or crop genetics, and other areas involving research and

development, and artificial insemination. They also arise in farm banking and insurance. Hansmann's explanations and others for the incidence of farm supply cooperatives include:

- 1) Historical lack of competition in the supply of fertiliser and petroleum products, in part due to high transport costs precluding access to out-of-region supplies. This lack of competition can extend to the absence of supply for certain farm inputs unless farmers themselves combine to procure/make and supply them. The predominance of consumer cooperatives in Sweden is attributed by Hansmann to that country's traditionally weak antitrust laws.¹³
- 2) Informational advantages enjoyed by suppliers regarding the quality of fertiliser, seeds, and feed, meaning farmers have been exposed to being sold inferior quality supplies (although labelling regulations have alleviated such issues). Conversely, where capital markets/banks or insurers have been immature or otherwise slow to service farm communities a niche has developed for farmer mutual banks and insurers, enjoying informational advantages in assessing lending and insurance risks due to client proximity and familiarity/trust sustained through repeated personal interaction.
- 3) Costs of ownership, as for farm output cooperatives, tend to favour farmer ownership over IOFs in certain farm supplies. The products or services concerned often comprise a large share of a farm's ongoing costs, are relatively homogeneous, and are often supplied geographically. Despite capital access problems that can affect traditional cooperatives, these features lower the costs of farmer ownership, which benefits add to those from improved market contracting, offering farm supply cooperatives advantages over IOFs in these products or services.

A preference for farmers to own and operate their own farms has already been mentioned as a possible factor contributing to the incidence of cooperatives. Hansmann goes on to note that many suggest cooperatives to be a peculiarity of Scandinavian culture, or of ideologically motivated groups opposed to capitalism. In respect of farm supply cooperatives he concludes that their incidence appears to be relatively free of ideological or political biases, and that farmers rather tend to be conservative and capitalistic by temperament. As for farm output cooperatives, the ownership cost advantages enjoyed by farm supply cooperatives relative to IOFs tend to offer greater explanation for their incidence and persistence than the advantages they offer in terms of market contracting costs.

¹³ Although Nilsson (1997b) points to social and political reasons.

3.3 Model of Cooperative Evolution

Section 3.1 provided a general description of factors affecting organisational evolution. Van Dijk emphasises that cooperative structures are the outcome of their members' entrepreneurial and managerial strategies, product strategy (e.g. differentiation), and forces of market competition.¹⁴ Here we summarise a life-cycle model presented in Cook (1995) for the evolution of cooperatives through various cooperative models and in some cases to non-cooperative forms.

Cook lists the following embryonic theories of cooperative life-cycle:

- 1) *Wave theory* – cooperatives form in waves, especially in depressed times, and later fail in waves;
- 2) *Wind-it-up theory* – cooperatives outlive their usefulness once they secure required terms or prices;
- 3) *Pacemaker theory* – cooperatives persist where their existence disciplines competitors; and
- 4) *Mop-up theory* – farmers forward integrate into markets where static or declining markets provide IOFs with incentives to act opportunistically.

Building on these, Cook proposes the following five-stage life-cycle model:

- 1) Depressed prices or market failures (opportunism/hold-up) create incentives for producers to react collectively. Hence the *survival-defensive* origins of the six traditional types of US agricultural cooperatives:
 - a) farm credit cooperatives;
 - b) rural utility cooperatives (e.g. electricity, telephony);
 - c) competitive yardstick local cooperatives;
 - d) multi-functional regional cooperatives;
 - e) bargaining cooperatives; and
 - f) marketing cooperatives.
- 2) Cooperatives formed to address short-term market fluctuations tend to be short-lived, but those confronting structural market failures produce enduring benefits and survive.

¹⁴ Personal communication, Professor Gert van Dijk, Cooperative Council for Agriculture and Horticulture (NCR), The Netherlands.

