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Demographic Change and Employment in the Central North Island, 1986 - 1996

Richard Bedford
Jacqueline Lidgard
with
Bridget Mclaughlin
James Newell

The University of Waikato
Te Whare Wānanga ō Waikato
HAMILTON : NEW ZEALAND

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University of Waikato
Private Bag 3105
Hamilton
New Zealand
www.waikato.ac.nz/wfass/populationstudiescentre/
pscadmin@waikato.ac.nz

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Richard Bedford
Jacqueline Lidgard
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James Newell

Department of Geography
University of Waikato
Hamilton, New Zealand

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PREFACE

In recent years the Ministry of Agriculture and Forestry (MAF) has had an active programme of operational research into the interrelated dynamics of agriculture and rural communities. This research has been an essential prerequisite for informed policy on agricultural development in the wider context of social and economic transformation. In 1996 staff in MAF Policy developed a two phase Operational Research Project entitled *Impact of Agricultural Change on Rural Communities*. The first phase, conducted in the South Island in 1997 and 1998, focused on developments in the Roxburgh/Teviot area (Liepins, 1998).

The second phase was designed to provide a North Island case study to validate some of the relationships between changes in agricultural systems and rural communities that had been established during the first phase. A specific objective of the second phase was to examine changes in rural communities in the Central North Island between 1986 and 1996 in the wider context of demographic and economic changes in rural areas and the small towns servicing these areas. This *Discussion Paper* reports on the latter context, drawing extensively on a demographic data base compiled as part of the FRST-funded *New Demographic Directions Programme.*

The research was carried out by a team based in the Department of Geography at the University of Waikato. The support and interest of the Chairperson, Associate Professor Lex Chalmers, is gratefully acknowledged. The leader of the first phase of the project, Dr Ruth Liepins (University of Otago) was a consultant, along with Professor Alun Joseph of the University of Guelph.

Mr James Newell (MERA, Wellington) provided assistance with some of the regional data analysis. Access to some of the New Zealand Agricultural Survey/Census data used in this study was provided to Mr Newell on behalf the Ministry of Agriculture and Forestry by Statistics New Zealand under conditions designed to give effect to the security provisions of the Statistics Act 1975.

A group of graduate students from the University of Waikato also assisted with the data analysis (Mrs Bridget McLaughlin, Mrs Joanne Goodwin, and Mr James Lindop). Mr Max Oulton and Mr Darryl Gillgren, respectively, provided assistance with cartography and GIS systems.

Richard Bedford
Professor of Geography
University of Waikato

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INTRODUCTION

In the late 1990s the Ministry of Agriculture and Forestry (MAF) had an active programme of operational research into the interrelated dynamics of agriculture and rural communities (Roche and Pomeroy, 1996; Liepins, 1998). This research has been an essential prerequisite for informed policy on agricultural development in the wider context of social and economic transformation (Pomeroy, 1999). The material presented in this *Discussion Paper* is drawn both from research completed as part of a MAF-funded operational research project dealing with changes in agricultural systems and rural communities in the Central North Island between 1986 and 1996 (Lidgard *et al.*, 2000) as well as the regional analysis that underpins the research on sub-national social and economic change in the FRST-funded *"New Demographics Directions Programme"*. Much of this material has not been published elsewhere, and it is drawn together here to provide a regional overview of rural and small town population dynamics and employment in the Central North Island.

Information on the evolving social and economic linkages within the rural sector is essential, especially in the light of several disturbing trends identified in recent regional surveys of society and environment. The analysis by Sceats, Pool and Brown (1999) of indices of well-being in the Central North Island since the 1970s for the Zone 2 Mayors paints a particularly dismal picture. Environment Waikato's (1999) *State of Environment* report for a large part of the same region also points to loss of resilience and lack of sustainability in many of the land use practices and systems in the region.

A phrase heard frequently in discourses about development and change over the period of state-led economic restructuring since 1984 has been "widening disparities in incomes, well-being and opportunity". Such disparities have been highlighted in reports on Maori (Te Puni Kokiri, 1998) and Pacific Islands peoples (Ministry of Pacific Islands Affairs, 1999), the minor ethnic groups (Department of Internal Affairs, 1999), and people born overseas living in New Zealand in 1996 (Statistics New Zealand, 1999).

A recent annotated bibliography on poverty in New Zealand (Elliott, Peace and Barnes, 1999) has documented a surge in research on aspects of inequality, social exclusion, and rising levels of homelessness, food shortages, and other indicators of absolute and relative poverty. Widening social disparities are shaping up to be a major issue for debate amongst politicians during the first decade of the new millennium.

