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WORK RELATIONS
AND FORMS OF PRODUCTION
IN NEW ZEALAND AGRICULTURE

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A thesis presented
for the degree of
Doctor of Philosophy

Department of Geography
University of Auckland

1995
This thesis contributes to the debates over the conceptualisation of enterprises involved in agriculture, the industrialisation of agriculture and the reproduction and subsumption of family farms. In making this contribution, a framework is developed for the examination of work relations and forms of production in apple orcharding and dairy farming in New Zealand. It is argued that many of the intense debates in the literature result from the research perspectives which are used - principally Marxist perspectives. While sympathetic to Marxist theory, a realist perspective is adopted to lessen these problems. Middle-order theory is developed to fill the gap between high political economy and the concrete world of agricultural production. The theory suggested here is tangible in the world of experience.

Three themes, all of which are undervalued in the literature, guide the theoretical discussions - work relations, the biophysical basis of agricultural production and the concept of different forms of production. Flexibility is the concept used to integrate these themes. In the first stage of theoretical development and integration, two types of conceptually different workers are theorised: wage workers and self-employed workers have different motivations for work and different flexibilities in doing their work. From this basis, a functional typology of work relations in agriculture is developed, which differentiates all workers and enterprises. In the second stage, the flexibility of workers is matched with the labour demands of hypothetical production systems which are based to differing extents on biophysical resources. Some of these production systems are able to be controlled and consequently made more amenable to wage labour than are others. The third theme argues that two conceptually different forms of production exist - simple commodity production and capitalist production. The generalised exchange relations of capitalism are held to be a necessary condition for the emergence of simple commodity production. The power of these conceptualisations is tested by extending the concept of simple commodity production to include sharecropping. It is argued that non-ownership of the farm is the only criteria by which sharecroppers can be excluded from being classified as simple commodity producers, and this is less important than the ownership of the share contract.
Apple orcharding and dairy farming in New Zealand are the focus of the empirical part of this research. First, the production system for each industry is established in relation to their dependence on biophysical systems. Then secondary data, and the information from postal questionnaires and interviews with key informants are used to examine the social relations of production in core regions of production, and in regions where each industry has expanded substantially during the 1980 to 1994 period.

The production system for apples features two distinct demands for labour which are related to the biophysical inputs. One is a relatively small, permanent work force which must be flexible to attend to the capricious nature of the biophysical resource, and the other is relatively large, lumpy demands for labour, especially at the harvest. These lumpy demands for labour can be met only by accessing external labour markets. The forms of production in the apple industry are distinguishable as either simple commodity producers or capitalist producers. The family enterprises are categorised as simple commodity producers, despite, in some cases, a relatively low contribution of labour by family workers to the enterprise. The three large, fully-capitalist apple producers have reduced their exposure to apples, an indication that the prospects for regular sustainable profits by capitalist producers from apple production are not sufficient.

The milk production system is characterised by a demand for high levels of permanent numerical flexibility and high contributions of family labour. Its pastoral basis imposes limits on the scale of individual farms, and these farms are ideally suited to family-based enterprises - simple commodity producers. Sharemilking is an integral part of the industry. Despite the lack of farm ownership, these sharecroppers can be classified as simple commodity producers. That the large-scale capitalist dairy farmers use mostly 50/50 sharemilkers to operate the majority of their farms supports the contention that sharemilking is the most efficient way for capitalist farmers to organise production.

The apple industry is more amenable to the capitalist form of production than pastoral dairy farming because of the higher seasonal demands for labour external to the family, the lower levels of labour flexibility required by the production system and the limits of scale which are part of pastoral dairy farming do not exist in apple orcharding. Yet simple commodity producers are likely to persist in apple orcharding because of their inherent characteristics as a form of production. While capitalist producers must make a certain profit to maintain their presence in any industry, the motivation of simple commodity producers revolves around the duality of household and enterprise, and its reproduction

**Key words:** Work relations, Flexibility, Biophysical conditions of production, Simple commodity production, Capitalist production, Sharecropping, Sharemilking, Subsumption, Apple orcharding, Dairy farming, New Zealand.
Acknowledgments

Many people have helped me complete this thesis. Warren Moran gave excellent intellectual guidance and a lot of practical support. Robin Johnson and Ann Pomeroy of MAF Policy provided information and financial support in the early stages. Warwick Neville enabled me to access funds from the AURC.

The people in the apple and dairy industries who I interviewed or who completed questionnaires gave their time and expertise willingly. In chronological order, thanks are due to the New Zealand Apple and Pear Marketing Board (NZAPMB), NZAPMB Hawke's Bay, Eastern Equities Corporation, Grocorp Pacific Limited, the owners of apple orchards in Hawke's Bay who I interviewed and those who completed my questionnaire, Terry Pierson and Tony Watson of Apple Fields Limited, Ron Hill, Livestock Improvement Corporation, the owners of dairy farms and sharemilkers in Waimate West, Ray Parker of Tasman Agriculture Limited, the sharemilkers who operate the Tasman Agriculture and Apple Fields dairy farms, most of the dairy companies in the South Island, Simon Cameron, Tom Lambie, Paul Finch, Ian Shepherd, Bill Charman, and others to whom I apologise for leaving off this list. I hope that the summary of my work will be of interest to you all.

My ability to complete this program of research required a stable and supportive structure of family, friends and colleagues. I'm not sure how Gay managed to cope but she did, and we now have three children instead of the two we had at the beginning of this degree. Is there a correlation between degrees and children? Thanks to everyone in the Department of Geography who has inspired me, given assistance or just been there. As is becoming a much-valued habit, Peter Harwood arrived late on the scene to make possible a completion by my self-imposed deadline. Thanks also to Willie and Duncan.

I dedicate this thesis to Adrian Bradly.
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Chapter One

THE RESEARCH PROJECT

1.1 INTRODUCTION

In this thesis I examine work relations and forms of production in dairy farming and apple orcharding in New Zealand from 1980 to 1994. I develop a typology of work relations which includes all agrarian workers. I argue that three generic types of worker exist - those who are unpaid, those who earn wages and those who are self-employed. Each of these types of worker is associated with particular types of enterprise. Unpaid and self-employed workers are primarily associated with enterprises based on the household where ownership of the farm and enterprise and the provision of labour are by the same people, and wage workers are primarily associated with enterprises in which ownership and the provision of labour are separated. The typology of work relations enables these enterprises to be defined as different forms of production. This strengthens the conceptualisation of forms of production first developed by Friedmann (1978a, 1978b).

I propose that two conceptually different types of enterprises exist within modern agriculture. Capitalist enterprises are founded on the existence and use of wage labour where the means of production are not owned by the workers but by capitalists. In family-based enterprises, the family owns the means of production, the family operates the enterprise, and the enterprise operates within the context of household and gender relations. Family-based enterprises can be divided into those which produce primarily for the market and those which do not. This work is concerned with only the former within the context of modern western democracies. I do not use peasant for the other generic group of producers based on the household because of the increasing criticism of the use of the word as an analytic category by writers such as Bernstein (1979), Friedmann (1980, 1986b) and Roseberry (1986).

I also contend that the level of flexibility is differential by type of worker and therefore by type of enterprise. As a simple dichotomy, wage workers are less flexible inherently than self-employed workers because they work for someone else's profits rather than their own. Thus they have a different set of incentives. Wage workers are primarily concerned with their income and well-being rather than that of the enterprise for which they are working. On the other hand
self-employed workers, the farm owner-operators, have the incentive to respond immediately to crop and animal needs, their entire fortune and that of their families being tied to the performance of the farm. Owner-operators (or simple commodity producers) are able to mobilise family members through the power relations of the family, power relations which often have a patriarchal base (Friedmann 1978a; Lem 1988; Whatmore 1991). At a more philosophical level, stewardship of the land is another incentive for the owner-operator to respond in a way that wage workers are unlikely to mimic.

Furthermore, seeing that farmers operate within the context of biophysical systems which provide a variable supply of physical inputs such as atmosphere which generate seasonality in crop growth and in the reproduction of livestock, my third major contention is that particular types of workers and their associated forms of production are better suited to manage particular farming systems because the demands of the production systems can be efficiently matched to the characteristics of different types of workers and forms of production. The more flexible attributes of owner-operators, as workers and as part of the form of production along with their families, are better suited to handle the vagaries of agricultural production in farming systems, where the nature variables are not manipulated or controlled to the extent that it is possible to match labour time with production time.