- 3) Cooperatives surviving stage two cause competitors to modify their behaviour, meaning prices between cooperatives and investor-owned firms converge, resulting in greater attention being paid to the five general problems associated with cooperatives discussed in Section 2.4.2 (i.e. the free-rider, horizon, portfolio, control and influence cost problems).
- 4) With the spotlight being turned on these cooperative property rights issues, consideration turns also to the tradeoffs if the cooperative should:
 - a) exit – i.e. liquidate, or restructure as an investor owned firm;
 - b) continue – either seek outside capital without converting to investor ownership, or seek to ensure financial responsibility is shared proportionally among members; or
 - c) transition – to an NGC.
- 5) Cooperative leadership chooses among these three options. Under the second, strategic alliances and joint ventures are used to obtain equity, or proportionality of internal funds is sought by better aligning capital contribution, voting and/or other attributes with patronage (such as through ring-fencing or reducing the number of cooperative activities). Under the third, emphasis is placed on value-added activities, and measures that mitigate the five ownership-related problems identified above (such as fair-value share valuations, and increasing share liquidity).

Cook suggests that among US agricultural cooperatives there are two apparent post-1990 phenomena:

- 1) traditional cooperatives are adjusting as per stage five of the above life-cycle; and
- 2) there has been a dramatic rise of NGCs (indicating more *offensive* rather than historical *survival-defensive* cooperative strategies).

He offers 12 factors that will contribute to ongoing collective action in US agriculture, including traditional factors such as transaction-specific investments leading to hold-up, but also others such as:

- 1) Sharing risk through relational contracts;
- 2) Responding to reputation and quality assurance requirements of trading partners; and
- 3) Attracting investment by ameliorating traditional cooperatives' property rights constraints.

3.4 Contemporary Drivers of Cooperative Evolution

3.4.1 Trade Liberalisation and Increasing Competition

New Zealand farmers face the same challenges as those confronting their counterparts overseas. Indeed, due to New Zealand's economic liberalisation in the 1980s, not least of agriculture, New Zealand farmers face those challenges to a greater extent than many of their foreign competitors, who often enjoy ongoing state support and protection to varying degrees, particularly in the US and EU. In addition New Zealand farmers confront the perennial challenge of distance from key export markets, raising not just the costs of transporting their outputs to customers, but far more importantly, the costs of exchanging information and coordinating between producers and customers.

International trade liberalisation, including in agricultural products (particularly over the last decade), offers New Zealand farmers the promise of improved foreign market access. It simultaneously offers improved access to those markets by its main export competitors, increasing the intensity of agricultural competition. Such competition places renewed pressure on producers to improve efficiency and increase productivity. These improvements are needed at all levels in the supply chain. At the farm level this requires improvements in farming practices that often require investments in research and development, or technology diffusion (such as rural broadband roll-out to enable tighter coordination between farmers and processors). In each case there are scale economies to be achieved through farmers acting collectively, whether through cooperatives or otherwise.

At the downstream level there is the need to fully exploit any scale economies in processing and marketing, placing renewed pressure on smaller downstream organisations to combine with others. Such reorganisations are facilitated by transport cost savings achievable through the tighter coordination enabled by innovations in information and communications technologies, as well as by improvements in storage and transportation technologies. And just as farmers have historically faced an incentive to cooperate to offset or displace market power in immediate downstream activities, there are now increased pressures for bargaining advantages to be achieved through scale in downstream activities when contracting with concentrated agents even further down the chain (such as value-added food producers, shipping lines, or supermarket chains).

However, efficiency and productivity gains are necessary but unlikely to be sufficient for New Zealand farmers to maintain market share in an increasingly competitive export environment. Greater product differentiation through brand development, as well as through shifting away from

commodity production to value-added products, is likely to play an increasingly important role.¹⁵ This requires technology and expertise not always readily available to traditional agricultural suppliers, such as improved stock genetics at the supply end, through to processed food production and marketing/distribution at the other. Hence there is a role for farmers and their immediate downstream processors to cooperate in developing such technology and expertise in-house, or to secure it via tie-ups – through ownership or otherwise – with others possessing the requisite intellectual capital.