In this paper we examine some dimensions of demographic and economic change in a region which is generally considered to be one of the most

productive and affluent parts of New Zealand's "heartland". This affluence has been challenged by Portal Consulting Associates Ltd in their macro-level analysis of a wide range of indicators of demographic, social and economic change (Sceats *et al.,* 1999). When the region is disaggregated either by settlement type, Territorial Local Authority (TLA), or area unit, it is apparent that there are some significant intra-regional variations. These variations point to rather more optimistic prospects for many parts of the region than the general assessment communicated for a somewhat larger region in the report by Portal Consulting and Associates (Sceats *et al.,* 1999).

We do not wish to question either the substance of the macro-scale analysis presented by Sceats *et al.* (1999), or their assessment of the differences between a range of indices of society and economy in the Zone 2 region and in the country as a whole. However, we do wish to illustrate that the overall picture they present for the Zone 2 region is the sum of some markedly divergent trends and patterns across the region.

Regional dimensions of change

The region selected for the study was deliberately large. The Central North Island covers an extensive area encompassing the lowlands of the Waikato basin and the coastal plains in the Bay of Plenty, as well as the rolling hills and steeper slopes in the "King Country", through the Coromandel, around Rotorua and Taupo, and along the northern perimeter of East Cape (Figure 1). The region includes three major urban areas (Hamilton, Tauranga and Rotorua), several towns with populations over 5,000, a large number of small rural service centres, and an extensive dispersed rural population. In addition there is an extensive Maori population in this part of New Zealand, a feature of rural society in the North Island much more than in the South Island.

We outline some of the intra-regional diversity in selected indices of population change for five major settlement types (Figure 2) and for TLA that comprise the region we have termed the Central North Island (Figure 3). The settlement types, shown in Figure 2, are as follows:

1. Major cities (Hamilton, Tauranga and Rotorua – the "1st tier" settlements)
2. Other towns with populations over 3,000 in 1996 (the "2nd tier" settlements)
3. Nucleated settlements with populations between 500 and 3,000 (the "3rd tier" settlements)
4. Densely settled rural areas (areas with 6 or more persons per square kilometre)
5. Sparsely settled rural areas (areas with less than 6 persons per square kilometre)