My fourth contention is that sharecropping can be conceptualised as simple commodity production. Sharecropping is also the subject of long-standing and unresolved debate in the literature. One view is that it is an archaic way of organising agricultural production, that is it a transitional form of production on the path of transformation to capitalist production, and that it is characterised by uneven relations of power and exploitation of the sharecropper (eg, Marx 1973a, 1973b; Hsiao 1975; Byres 1983; Pearce 1983). The opposite position interprets sharecropping as a highly flexible and mutually beneficial way of organising agricultural production (Robertson 1987; Bradly 1992). It may even provide a path of agricultural development in the Third World (Robertson 1987), and in the Fourth World (Overton 1994). My conceptualisation of sharecropping as simple commodity production is based on the typology of work relations and the concept of forms of production. I use the example of sharemilking in New Zealand to analyse it empirically.

The contentions presented so far touch directly on the debates which are central to the analysis of change in the agrarian sector, principally the debate over the transformation from family-based farming to more capitalist farming through either formal or real subsumption. Control over biophysical cycles in the production of agricultural commodities, and the impact of technological and biogenetic development upon systems of agricultural production are acknowledged by a wide range of writers as influential factors in the capitalist penetration of agriculture. Each of these analysts emphasises one aspect above others. Mann and Dickinson (1978) and Mann (1990) stress the non-coincidence of labour time and production time, and the circulation time of capital
in agriculture. Goodman, Sorj and Wilkinson (1987) emphasise the technocentric path by which agriculture will become more capitalist as land becomes a less important factor. Fitzsimmons (1986) presents evidence of the transformation of family farming to industrialised agriculture in a particular region. (Note that in this research, a distinction is drawn between industrialised agriculture and capitalist agriculture. Two types of industrialised agriculture exist. In the first, almost all modern agriculture is industrialised in the sense that it relies on inputs from the industrial sector, eg technology which provides tractors, ploughs, seed-drills and artificial fertiliser. Where agriculture uses industrial inputs and the labour process remains based on family farms, agriculture is industrialised but not necessarily capitalist. The second type is the industrialised agriculture discussed by Fitzsimmons (1986) where the labour process has been transformed and is based now on wage labour. This is capitalist agriculture, based on wage labour and the separation of the means of production from the workers). Other writers, in promoting the hypothesis of the subsumption of family farms, emphasise production contracts, credit relations, labour relations, and the scale of farming in attempting to explain changes in the structure of agriculture (Rodefeld 1978; Goss, Rodefeld and Buttel 1980; Vogeler 1981; Holland and Carvalho 1985; Mooney 1983, 1986, 1988; Whatmore, Munton, Little and Marsden 1987a, 1987b). Two paths of transformation are suggested: either formal subsumption, whereby the labour process remains unchanged but where the farm is effectively subsumed by external capital through credit and technology markets (eg, Mooney 1983, 1986); and real subsumption where the labour process is transformed as was the case in the Salinas Valley (Fitzsimmons 1986). Friedmann (1978a, 1978b, 1980) and Lem (1988) are almost alone in suggesting that the failure of capitalist production to penetrate various farming systems can best be explained by reference to the inherent characteristics of different forms of production. Chevalier (1983) and Goodman and Redclift (1985) offer strong Marxist critiques of this approach. I aim to clarify these debates by arguing for a greater analytical focus on workers as social actors that define forms of production, and by diluting the Marxist arguments in the literature. This helps to simplify the debates and is achieved through adoption of the realist perspective as developed by Sayer (1984, 1992a).

At least four analysts of agriculture in New Zealand have delved into these problematics, Pomeroy (1986) in her study of sheep and beef farming, Fairweather on forms of production in early New Zealand agriculture (1982, 1983) and later work on agrarian restructuring (1992) and large-herd dairy farming (1994), Benediktsson with his study of pluriactivity in sheep and beef farming in Raglan County, and Bradly (1992) with his study of the relations of sharemilking in Taranaki. In addition, Overton (1994) has written on some of these issues, but he writes mostly in the context of the Third World with an emphasis on land tenure (eg, Overton 1987, 1988, 1989). Pomeroy’s approach is the most problematic because she divides sheep and beef producers into farmers who farm for a business and those who farm for a way of life, and she finds no evidence of simple commodity production as defined in the literature but strong evidence of capitalist farmers (Pomeroy 1986). She based her argument on a narrow interpretation of theory by
considering that Marxist arguments are based on family farmers being simple commodity producers:

This thesis reviews the Marxist theoretical perspective and finds that the basis for the Marxist argument rests on the assumption that family farmers are not capitalists, but simple commodity producers because they provide the labour they require themselves, and (generally) employ no family labour (Pomeroy 1986: abstract, not numbered).

Far from this being the case, it was a view upheld by Friedmann alone amongst Marxist analysts; the majority deny the existence of simple commodity production because it is incompatible with the Marxist perspective (eg Goodman and Redclift 1985). Benediktsson's 1989 thesis provided an effective counter to Pomeroy's arguments as it too investigated the social relations of production in the sheep and beef industry with an emphasis on labour relations. His findings were opposite to those of Pomeroy, viz. that sheep and beef farmers in Raglan County did conform to Friedmann's specification of simple commodity producers. Earlier, Fairweather (1982, 1983) adopted the proposition of simple commodity production, took Friedmann's deductive logic largely for granted, and extended her concept of forms of production to find six different forms of production in agriculture in early New Zealand. He retreated from this position in later publications (1992, 1994), and in particular, found difficulty in associating simple commodity production with larger than family farms (cf. Rodefeld 1978:159). Bradly's recent work is used in the discussions on sharemilking. Each of these studies is drawn-upon further in this research.

The reproduction or otherwise of family farms constitutes a major focus of the literature on agrarian change. This focus stems from Marx's conclusion that family farming was a transitional form of production destined to be superseded or subsumed by capitalist production. That this transformation has failed to occur, or has reversed with capitalist farming reverting to family production in some regions and/or commodities, is not problematic in itself, but attempts to explain this situation have led to considerable debate. All these debates are still largely unresolved. They remain important not only to academics but to people who live wherever agricultural production continues to be the backbone of rural areas. Goldschmidt (1946), more recently Smith (1969), and Goldschmidt (1978) in revisiting his earlier work, posited that the structure of farm enterprises has varying effects on the communities in which they are embedded. Although controversy surrounds these findings, there is little doubt that the structure of farm enterprises has implications for the community. In his original field study in 1946, Goldschmidt concluded that a Californian rural town surrounded by family farms was superior in all quality-of-life indicators such as '... income, living standards, social and physical amenities, social and religious institutions, and the degree of local control of the political process' (Goldschmidt 1978:363) when compared with another Californian town surrounded by large-scale agricultural enterprises. Goldschmidt concluded that the key variables were the relative proportion of dependent wage labour and the scale of farming. This thesis posits that these
variables remain important but that their importance can be better understood within a theoretical framework more substantial than that used by Goldschmidt.

Central to the debates among these writers during the late 1970s and throughout the 1980s was the question of what actually constitutes a family farm, a capitalist farm, or other theorised types of farm enterprise. Progress was made during this period in the wider debate over agrarian change, even though little consensus developed over this definitional problem. In 1990 Marsden felt the need to restate Newby's opinion of the position that had (not) been reached:

... even after a decade of research in the field, the farm household remains 'a kind of theoretical black box which political economy cannot penetrate because of its assumptions about the source of social action (Marsden 1990:376 quoting Newby 1987:13).

Moran, Blunden and Greenwood (1993) and Moran, Blunden and Bradly (1993) resurrected the importance of Friedmann's work on simple commodity production in the most recent period. Using the New Zealand example, where farming uses industrialised inputs and where over 90 percent of farms are owned and operated by families, this group of writers discuss how family farms use mechanisms peculiar to them as a distinct form of production to lesson the impact of the full market relations faced by capitalist producers. The work began because of a dissatisfaction with the conclusions reached by Whatmore, Munton, Marsden and Little (1987a, 1987b) about the levels of subsumption which they found, and because of the perceived need to fill in the missing middle ground between high-order Marxist theory and the day-to-day experience of farmers. The result is a theory of family farming, built directly on Friedmann's seminal work (1978a, 1978b). I take this process a step further in this thesis by applying the theoretical constructs of simple commodity producers and capitalist producers to family farmers and corporate farmers respectively, and by evaluating the work relations and forms of production in apple orcharding and dairy farming in New Zealand. The theoretical foundations are discussed in depth in Chapter 3.