3.4.2 Changing Consumer Preferences

Greater diversity and strength of consumer preferences add to these imperatives. Concerns for animal welfare and food safety, as well as environmental sustainability, provide both opportunities and threats for New Zealand farmers. Where they can identify and respond to such preferences in a timely fashion this presents an opportunity for market development. Conversely, a failure to develop information channels and coordination mechanisms to identify and respond to such preferences in a timely fashion risks New Zealand farmers facing declining market share and even the spectre of renewed non-tariff market barriers through regulation. Obvious examples include non-GE and/or organic branding, pasture-fed cattle free of BSE, hormone- and antibiotic-free livestock, and environmentally-friendly shipping technologies (e.g. reducing the litres of fuel oil burnt per kilogram of meat transported from New Zealand to the UK). As Coffey (1993, p. 1132) puts it, the industrialisation of agriculture over the past half century “is shifting from production-driven technologies of suppliers to the consumer-driven requirements of processors.” Such a shift emphasises the growing importance of coordinating the agri-food supply chain “from gate to plate.”

More refined consumer preferences also obviously increase the need for a shift away from commodity production to both branding and value-added processing. Where New Zealand producers meet those preferences via third party processors and marketers, this implies increasing demands regarding product specifications, and timeliness and security of supply. Not only do these require greater coordination along the supply chain, but they result in a simultaneous need for greater specialisation at the farm level for the production of farm produce meeting certain quality standards or specifications. Supply security requirements – fuelled by the need for downstream processors to secure efficiencies through improved year-round capacity utilisation – require processors to diversify procurement, taking supplies from multiple locations, including internationally. This not only reduces seasonal supply variations, but also diversifies processors’ risks from unwanted GE contaminations, BSE outbreaks, and the like. The coordination benefits offered by traditional agricultural cooperatives provide some of the means to respond to these drivers, but also create increasing tensions in doing so, especially where their responses require

¹⁵ There is not a sharp dichotomy between value-added and commodity products. Traceability of an otherwise homogeneous product to the farm, for example, may be sufficient to convert it to a value-added product.

new capital, or involve greater differentiation among farm suppliers. Variations on the traditional cooperative model, such as NGCs focused on value-added activities involving more tightly-controlled supply volumes, types and qualities, become more necessary and useful in this context.

3.4.3 Producer Board Dismantling and Organisational Competition

At the organisational level, agricultural trade liberalisation has placed pressure for the dismantling of traditional structures such as single-seller desk statutory producer boards, which in New Zealand involved majority farmer control. Since their inception, often in response to poor farm output prices, such boards have provided a substitute for the horizontal and vertical integration, and resulting agri-food supply chain coordination, that might otherwise be offered via IOFs or agricultural cooperatives. Dairy farmers in New Zealand (Fonterra), Australia (Bonlac and Murray Goulburn) and the UK (Milk Marque) were quick to adopt or strengthen cooperative structures in response to dairy deregulation. While the subsequent enforced break-up of Milk Marque into three regional cooperatives in 2000 due to competition concerns has diminished the effectiveness of the cooperative alternative to the statutory board in Britain, it has thus far enjoyed some success in managing the transition from producer board to deregulation. As we see in Section 5, at least one New Zealand agricultural sub-sector, the apple industry, has not yet established a viable alternative to the former Apple & Pear Marketing Board, and has suffered as a consequence.

Trade and investment liberalisation has also enabled greater integration by multinational food producers into the food supply chain. Accompanying the rise of corporate farming, particularly in the US, there is therefore an increasing concentration of investor ownership in the global agri-food supply chain. Whereas US multinational food companies in particular were once content to achieve international reach via strategic alliances and joint ventures, Desai et al. (2003) report that they now prefer outright ownership of foreign operations. This is not only to achieve tax efficiencies otherwise frustrated by alliance partners concerned with local rather than global profitability, but also to avoid unwanted transfers of intellectual property to alliance partners, and to allow global production coordination and intra-firm transfers that can conflict with local partners' goals.