It is worth noting that the concepts of simple commodity production and forms of production possibly have a much wider relevance than just to farming as over 70 percent of small non-farm businesses are family businesses (Robbins and Wallace 1993). Much of the argument presented here may be applicable to the non-farm sector.

1.2 THE INDUSTRY AND TEMPORAL CONTEXT

Dairy farming and apple orcharding are appropriate industries for this study. Both industries are important to New Zealand as milk products account for about 20 percent of all export receipts from agriculture and apples have earned more foreign exchange than any other horticultural crop. Large corporate producers are now present on a significant scale in both industries, whereas this
was not the case in 1980. Nevertheless, farm numbers and production are still dominated by family farms. A wide range of work relations exists within the town industries, including sharemilking which is interpreted here as a particular example of sharecropping. In addition each is a distinctive farming system with a different biophysical basis of production. This range of factors provides considerable scope for reaching some conclusions regarding the debates discussed above.

The period under analysis, 1980 to 1994, coincides with an intense period of restructuring of the New Zealand economy. For farmers this meant changes to the political and economic conditions underpinning their production of commodities. Gone are the days of stabilisation accounts at the Reserve Bank for the producer marketing boards, subsidies for fertiliser, and subsidies for production. Almost all assistance for agriculture was removed from 1984 as governments of the New Right, even though of different political flavours, sought to create what they euphemistically termed a level playing field. The wide-ranging and rapid shift of central government policy away from egalitarianism and social welfare towards greater individualism and user-pays exemplifies the general trend in most developed economies since the economic crises of the early and late 1970s. This process occurred within a much more compressed time-frame in New Zealand and went further than in most countries. Government's intention was to ensure that farmers produced on the basis of market signals rather than on the basis of instruments of intervention. In addition, policy makers accepted the necessity to shift agriculture to a less-subsidised basis in the face of the Uruguay round of the GATT.

For workers and the labour movement, the balance of power shifted dramatically from them to capital, aided by state re-regulation and the high unemployment which developed during this period. There is now relatively more self-employment, multi-skilling, and increased flexibility within work practices. The level of unionisation has declined and demarcation disputes are much less common. Part-time employment has increased relative to full-time employment, and there are now an increased number of multiple-job-holders or what in agricultural research is now known as pluriactivity. The work force in New Zealand has become significantly more flexible - both functionally and numerically - since the reform of labour-market legislation began in 1987.

During the study period, the overall number of farms increased by 10 percent due to the expansion of horticulture and the subdivision of land. Despite this, the number of permanent farm employees fell and more unpaid family labour was used on farms in 1992 than in 1980. This occurred despite the replacement of pastoral land use, such as dairying in areas such as Kerikeri and Te Puke, with more intensive land use, like horticulture, where the size of farms is smaller. In the apple industry production more than doubled during the 1980s, and likely will continue to expand for the next decade. Most of the growth in apple production is in the regions traditionally important for the production of apples, although apple production has expanded throughout the country and particularly in Canterbury (Figure 1.1). Three large companies
entered this industry, two in Hawke's Bay and one near Christchurch, an area which previously produced less than five percent of the New Zealand crop but which now produces more than nine percent. The number of dairy farms changed little between 1980 and 1994 but average size increased, the national herd increased, and two large corporate farmers entered dairy farming in the late 1980s. A significant amount of the increase in milk production occurred in the South Island, outside the core regions for dairy production (Figure 1.2). Milk production increased from a low point of less than 5.3 million litres in 1978 to over 7.6 million litres in 1993 (LIC 1993).

The returns to producers for agricultural production are subject to climatic variability, demand and supply in markets overseas, and trade policies of other countries. In the study period, the per-unit returns to farmers for producing milkfat (Figure 1.3) and apples (Figure 1.4) declined in real terms. This implies that either production must be increased or that new efficiencies must be found to maintain real incomes. As we shall see, the scale of farming in both systems has increased.

Producer marketing boards have monopoly control of exporting in both the industries considered in this study. These amount to the strongest powers of any of the producer marketing boards in New Zealand. Competitive pressures between suppliers are low because these producer marketing boards must accept whatever production is supplied, provided that quality standards are met. Partly because it is mainly a ready-to-eat commodity, the apple industry has a short agrocommodity chain consisting of the growers as suppliers to the producer marketing board, which then assumes ownership, and handles transportation and marketing (Figure 1.5). The agrocommodity chain of the dairy industry has more stages because processing is an integral part of the industry (Figure 1.5). Farmers supply cooperative dairy companies which manufacture milk products, the bulk of which are marketed overseas by the New Zealand Dairy Board. Niche marketing exists in both industries whereby apple growers and dairy cooperatives can, in theory, export directly if they have developed markets other than those organised by their respective producer marketing boards, providing this is considered to be to the overall benefit of all farmers in the respective industries.

At the national level, agriculture still provides more than 50 percent of export income for New Zealand and remains a very important sector both economically and politically. The agricultural lobby lost some of its influence since 1980 under the deregulatory pressures of the New Right which is philosophically opposed to many of the existing farm industry structures such as cooperatives and producer marketing boards. But agriculture retains considerable power within central government as the creation of a new producer marketing board for kiwifruit demonstrated in 1988.
Figure 1.1 Total number of people working in pipfruit growing: 1984 and 1990

Source: Department of Statistics, unpublished tables from the Census of Agriculture, various years.
Figure 1.2  Number of cows in milk, 1981/82 and 1993/94

Figure 1.3  Real farm-gate returns for producing milkfat

$/kg milkfat


Note: Nominal prices weighted by the Consumers Price Index to give real values in terms of December 1992 dollars.

Figure 1.4  Real farm-gate returns for growing apples

$/carton of apples

Source: Annual Report of the NZ Apple and Pear Marketing Board 1993; Department of Statistics various years.

Note: Nominal prices deflated by the "all farms input index", base = 1,000, December 1982.
The production of milk and apples also takes place within markets effected by regulation, both in New Zealand and overseas. The prices received for agricultural commodities produced in New Zealand are determined in global markets which are distorted by the policies of major production-consumption countries such as the United States, and trading blocs such as the European Union. For example, the dairy industry continues to operate under butter and meat quotas for the British market. These and other limits on free trade work against New Zealand farmers, as this country is a heavy net exporter of low cost quality agricultural commodities. The recent completion of the Uruguay Round of the GATT theoretically should mean more liberal access to major overseas markets by producers from New Zealand (and other countries) as some of these distortions are removed, although new methods of regulating access may emerge.

In summary, the political-economic climate in New Zealand now demands that agricultural production takes place within the context of market decisions. Dairy and apple production take place in a free market in terms of the unrestricted ability to supply the producer marketing boards, no regulatory restrictions on location, no government regulations limiting supply except for health regulations, virtually no subsidies, and an open land market. The demand side is much more restrictive, with limited access to overseas markets and limited growth in demand from consumers, especially for dairy products and commodity varieties of apples. In 1994 both industries remain dominated by family farms and operate under the control (over exports) of
their respective producer marketing boards. Pressures exist both from inside and outside the industries for deregulation of these structures, but both industries retain considerable support from government due to their continued importance as a significant part of the export base of the New Zealand economy. These regulatory changes and their effect on New Zealand agriculture are discussed more fully in Chapter 4.

1.3 OBJECTIVES AND RESEARCH DESIGN

The objectives of this research are:

- to identify different types of workers
- to investigate the intersection of the flexibility of different types of workers and the variable labour demand of agricultural production
- to develop a functional typology of work relations
- to reconceptualise Friedmann's concept of forms of production
- to establish the forms of production which exist in modern western agriculture
- to establish the conceptual relationship between simple commodity production and sharecropping
- to conceptualise and empirically investigate the linkage between work relations, forms of production and farming systems based on the management of biophysical inputs
- to determine the work relations and forms of production in apple orcharding and dairy farming - to explain the growth in apple production and milk production during the study period in terms of work relations, forms of production and the strategies of enterprises
- to determine the modus operandi, the work relations and forms of production of the large companies which entered both industries during the study period and to contrast these with the existing participants in these industries.