Such ownership realignments, as well as innovations in cooperative types themselves, change the competitive make-up of domestic agricultural sectors. In some cases this adds impetus for smaller cooperatives, lacking both scale and opportunities or the capital necessary to achieve scale through merger or acquisition, to convert to IOFs. In other cases such conversions provide the opportunity for multinational food concerns to gain domestic interests. For those cooperatives with merger or growth opportunities this has led to increased domestic merger and acquisition activity, as well as the growth of *transnational cooperatives*, being cooperatives with owner-patrons in more than one country. Where cooperatives face pressures for differentiated supply, either due to consumer demands or the rise of differentiated NGCs, and/or greater need for capital to enable

value-added processing, traditional cooperatives can face pressures to unbundle according to producer types. Alternatively, producers of differentiated outputs face greater pressure to establish their own NGCs to enable them to secure the benefits of differentiation otherwise suppressed by pooling in traditional cooperatives.

Ownership realignments have also spawned hybrid arrangements involving strategic alliances and joint ventures between cooperatives, and between cooperatives and IOFs. Examples include Fonterra's alliance with Nestle in North, Central and South America, and joint ventures with Arla Foods in Great Britain and Dairy Farmers of America. Another variation is for cooperatives to act like IOFs in acquiring stakes in other domestic or foreign cooperatives, such as Fonterra's acquisition of Bonlac in Victoria. These hybrids simultaneously enable agricultural cooperatives to expand and integrate more deeply into the global agri-food supply chain, and/or provide multinational food concerns with access to supplies that they cannot secure through ownership, including where cooperative ownership is the obstacle to them doing so.

3.4.4 Cooperative Adaptations

Thus cooperatives are adapting to these global forces for change in ways that involve either greater or lesser cooperative enterprise, depending on the particular circumstances. Reflecting the commonly defensive origins of agricultural cooperatives and their long-standing substitutes, statutory producer boards – either to deter downstream market power, achieve scale economies in processing and marketing, and/or achieve benefits through coordination in the face of poor output prices – much of the current cooperative response to these global drivers is also defensive. Strengthening or adopting cooperatives to assume the functions and benefits formerly offered by producer boards is one example. Merging cooperatives both domestically and internationally, or forming alliances between cooperatives and IOFs, to achieve scale and scope economies are further examples. If one thing is clear, agricultural cooperatives cannot afford to stand still in the face of changes to the international agri-food supply chain.

At the same time cooperatives have been increasingly proactive in pursuing downstream opportunities or positioning themselves to do so. Cooperatives issuing investor shares to access external capital while preserving farmer control provides an example of organisational innovation enabling cooperatives to integrate further downstream by acquisition. Converting to IOFs represents a more pathological strategy, in that it requires the relinquishment of farmer control, but it demonstrates that cooperatives have been able to adapt their form to position themselves for ongoing evolution. NGC formation to produce differentiated, value-added products is yet another.