To investigate these objectives, the research design adopted here implements three types of research in the following order - abstract theoretical, extensive and intensive following Sayer (1984, 1992a). The integration of these delivers synthesis research by first providing conceptual development based on theory and published research, followed by contextual information from secondary sources, and then intensive analysis based on fieldwork. The synthesis research builds throughout the thesis to arrive at major conclusions in the last chapter. Three of the major contentions discussed above - work relations, the biophysical basis of agricultural production systems, and forms of production - are integrated by using the theme of flexibility, and this provides the conceptual framework for this research. The social relations of production are deconstructed into the internal relations, inter-farm relations, and external relations of enterprises in order to analyse the work relations and forms of production of farmers in apple orcharding and
1.4 THE REGIONALISATION OF AGRICULTURE AND THE LOCATION OF FIELDWORK

Care needs to be taken when choosing locations for fieldwork because the choice of location is an integral part of research method, and also possibly an integral part of the theory underlying the study. This is particularly the case with research on agriculture. Moran (1974) discussed some time ago the tendency of different farming systems to be concentrated in particular regions. In the development of New Zealand agriculture comparative advantage has resulted in different regions being dominant at different times for both dairying and apple orcharding. As the North Island lowlands were settled in the late nineteenth century and early twentieth century, Taranaki and later the Waikato, became the dominant regions for dairying at the expense of Southland and other parts of the South Island. As commercial orcharding expanded in the first half of this century, the lower precipitation and long sunny ripening period in Hawke's Bay and Nelson translated into comparative advantage for these regions in the production of apples. In the last decade high land prices in these core regions have seen the east coast of the South Island, and in the case of dairying, Southland, re-emerge as important regions for both industries. Core regions are expected to exhibit stable relations of production, and a core region provides the starting point for the empirical analyses of apple orcharding and dairying in this study.

In both apple orcharding and dairying corporate farmers have played an important part in this resurgence of the South Island. Tasman Agriculture Limited and Apple Fields Limited are two such enterprises which now own and operate a large number of dairy farms in Canterbury, Otago and Southland. Eastern Equities Corporation Limited and Grocorp Pacific Limited are now significant apple producers in Hawke's Bay, and Apple Fields Limited has given new prominence to Canterbury as a region for growing apples. Each of these companies is the subject of a case study in this thesis to determine the relations of production which they have established. The purpose is to contrast the relations of production of these large corporate farmers with those of the farmers in the core regions.

The two core regions of pipfruit production are Hawke’s Bay and Waimea County which is in Nelson Bays (Figure 1.1). Hawkes Bay was selected as the core region for several reasons. First, over one third of New Zealand’s apples are grown in the region, making it the biggest producing region in the country. Second, it is closer to Auckland than Waimea Country which is the only alternative, and this proximity made fieldwork easier. Third, the region has been central in the large expansion of pipfruit during the 1980s (Figure 1.1). And fourth, two of the three largest corporate growers of apples are in the region. This allows comparison between the traditional family farms of the industry and the new large-scale corporate growers within the same physical area. Furthermore, Apple Fields Limited is included as a case study for comparison between the large corporate growers, and because of its centrality in the political economy of the industry. The total number of people working in pipfruit orcharding is used as a proxy for the geographical
distribution of pipfruit production in Figure 1.1 as data for pipfruit production or the area planted in pipfruit is not readily available on a regional basis. The regions used are Local Government Regions as used in the Census of Agriculture until 1990.

The Waikato (South Auckland) and Taranaki regions are core regions of concentrated dairy production, but dairying is found in most lowland farming regions in New Zealand (Figure 1.2). The number of cows in each region is the variable used to show the extent of dairy farming in Figure 1.2. It is the most appropriate data to use as the amount of milk produced per cow has been quite consistent in most regions between 1980 and 1994. Note that the regions used are those defined by the Livestock Improvement Corporation (see Appendix A). Waimate West County fulfils the criteria of a core dairying region as over 95 percent of land use in the county is dairy farming. This is the highest proportion of any county in the country. Dairy farms are fully developed and the relations of production have been stable for some time. Another reason for choosing Waimate West county is Bradly’s recent work in the county. This provides very recent information on the social relations of sharemilking. Unlike Hawke’s Bay there are no corporate farmers operating in this county.

1.5 THESIS STRUCTURE

Chapter 2 creates the methodological platform for this study. Chapter 3 provides the theoretical analysis and develops the analytical frameworks. The New Zealand context of the study is specified in Chapter 4. The first half of the chapter consists of a political economy of agriculture in New Zealand, and the second applies data from published sources to this political economy. Chapters 5 and 6 are devoted to the analysis of apple orcharding and dairy farming respectively. Chapter 7 consists of synthesis research. The contents of each chapter and the methods used are spelt out fully in the last section of Chapter 2.
Chapter Two

METHODOLOGY AND RESEARCH DESIGN

2.1 PROBLEMS IN SPECIFYING RESEARCH DESIGN

Workers and enterprises are the focus of this research. Sayer and Walker (1992) argue that analysis of the division of labour is relatively neglected considering what it can offer in terms of discovering some of the causal processes which lie behind capitalist development. Walker's 1989 position may seem strange given his forceful attack upon the importance of enterprises as agents of change in the industrial landscape. It is not a contradiction as Walker sees the division of labour in that sense, as defined by industrial structure rather than by enterprises. Though Sayer and Walker write from the left spectrum, they also argue that Marxist class analysis fails to answer some of the questions concerning the inequities which the capitalist system continually throws-up and perpetuates. So although they focus on labour, they also down-play the usefulness of the paradigm which is most dependent upon the relationship of workers to capital through the notion of surplus value. Working on different subject matter and from a different perspective, Friedmann contended in 1986 that the spotlight of many academics at that time focused on the nature of small enterprises, on the household or family organisation of work, and on the combination of property and labour in a single person or a domestic group (Friedmann 1986b). She pointed to the complexities involved in analysing small commodity production, the inadequacies of world systems approaches such as those typified by Wallerstein (1974), and the general inadequacies of teleological theories for this purpose. Lumping all enterprises together as capitalist, as Wallerstein and others do fails to acknowledge the complexity of social relations and the forms these take at particular times and places. So three notable intellectuals say that even though there are pervasive trends and mechanisms operating to maintain and alter society and economy (the Marxist superstructure, cf. Johnston 1988), it is essential to analyse what happens and why changes occur at the level of the worker and the enterprise in order to determine the actual mechanisms of the social relations of production. I emphasise that it is the wider social relations of production considered here, rather than the more traditional definition of the social relations of production which are reserved by Marxist analysts for "... the relations between owners and non-owners of the means of production" (Sayer 1992b:347).
While this study is situated primarily at the level of enterprises engaged in the production of agricultural commodities and the labour utilised at that level, I suggest in Chapter 1 that other factors such as the organisation of industries and the political economy of farming must also be considered. In addition, consideration of other factors like national economic policy and the different contexts of national jurisdictions, as well as global trade agreements also help to provide a broader understanding of agrarian change than would be the case if these other scales were not considered. The focus of the first substantive section of this chapter is therefore a discussion of how the different scales of this investigation are conceptualised. This helps in the development of a research design which can take account of the influence of mechanisms at different scales.

The second substantive section of this chapter is a review of the main methodologies and ideologies in the recent history of geography. I follow Sayer and Walker, and others, in questioning the usefulness of Marxist class analysis. This is unfortunate because much of the literature on agrarian change is written from a Marxist perspective, or at least from a version labelled as political economy. However, adoption of a political economy perspective in most of the recent literature concerned with rural systems is also indicative of the attempts by researchers to develop a more holistic approach. The popularity of political economy is, of course, a recognition of the importance of the work of the political economists of the eighteenth and early nineteenth centuries, analysts and political activists like Marx, Engels, Kautsky, Lenin and Luxemburg. The attraction of the Marxist perspective is that it seems to explain the whole system. Yet Olmstead (1970) theorised a holistic perspective some time ago with his systems approach, even though his was an attempt ‘... to further the understanding of the spatial arrangement of functioning agricultural systems over the world’ (Olmstead 1970:41). He developed this systems approach no further but it takes little imagination to see that the interdependencies within which agricultural production occurs (and which he identified) can be theorised without higher order Marxist theory (Moran and Anderson in 1988 made use of a similar schema as that devised by Olmstead (1970) to identify factors which influence farm families to change the nature of their enterprises). The purpose of this section is to identify the problems with some of the main approaches in geography and to argue for the adoption of a realist approach for this research.

In the third section, I define a realist research design based on Sayer’s work. The last section of this chapter delineates the actual research design for this study. The types of research and the analytical methods to be used are discussed on a chapter by chapter basis.

2.2 UNITS OF ANALYSIS, LEVELS OF INVESTIGATION

Workers, enterprises, industries, and national and global jurisdictions occupy distinct geographical spaces. These geographical spaces can be represented as a two-dimensional pyramid with exponentially sloping sides (Figure 2.1). In this conceptualisation, aggregated lower order
spaces create a larger jurisdiction. For example, a number of workers combine within a farm enterprise, a large number of farm enterprises comprise an industry, a national economy consists of many industries, and a single global economy results from many national economies. At the smallest spatial level, agricultural workers are bound in the place in which they work (the farm or farms) and within the locality in which they live. This is geographical space which has limited impact upon higher geographical levels, especially as farmers are, in general, small and undifferentiated price-takers. At the top of the pyramid (the other end of this spatial scale), global institutions such as the GATT encompass all farmers who produce for the international market. The agreements reached in the Uruguay Round will increasingly determine what farmers do, because of the expected shift towards more open international markets and the concomitant decline in national protectionism and provision of subsidies.

**Figure 2.1 Units of analysis, levels of investigation**

All geographical levels present difficulties for analysis. These centre on what is to be included at each level, on the degree of interdependency between levels and the strength and direction of the power relations which exist. For causal explanation in this research, it is necessary to identify which people, events and structures influence the operation of farms in the apple and dairying industries so that explanation may be made.

At the lowest spatial level, even agricultural workers are problematic - who should be included? Anyone who takes part in rural production? Only farm employees? What about the so-called
reproductive workers? Do farm owners participate in rural production if they do not physically participate in farm work? If the researcher wants information only on paid employees then it could be argued that this is all that is necessary. Against this, I would argue that for any analysis of paid employees to be explanatory it would have to include analysis of the nature of the enterprises which employ them and the industries or farming systems of which these enterprises are part. For example, the role of wage workers may be quite different on an owner-operator farm from compared to a farm where there is only wage labour. For labour and workers to be more usefully reckoned as significant variables, everyone who takes part in agricultural production should be taken into account.

At the next spatial level, enterprises may appear to be the least problematic. Farm enterprises may employ workers; or they may be owned and operated by owner-operators, share or tenant farmers, or ownership may be separated from operation, with managers employed to oversee production. Production occurs at the level of the enterprise unit, or does it? The farm production unit is the enterprise unit for owner-operators, but within larger enterprises operating many farms, a farm is no more than a cost/profit centre. As indicated in Chapter 1, much of the debate in the literature on agrarian change occurs because of disagreement over the categorisation of precisely these issues.

How should enterprises be classified? Should it be done on the basis of the census categories as in Bertrand’s 1958 typology, or as the New Zealand Census of Agriculture data is presented. Should data be adjusted to a Marxist analytical framework such as in Rodefeld’s 1978 typology, or should the data reflect the categories discussed by Ghorayshi (1986). I suggest beginning by listing the different types of farm enterprises which actually exist (Table 2.1). These types of enterprise are based on their legal status. As such, the definitions are a little imprecise, as individuals can also be known as owner-operators, sole traders and self-employed people and can represent either one person or farm families which operate farms as individuals in business on their own account. Also, partnerships can be of several different types, although they are mostly between husband and wife in the farm sector. It is apparent from Table 2.1 that enterprises can be classified as being based either on the family or not. Farm families can organise their enterprises as either owner-operators, a partnership, a trust or as a registered private company. Non-farm investors have the choice of partnerships, and private or public limited companies. There is also the possibility of non-profit organisations like charities and church-based groups owning farms (Bradly 1992).

Friedmann (1986b) writes of the importance of household production in analysing change in the agrarian sector. This stems from the predominance of household producers in the agricultural sectors of both the First and Third Worlds. She thinks the emphasis should be at this level for quite different reasons than those put forward by Dicken and Thrift (1992) and Dicken (1994) in their argument that focus should be on enterprises. Dicken and Thrift argue, in contrast to
Table 2.1 Types of enterprises

<table>
<thead>
<tr>
<th>Enterprise type</th>
<th>Enterprise ownership</th>
<th>Enterprise scale</th>
</tr>
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<tbody>
<tr>
<td>Family</td>
<td>Individual, Owner-operator, Sole-trader</td>
<td>Sole farmer, Farm family</td>
</tr>
<tr>
<td></td>
<td>Trust</td>
<td>Family, Non-profit organisations</td>
</tr>
<tr>
<td>Partnership</td>
<td>Family, Husband and wife</td>
<td>but generally</td>
</tr>
<tr>
<td></td>
<td>Non-farm investors</td>
<td></td>
</tr>
<tr>
<td>Private limited company</td>
<td>Sole farmer, Farm family, Non-farm investors</td>
<td>Small</td>
</tr>
<tr>
<td>Non-family</td>
<td>Public limited company</td>
<td>Non-farm investors</td>
</tr>
</tbody>
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Walker (1989), that large enterprises shape the industrial structure. The differences between the types of enterprises focussed on by Friedmann and by Dicken and Thrift primarily concern scale, a variable which implicitly recognises form and function. Friedmann's enterprises are the typical family farms, which have little influence on the structure of the industry they are part of, let alone the national economy. In contrast, the enterprises which Dicken and Thrift (1992) and Dicken (1994) focus on are at the opposite end of the enterprise scale, the very large public companies which can be classified as transnationals. The classification of Table 2.1 also differentiates enterprises by the scale of the enterprise, with individuals being the smallest and public companies the largest. The varying size is associated with varying power and different social relations of production. Any study of a farming system such as that undertaken in this thesis therefore must investigate the range of enterprises in the industry, if the range of social relations of production is to be discovered.

The further implication, in line with Dicken and Thrift, is that large enterprises have the power to alter industrial structure, and that the position of smaller enterprises may be changed or
compromised by the actions of large corporations. This process is occurring in New Zealand with Apple Fields Limited, a large corporate grower of apples, pressing for changes to the marketing system for apples, a system which until 1993 had remained relatively unchanged for over 60 years. The possibility of this type of action makes it necessary for the next (higher) spatial scale to be considered in this research. Of course, it must be also considered to provide the context within which farms operate.

The spatial scale of the industry is already problematic due to the various definitions of industries and agrocommodity chains. Moran's (1987) diagram of marketing chains (Figure 1.3, and see also Figures 5.2 and 6.3 for more complete elaboration of the industries considered here) is useful for discussing this, especially as dairy products and pipfruit are two of the commodities he uses to demonstrate his ideas. For me, agrocommodity chains consist of vertical layers of industries differentiated by sector. There are usually four distinct industry layers in agricultural production: the farmer producing the raw commodity in the primary sector, factories producing manufactured intermediate or final goods in the secondary sector, marketers and wholesalers distributing the final goods, and the retail food industry supplying the consumer. Each of these industry-layers has a distinctive role and operates at different geographic levels. For dairy products, the processing industry now consists of 16 cooperative dairy companies which are spread throughout New Zealand and have quite distinct geographical boundaries. Dairy farmers own the cooperatives, and through the cooperatives own the Dairy Board. For pipfruit, there is no distinct industry level in between orchardists and their marketing board, as the board takes ownership of export fruit at the farm gate, and then processes, markets and exports the fruit. Although there is the concept of a dairying industry and a pipfruit industry, these are more usefully conceptualised as the dairy and apple agrocommodity chains. It is plain to see that agrocommodity chains stretch over all spatial scales, as they are defined as the entire system of production and delivery. Both of the industries considered in this thesis are at the enterprise level in agrocommodity chains. Both the New Zealand Dairy Board (NZDB) and the New Zealand Apple and Pear Marketing Board (NZAPMB) continue to exercise relatively full control over their respective agrocommodity chains. Their powers derive from legislation, that is, state regulation. The impact of producer marketing boards is felt across all spatial levels - farmers ultimately own the boards and some of the boards are large enough to be classed as multinational corporations.

Three factors primarily effect the NZDB and NZAPMB at the national and global levels: international prices; international trade agreements on access to markets, on tariffs and on subsidies; and the powers of the producer marketing boards via national legislation. The liberalisation of trade under the Uruguay Round of the GATT exemplifies the shift, initiated in the 1970s in most countries, towards more monetarist, market-driven economies. McMichael (1992, 1993) posits a decline in the ability of nation states to influence the flow of goods and services under this more global regime. Mann (1987) argues against the use of geo-political
boundaries such as nation states because of the reality of the global economy, that is, world markets for many goods, and in New Zealand's case, for almost all our agricultural commodities. Dicken and Thrift (1992) emphasise the role of the large organisation in maintaining and altering industry structures, and Dicken (1994) highlights the conflict and the coexistence between large corporations and nation states, and describes how these are reflected in concrete spatial outcomes. The food regimes literature (Friedmann and McMichael 1989; Buttel and Goodman 1989; Friedmann 1982, 1993) offers useful insights into the way that agriculture is integrated into global systems. However, the posited inability of national states to influence the production, processing and marketing of food at the global level is overestimated by these literatures because the

... [s]ocio-political forces of particular nations are sufficiently distinctive and powerful to differentiate national and regional organisation of rural production in space and time (Moran, Blunden, Workman and Bradly 1994:36).