3.5 Policy Implications

- 1) Cooperative evolution – whether to new forms of cooperative, IOFs or otherwise – should be regarded as a healthy sign of institutional flexibility, supporting the attainment of North’s (2003) concept of “adaptive efficiency.”
- 2) The *creation* of cooperatives in New Zealand agriculture, especially since the country’s economic reforms in the 1980s, is unlikely to reflect artificial stimuli such as taxation preferences or subsidies. For reasons discussed in Section 5, however, cooperative meat processing companies may be argued to have benefited from policy preference in the 1980s, but any such preference has long since passed. A case can also be made that the dominance or lack of cooperatives in certain horticultural sectors has arisen at least in part due to industry reforms, which also is discussed in Section 5. Aside from these, however, it is difficult to argue, *prima facie*, that the impetus for cooperative creation in New Zealand agriculture derives from anything other than the intrinsic drivers common to cooperative formation in agricultural sectors internationally.
- 3) The *persistence* of cooperatives in New Zealand agriculture might be argued to reflect the commonly-identified problems with property right specification in traditional cooperatives. Where ownership claims are not market-priced and tradable, as is the case for traditional cooperatives, this presents an obstacle to the market for corporate control to freely operate to enable organisational change. However, the same could be said of many IOFs in New Zealand which, although they have well-defined ownership rights in the form of shares, those shares are closely held and not listed on any exchange with transparent price discovery. Hence it would be unreasonable to suggest cooperative persistence is solely attributable to property rights problems.
- 4) The persistence of cooperatives is instead more likely to be due to the need for scale and coordination in production, marketing and exporting in the case of farm output cooperatives, and market power in the case of farm supply cooperatives.
- 5) Similarly, since policy offers little advantage to any particular organisational type over another in New Zealand, and the transaction costs of registering different types of organisation are not high, the persistence of cooperatives in New Zealand agriculture is unlikely to reflect institutional obstacles. (We have not inquired as to whether there are any tax-based obstacles to cooperatives converting to other organisational forms, such as tax liabilities on retained patronage funds being crystallised on conversion.) Certainly cooperatives in various agricultural sub-sectors have been able to merge, take over other cooperatives or IOFs, or otherwise reorganise, suggesting institutional flexibility.

- 6) Cooperatives – or in this case mutuals – have been able to convert to IOFs in New Zealand (e.g. Tower, National Mutual). Where other cooperatives have persisted instead of so converting this would appear to be more a reflection of member preference than institutional barriers. Indeed, since members can sometimes face a strong incentive to convert to an IOF, so as to monetise and benefit from otherwise unallocated reserves, cooperatives' persistence suggests that their members perceive strong inherent benefits to continued cooperation.
- 7) Cooperative evolution presents a greater policy problem in countries such as the US – where particular cooperative types have been seen as important instruments of rural development and for achieving competition with IOFs – than in New Zealand, where they are more tolerated than fostered. Since cooperatives are not used as a policy instrument – such as to enhance competition – any changes in cooperative form do not risk either the subversion of policy aims or exploitation of any associated policy preferences.
- 8) On the contrary, as discussed in Section 2, New Zealand's cooperative legislation is relatively free of philosophical or political bias, instead offering a flexible and fairly generic framework for cooperative development. This has advantages in allowing new forms of cooperative to arise as solutions to changing business challenges, and for existing cooperatives to similarly vary their organisational form while maintaining patronage-based ownership and farmer control.
- 9) Given the competitive global environment in which New Zealand's typically export-oriented farmers operate, many of the inherent drivers for cooperative formation common overseas apply equally in New Zealand, and in some cases more so given the country's distance from its key markets, and continuing trade obstacles such as in the US and EU.
- 10) If cooperatives in New Zealand are perceived to arise as market-driven farmer responses to issues such as:
 - a) immature capital and insurance markets, providing farmers with inadequate services;
 - b) inadequate competition law protections against market power abuse of farmers by IOF parties downstream;
 - c) inadequacies in food safety, environmental, animal welfare or other regulations,

then this might be taken as a cause to examine reform in each of those areas. However, if cooperatives provide endogenous and flexible farmer-driven responses to each of these, then the transaction costs of them doing so are clearly not prohibitive. Absent pleas from farmers for alternative solutions, the superiority of regulatory alternatives must therefore be carefully weighed.

- 11) To the extent that regulatory issues, or deficiencies in organisational flexibility, are thought to unduly favour cooperative creation or persistence, Williamson's (2001) "remediableness criterion" described in Section 3.1.1 offers a useful test for evaluating the merit of intervention.