The apple, kiwifruit and dairy agrocommodity chains in New Zealand provide evidence of the ability of nation states to continue to control and intervene in the interests of their farmers in the way that production and marketing are organised, thus refuting the idea of lack of control by nation states. In New Zealand, legislation forces all producers of apples and dairy products to join together for the purpose of exporting their produce.

The production of agricultural commodities on farms is influenced therefore by processes which occur at a range of levels. While the interdependencies can be identified and analysed at each spatial level in the concrete sense of workers, enterprises, industries, nation states and the global economy, the concepts of agrocommodity chains, state regulation, and to a lesser extent food regimes, provide powerful frameworks for analysing these processes across different spatial levels, the impact of these processes on the farm level, and the impact of changes to work relations and forms of production on the other levels. The implication of this last statement is that causality can be in both directions. For example, Mann (1987:227) argues that domestic changes in the social organisation of production can impact on global markets of production and exchange, but she notes also the reciprocal nature of these interactions.

Sufficient conceptualisation and insights to the interactions between farming systems, food processing and marketing systems, and systems of regulation are detailed in the outline given above to suggest that causal explanation is possible without necessarily using meta-theoretical systems of analysis. We can use some of the supposedly a-theoretical ideas of analysts such as Olmstead with confidence. This theme is taken a step further by discussing in the next section the different perspectives used by geographers. The purpose is to critique other approaches in order to justify the approach I take. Primarily, I offer a critique of Marxian political economy, the dominant perspective in research on agrarian change, and of post-modernist approaches. I also offer a critique of realist approaches to balance my engagement of this perspective.
2.3 PARADIGMS, IDEOLOGIES AND METHODOLOGIES

My purpose here is to support the adoption of a research design based on the realist approach articulated by Sayer (1984, 1992a). From this statement it is clear that I have a definite view of the most appropriate methodology for this study. This section provides arguments on the reasons why I consider this the best way to proceed, and in the process it provides a view of my philosophical positions on methodological issues and social science research.

As soon as theorising moves above the most simple level of explanation, research methods, paradigms and ideologies become of consequence. What are the previous ways in which research has been carried out in this research area? Is one paradigm or perspective more appropriate than others for examining the research problem? What are the implications for the research project of a particular methodological design? Does the researcher have an overriding commitment to a particular ideology and does this affect the results of the research? These questions demonstrate that the research process is not likely to be objective, where objective should be interpreted as the adjective used to describe logical positivist science, *sic.* as objective science. This can be said without even considering the nature of information gained from human subjects and the interpretation of such information by researchers, points of subjectivity which Sayer (1984) highlights to identify the impossibility of objectivity. Given this problem of subjectivity, it is necessary to make clear the methodological basis of this study. The methodology used in this research results from my personal course of development, and from the influence of the methodology used in economic geography (see Sayer (1979) for a critique of such labelling) and in the analysis of agricultural production and change in the rural sector.

The 1970s saw development of diffuse paradigms in human geography, partly as a result of geographers discovering perspectives which were already integrated into other disciplines and partly from the development of radical geography. In my view of the late 1970s and early 1980s, geographers used and developed three broad methodological perspectives. I make no attempt to be comprehensive here, rather, I attempt a brief overview of the rapid changes in the practice of human geography for this period. One was humanism and its variants in which human agency is the key dynamic in structuring places and society. At the opposite end of the continuum was structural Marxism and its political economy variants which emphasised underlying and largely economic processes over which people have little control or influence. Stretched across the middle was structuration theory, an attempt by Giddens (1979, 1981, 1984) to incorporate attention to the life world dimension as well as to the systems level, as Lovering puts it (1989:3). Critical realism was emerging at this time, but largely outside geography.

I call these perspectives rather than paradigms because, by the late 1970s, the Kuhnian notion of paradigm was becoming discredited. Clark and Dear identified the problems with paradigms in their review of radical geography in 1978,
To be strait-jacketed by Marxism is to fall into the same trap as orthodox paradigms - that is, the distortion of reality through ideological and methodological tools that may have little relation to the problem being studied. A concentration on a single ideology may force sterility of thought ... (Clark and Dear 1978:358).

More than ten years later Gregory re-confirmed their feelings

... many of those who have ... made use of Kuhn's notion of paradigm have done so prescriptively. They have claimed the authority of 'positivism', 'structuralism', 'humanism' or whatever as a means of legislating for the proper conduct of geographical inquiry and of excluding work which lies beyond the competence of these various systems (Gregory 1989:69).

The development of critical social theory and its infiltration of geography from the late 1970s exposed the limited nature of both the orthodox paradigms and some of the newer perspectives. Now, in the mid-1990s, we have post-modernism, political economy and critical realism as the three major perspectives around which research methods are based. Harre (1975), Bhaskar (1979, 1989) and Keat and Urry (1975) were to the forefront in the development of critical realism, and Keat and Urry (1982) and Sayer (1984, 1992a) gave it impetus in geography. The feminist perspective is in addition to these three main approaches. It developed strongly in the 1980s and now spreads from post-Marxist variants to radical feminism See Hanson (1992) for a discussion of the integration or otherwise of feminism into mainstream geography.

Continuity exists in methodological terms between now and the 1970s, between humanism with its variants and post-modernism, between Marxist perspectives and political economy, and between structuration theory and critical realism. The last two pairings are the least problematic. Structuration theory and critical realism share the same aim of attempting to take account of both structure and agency and the range of available literature on any topic. But they are different projects. Giddens' theory is ultimately eclectic as it lacks an epistemological underpinning, while in contrast critical realism is developed from the theory of knowledge and has received a wider legitimacy as a result. Marx's historical materialism clearly underpins political economy approaches, but some analysts feel that it is possible to define a realist political economy approach in which Marxian political economy is set-up within a realist framework at the same time. Critical realism, despite its partial compatibility with Marxism (Bhaskar 1989; Cloke, Philo and Sadler 1991), its empathy to facets of Marxist analysis, and the fact that it shares the underlying philosophical aim of assisting social emancipation, does not have its roots in Marxism. This is a problem for this research as much of the recent geographic literature on agrarian change is either unequivocally Marxist or is labelled political economy. An exception to this is Whatmore, Munton, Little and Marsden, although their 1987a paper is one of the few where a realist methodology is discussed.

The humanist perspective is now encompassed within the new social geography. Its roots are in the role of human agency and its non-belief in meta-narratives. These locate it within the context of postmodernism where there is a
... scepticism towards the grand claims and grand theory of the modern era, and their privileged vantage point, stressing in its place an openness to a range of voices in social inquiry, artistic experimentation and political empowerment (Ley 1994:467).

Critiques of Marxism by humanists and post-modernists in general are similar now as in the early 1980s when we had Duncan and Ley saying that structural Marxism

... reified entities such as capital are treated as the formal cause while people are regarded as the efficient cause, the mere carriers of a structural logic. This perspective raises a number of serious theoretical issues that are not resolved, including the status of individuals as a creative force in shaping events, the ontological status of structures, the relationship between consciousness and structure, and the tendency to functionalism and teleology in explanation. These shortcomings have severe implications for empirical study (Duncan and Ley 1982:30-59).

Graham (1988), in laying-out a post-modern Marxist position, repudiates the centrality of Marxian essentialism in saying that class and Marxian economism are only part of the explanation. This seems an untenable position because economism lies at the heart of Marx's analyses (Sayer 1993). But Graham's approach is only one small thread of the push by post-modernists (and feminists, from a different though intersecting range of perspectives) to revamp research methods and foci in geography. I do not see post-modernism as something that should be considered new, something epochal. Rather, I view post-modernism as essentially a re-visiting of different perspectives which have been used previously in geography and other disciplines. For example, Ley's work of the early 1970s is a good example of action research based on living people's geographies. In my view, the problematic claim about post-modernism is its promotion by adherents as a complete perspective for considering all manner of problems.

Cloke, Philo and Sadler (1991:167) identify three points of critique concerning realism. The first is the apparent eclecticism of realism which, in their words, is either '... the breadth of the realist appeal or the depths to which its eclecticism plummets', depending on the commentator's point of view. Supporters of realist approaches argue that this is one of the major benefits of the approach, that is, researchers are able to draw on all types of research to some extent and are able to use different research methodologies provided that, respectively, the ideology of the researcher and the researcher's method are taken into account and the limitations of different approaches is likewise acknowledged.

The second is the problem of deciding between causal and contingent conditions, an essential aim of the realist approach. Related to this is the charge that realism is a barely disguised empiricism (Archer 1987; Harvey 1987). Archer (1987) concludes that it is really only Sayer's judgement as an individual which defines the causal and the contingent. This is certainly one of the aspects of realism which concerns me. I attempted to deal with it in my earlier work (Blunden 1990) by triangulating all the sources of information or points of view on each issue which I reported upon. In this way, I hoped to be able to draw some conclusions based on the relative position of
people in the debates (over the rights and actions of unions and employers). I think it is a successful strategy but when triangulation is not possible, all that one can do is to re-describe the situation. As Sayer points-out, this is all that is likely to be possible in situations which are still evolving.

In the third point of critique, the failure thus far of realism to be widely adopted in empirical research in geography, stands out, even though it has generated much philosophical discussion (Pratt 1991). Examples of critical realism in research action are Allen (1983), Sarre (1987), Morgan and Sayer (1988), Allen and McDowell (1989), Pratt (1989) and Blunden (1990). This study continues the process of developing a more user-friendly methodology based on critical realism.

These criticisms and the directions from which they come provide something of a continuum with structured Marxist meta-theory at one end and the opulent eclecticism of postmodernism at the other. The many variants of Marxism, realism and post-modernism make this a real continuum about which realism hovers in the middle ground, as there are those who argue that realism can underpin Marxist arguments (Saunders and Williams 1986; Lovering 1989), and those who imply (Gregory 1989) or say (Lovering 1989; Cloke, Philo and Sadler 1991) that realism can lead to aspects of post-modernism.

In adopting a realist approach, I make no claims for it as infallible, nor do I claim that it allows me some privileged view of the world. In the words of Cloke, Sadler and Philo (1991:144), my adoption of it does not mean that I think it

... incorporates a faith in the researcher's ability to stand outside of history and geography, alongside a belief in the researcher's own ability to develop 'superior' social-scientific theorisations that can slice through the 'misunderstandings' of situated human beings.[authors' emphases]

Realism appeals to me as a general methodology, and as the system of investigation best-suited for this research. The next section delineates the basic characteristics of the realist approach to doing social science as described by Sayer (1984, 1992a), and the following section specifies the actual research design to be used in this work.

2.4 THE REALIST APPROACH TO SOCIAL SCIENCE RESEARCH

The research design of this thesis is based on what Sayer calls synthesis research (1984, 1992a). For Sayer, the realist approach to social science research attempts to causally explain what makes something happen in a particular place and time. Explanation consists of identifying necessary relations in which '.. the nature of the relata depend upon the relation' and distinguishing these from contingent conditions in which '... the latter is independent of the
relation' (Sayer, 1985:49). While the beginning point for realist research is most often an empirical moment (a real event), realism is not a return to empiricism as portrayed by some Marxist writers such as Archer (1987), Harvey (1987) and Smith (1987). Realism acknowledges both structure and agency, and visible and hidden processes. It does not claim to unlock the key to total explanation, and it emphasises the impossibility of this aim.

In most cases, synthesis research derives from the integration of abstract theoretical research, extensive (or generalised) research and intensive (or concrete) research. Figure 2.2 demonstrates the relationship between these different types of research. The first type of research, abstract theoretical research, theorises about concrete events and social objects, social objects which often provide the starting point for the research. For Sayer, abstractions are essential for providing some of the means by which concrete objects and events are studied. Abstractions provide frameworks for investigation and possible explanations but only concrete research can validate this theorising. Abstract research can also be extended sideways to other settings because discovered necessary relations may exist elsewhere. However, this type of generalisation can only be shown to be correct through concrete research, otherwise it suffers from the problems associated with inductive reasoning.

**Figure 2.2 Synthesis research**

![Graph showing the relationship between different types of research](source: Sayer, 1984:215.)
The second type of research, generalisation or extensive research, treats events and objects as simple rather than complex no matter how sophisticated the statistical analysis, according to Sayer. As a research method, it usually consists of statistical analyses of secondary data or data collected by either postal questionnaires or administered schedules. It can be used for identifying useful areas for intensive-type study by identifying regularities and common properties at an aggregate level. But the role of extensive research cannot generally be extended past description of patterns because regularity (or predicability) may well have nothing to do with causality. For example, conditions in one industry cannot be expected to be replicated in another unless they have the happy coincidence of possessing similar causal mechanisms and necessary relationships: job loss may arise from diverse and multiple causes unique to each industry or even each company within each industry. Sayer elaborates his general critique of the logical positivist tradition mostly through a critique of the power of statistical analyses, the identification of the problems associated with deductive arguments, and the problems associated with the collection of the data to be analysed. Most social sciences have moved away from a concentration on logical positivist research design. Geography has experienced rapid paradigmatic evolution since the 1960s from logical positivism through behaviouralism, Marxism, humanism, structuration theory, and others. Elements of each remain within the discipline but are inevitably concentrated in particular sub-disciplines where they are considered the most appropriate and useful. Despite Sayer's criticism of questionnaires as a means of collecting information, there remains a place in many research designs for the collection of information by means of postal questionnaires or administered schedules, provided that the information sought is unproblematic, the questionnaires are well structured, and, where used, are correctly specified.

The third type of research Sayer describes is concrete or intensive research. It has the dual role of discovering if theoretical constructs are applicable or useful in explaining specific circumstances, and of determining whether or not these can be generalised through the discovery of necessary relations. Whereas extensive research is dominated by large scale questionnaires and statistical analyses, intensive research is dominated by ethnographic work, interactive discussions and in-depth interviewing. But intensive research is not without its own particular problems. Interviewing is inevitably an interpretative process because of the interpretation of questions by the interviewee, the researcher's interpretation of the discussions, and the information that the interviewee decides to tell the researcher for whatever reasons. In the case of researchers, their interpretations are partly dependent on their socialisation processes. Variable socialisation paths in the public and private arenas equip researchers (and every other member of society) with particular viewpoints on how life is organised, and give people particular ways of conceptualising that viewpoint. Ideally, there should be some sort of triangulated corroborative procedure whereby two or three viewpoints can be gathered on any particular part of a research question so that synthesis of the comments is possible. Intensive research is also often criticised as being too descriptive and therefore analytically weak. Sayer's response is that it is not
possible to explain everything, particularly unfolding events, and that re-description must suffice in these circumstances.

Synthesis research integrates the findings of the above three types of research in terms of the aims of the research project. This integration takes place constantly in this thesis as new bits of information are added to the puzzle and explanation becomes increasingly possible. It is principally the integration of theory and concrete investigation which the realist approach suggests as the way to make causal explanation. At all times the attempt is made to separate necessary from contingent relations and objects.

The research process in this study does not finish with the completion of Chapter 7 and the printing of this thesis. I believe it to be essential part of all research that the participants be given something in return. Therefore, the last stage of this research design is informing the people who participated in this study of the conclusions I have reached regarding their respective industries. Everyone who participated in the postal questionnaires asked for a summary of my work by ticking the first 'box' on the questionnaire. I also offered all the people I interviewed in person a summary of my work, and they all accepted the offer.

2.5 RESEARCH DESIGN AND THESIS STRUCTURE

The structure of this thesis roughly reflects the order of the above generic research design with theoretical research (Chapters 2 and 3), followed by contextual research (Chapter 4), extensive and intensive research on apple orcharding (Chapter 5), extensive and intensive research on dairy farming (Chapter 6), and synthesis research (Chapter 7). The boundaries between each type of research are much less clear cut than indicated by this allocation of chapters. Each type of research is used to inform the other. Some integration of all types occurs in each chapter, but this takes place primarily in the final chapter. Figure 2.3 demonstrates the methodology and information collection methods used. In this diagram I attempt to portray this research as a multi-level, integrated process.

The abstract theoretical research is concentrated in Chapters 2 and 3. In this chapter, I created the methodological platform used in this study. I argued for the worker and the enterprise as being the most appropriate basic units of analysis, while at the same time acknowledging the role of causal mechanisms which are located outside the sphere of the enterprise. I offered a brief review of the perspectives used in geography during the last three decades as a basis for suggesting that the realist approach is most appropriate for this study.

In Chapter 3 I develop the analytical frameworks, beginning from the concrete reality of different types of workers to conceptualise the typology of work relations. This typology underpins the concept of forms of production. In the following section, I analyse the flexibility of different
types of workers and their intersection with agriculture as the management of variable biophysical systems. I then distinguish the characteristics of simple commodity producers from those of capitalist producers. I consider the transformation of these different forms of production in the next section. Although my typology of work relations underpins the concept of forms of production, Friedmann's development of the concept was seminal and created considerable debate amongst Marxist analysts. I therefore review the important critiques by Chevalier (1983) and Goodman and Redclift (1985) in the following section. In the penultimate section of Chapter 3, I extend the concept of simple commodity production to include sharecroppers. In the conclusion to the chapter, I bring these discussions together and present the frameworks for the analysis to follow in the later chapters. I follow a unilinear process in this as in the other chapters, with each section building on the previous section(s).

The literatures used to develop the framework for this research come from the global libraries of geography, sociology, anthropology and economics, although history, political studies and labour relations are other disciplines from which material is drawn. While a significant amount of this
literature is Marxist, many other perspectives are present given that some of the literature dates back to the 1890s. Account is also taken of the geographic origins of the literatures, although most of it is from New Zealand, North America and western Europe. This first world focus does not imply a homogeneous agriculture. Information and conclusions drawn from research in different countries, different regulatory systems and farming systems may not be applicable to the New Zealand context. The United States, Canada, Australia and Germany as federal states compared to New Zealand, the United Kingdom, France and the Netherlands as unitary states is but one example of this diversity. Average farm size is another example. Of the registered farm holdings in the European Community, 60 percent are of less than five hectares and 20 percent are of less than one hectare (Hawkins, Bryden, Gilliatt and MacKinnon 1993) compared to New Zealand where only 24 percent of farms are of less than five hectares and 67 percent are of 40 hectares or larger (Department of Statistics 1993b). In some countries, notably the United Kingdom, agriculture is much less important in rural areas and the focus of the literature from there and north west Europe reflects the more heterogeneous texture of the countryside than do studies originating from New Zealand. Cognisance must therefore be taken of the different jurisdictions on which the literature is based, the paradigm of the research method, and the ideological status of the researcher.

In Chapter 4 I develop a political economy of agriculture in New Zealand by using the frameworks of real regulation, agrocommodity chains and cooperation. In the second half of Chapter 4 secondary data is applied to this political economy in a generalisation analysis of work relations and forms of production. A range of published data is used as well as unpublished data from the New Zealand Department of Statistics on the employment question in the Census of Agriculture. This data is assembled by farm-type at several geographical resolutions. Different levels of income from different farming activities are used by the Department of Statistics to determine farm-type. This is a recognition of the degree of mixed farming that exists. For example, *principally dairy* farm-type includes all farms on which dairying accounts for more than 75 percent of total farm income, and pipfruit farm-types are those where greater than 50 percent of farm income is derived from pipfruit production. The number of more intensive farm-type classifications increased from 11 to 18 during the 1980s, due largely to the growth in the number of farms which were developed into smaller horticultural units from other more extensive land uses, in many cases dairying (Table 2.2). In contrast, pastoral (more extensive) farm-types were relatively unchanged over this period. (A listing of all farm-types in the 1980 and 1990 classifications of the Census of Agriculture is contained in Appendix B). The data is interpreted using the typology of work relations and the concept of forms of production as much as it is possible given that there is a non-coincidence in some census categories of workers and little coincidence with forms of production. Excel spreadsheets are used to manipulate the data and the results are presented as graphs or tables.
Table 2.2  Intensive farm-types in the New Zealand Census of Agriculture

<table>
<thead>
<tr>
<th>Farm-types 1980</th>
<th>Farm-types 1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orchards</td>
<td>Citrus orchards</td>
</tr>
<tr>
<td></td>
<td>Pipfruit orchards</td>
</tr>
<tr>
<td></td>
<td>Stonefruit orchards</td>
</tr>
<tr>
<td></td>
<td>Kiwifruit orchards</td>
</tr>
<tr>
<td></td>
<td>Berry fruit growing</td>
</tr>
<tr>
<td></td>
<td>Grape growing</td>
</tr>
<tr>
<td></td>
<td>Other fruit n.e.c.</td>
</tr>
<tr>
<td>Market gardening and flowers</td>
<td>Vegetable growing incl. tomatoes</td>
</tr>
<tr>
<td></td>
<td>Flower growing</td>
</tr>
<tr>
<td>Tobacco growing</td>
<td>Tobacco and hops</td>
</tr>
<tr>
<td>Hop growing</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>Mushroom growing</td>
</tr>
<tr>
<td>Nurseries</td>
<td>Nurseries</td>
</tr>
<tr>
<td>Beekeeping</td>
<td>Beekeeping</td>
</tr>
<tr>
<td>#</td>
<td>Plantations</td>
</tr>
<tr>
<td>Other farming</td>
<td>Other farming</td>
</tr>
<tr>
<td>Idle land</td>
<td>Idle land</td>
</tr>
<tr>
<td>#</td>
<td>Agriculture contracting</td>
</tr>
<tr>
<td>#</td>
<td>Research/Educational, etc</td>
</tr>
<tr>
<td>Vermin farming</td>
<td>#</td>
</tr>
</tbody>
</table>


*Note: These activities must account for more than 50 percent of total farm income.*

I analyse apple production in New Zealand in Chapter 5. The chapter represents synthesis research as it contains some abstract theoretical and generalisation research as well as intensive or concrete research. It is a chapter of two halves. In the first half, Sections 5.2, 5.3 and 5.4, I synthesise the theoretical development of Chapter 3 with the contextual information of Chapter 4 and data from the Census of Agriculture to analyse the production system, and develop indicators of the work relations and forms of production in pipfruit orcharding. These indicators are useful only to a certain extent, and the need for fieldwork is established. The data from the Census of Agriculture is at national resolution and also at the level of the counties which existed until local government reform in 1990. The second part of the chapter concentrates on the analysis of data from a postal questionnaire and information from interviews. The information desired from apple orchardists (Chapter 5) and the owners of dairy farms (Chapter 6) was sufficiently unproblematic to allow its collection by the use of postal questionnaires. In addition, I used a case study approach to examine the operations of the corporate orchardists in Hawke’s
Bay and Canterbury. The reasons for choosing the core regions and the case studies were discussed in Section 1.4. The questionnaire, the methods by which they were used, and the response rates are detailed in Appendix C. The method used to gather information in the case studies was face to face interviewing of key people in the organisations concerned. These were largely unstructured interviews in the sense that a schedule was not used. The analyses are organised under the headings of internal farm relations, inter-farm relations and external relations of the farm enterprises.

In Chapter 6, I deal with the dairying industry in a similar structure to Chapter 5. The chapter begins with a discussion of the labour demands of the production system, followed by a review of the key characteristics of the industry, and then a section in which reveals the role of sharemilking and its importance to the industry. I then analyse secondary data from the Census of Agriculture, to provide some preliminary conclusions on the work relations and forms of production in the industry. The analysis of questionnaire data from the owners of dairy farms in Waimate West County in South Taranaki comes next. The questionnaire is similar to that used for the owners of apple orchards in Hawke's Bay. A description of the methods used and the a copy of the questionnaire can be found in Appendix D. I integrate the results of this with Bradly's recent work on sharemilking in the same county. In the following section, I analyse the dairy farming operations of Tasman Agriculture Limited and Apple Fields Limited by using information from face-to-face interviews with officials of each company and with a number of their farm operators. Both companies farm in the South Island, and I visited a cross-section of their farms in various locations to interview their sharemilkers. I then compare the work relations and forms of production of these large corporate dairy farmers with those of the dairy farmers in Waimate West County. I present summaries of the analysis in figures and tables by using Excel software. Only descriptive statistics are used.

In Chapter 7 I bring together the results of this research under the heading of synthesis research and comparative assessment. I compare the aims and objectives of this study, and I make conclusions on the contrasts in work relations and forms of production in the apple growing and dairy farming industries. I return to the contentious issues in the literature - the transformation of forms of production, the penetration of agriculture by capitalism, the proportion of non-family labour employed on family farms, the self-exploitation of simple commodity producers, and the different prospects for the reproduction of each form of production in these industries.