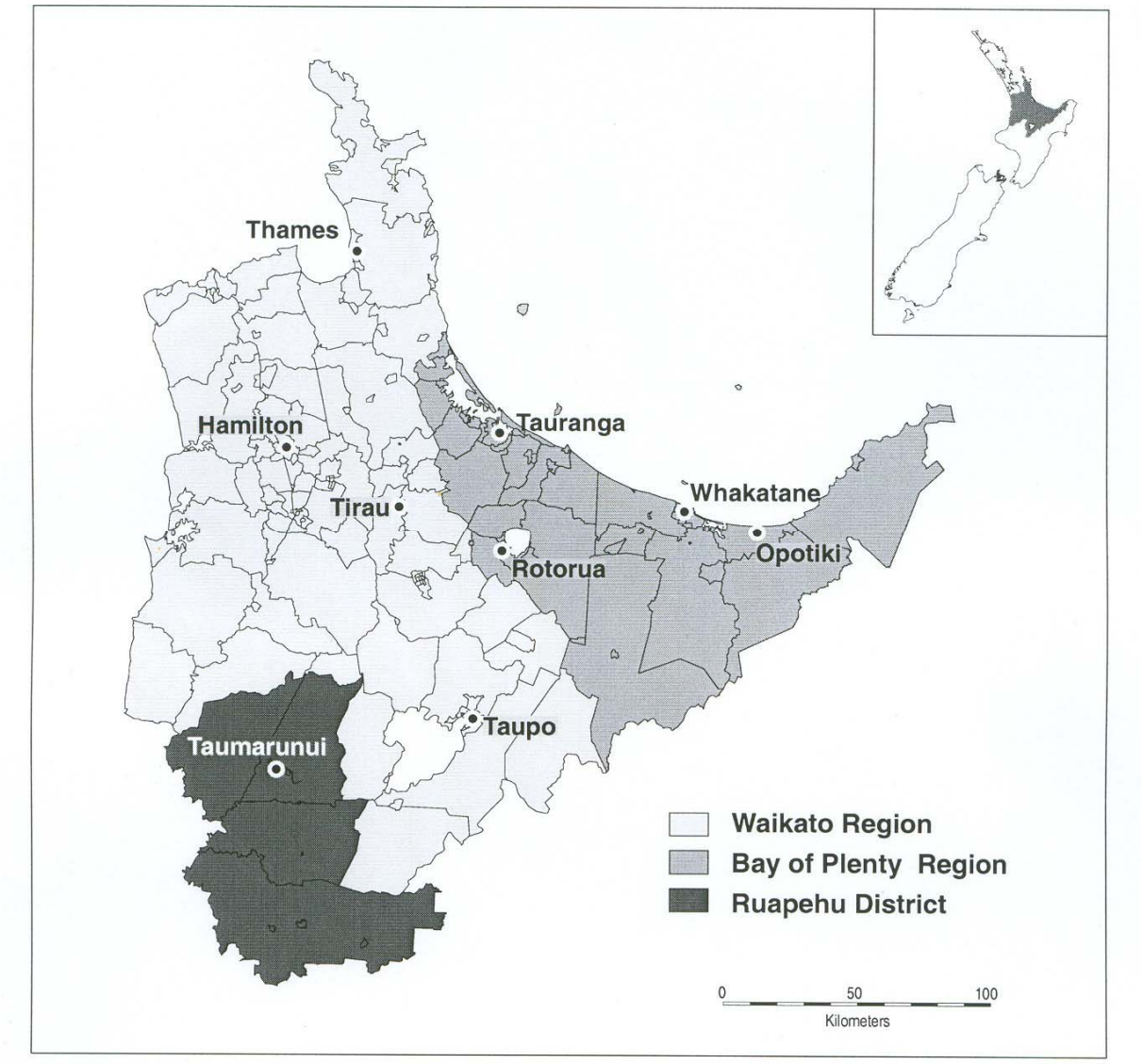

Figure 1: The Central North Island

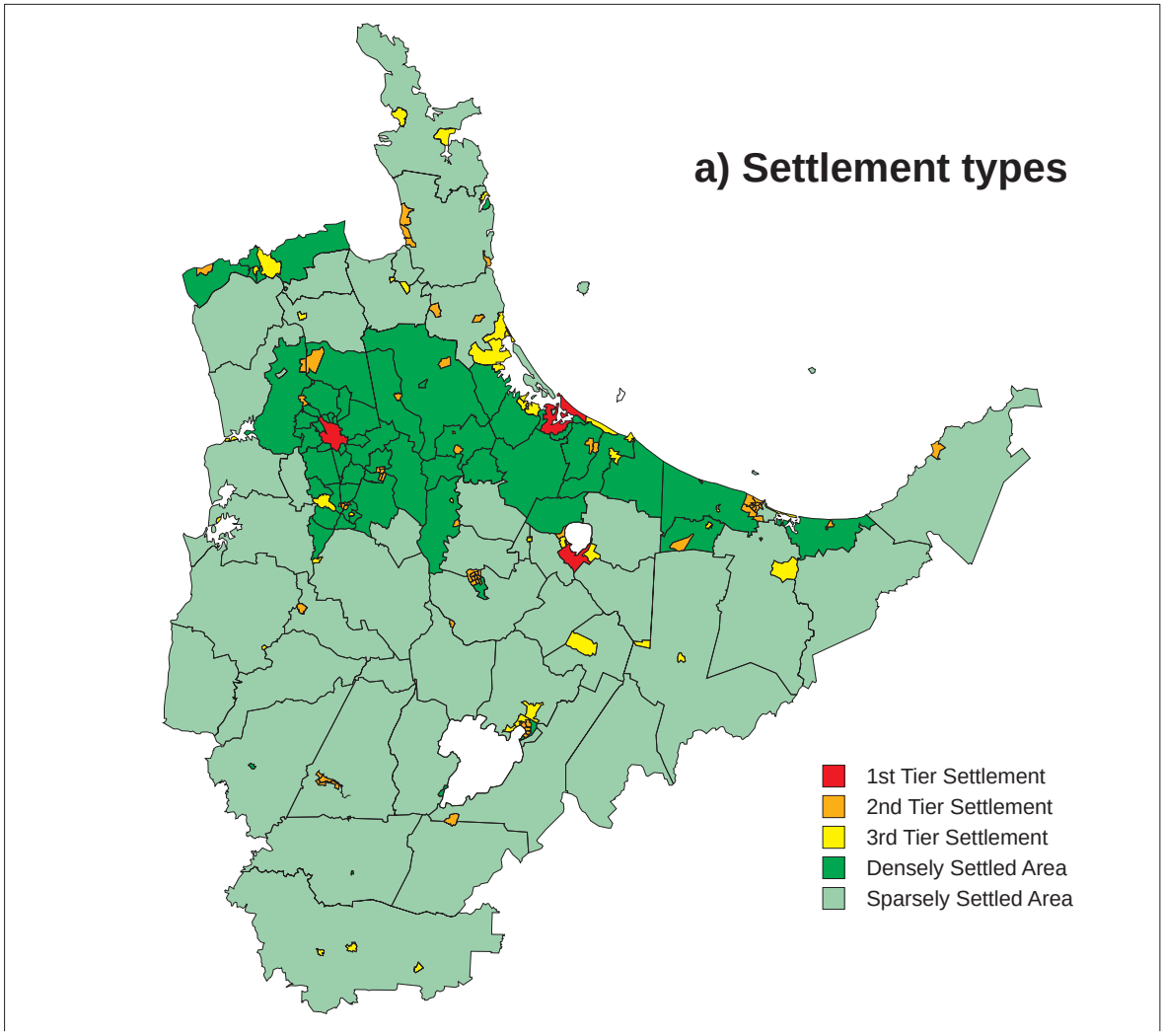

Figure 2: Settlement Types

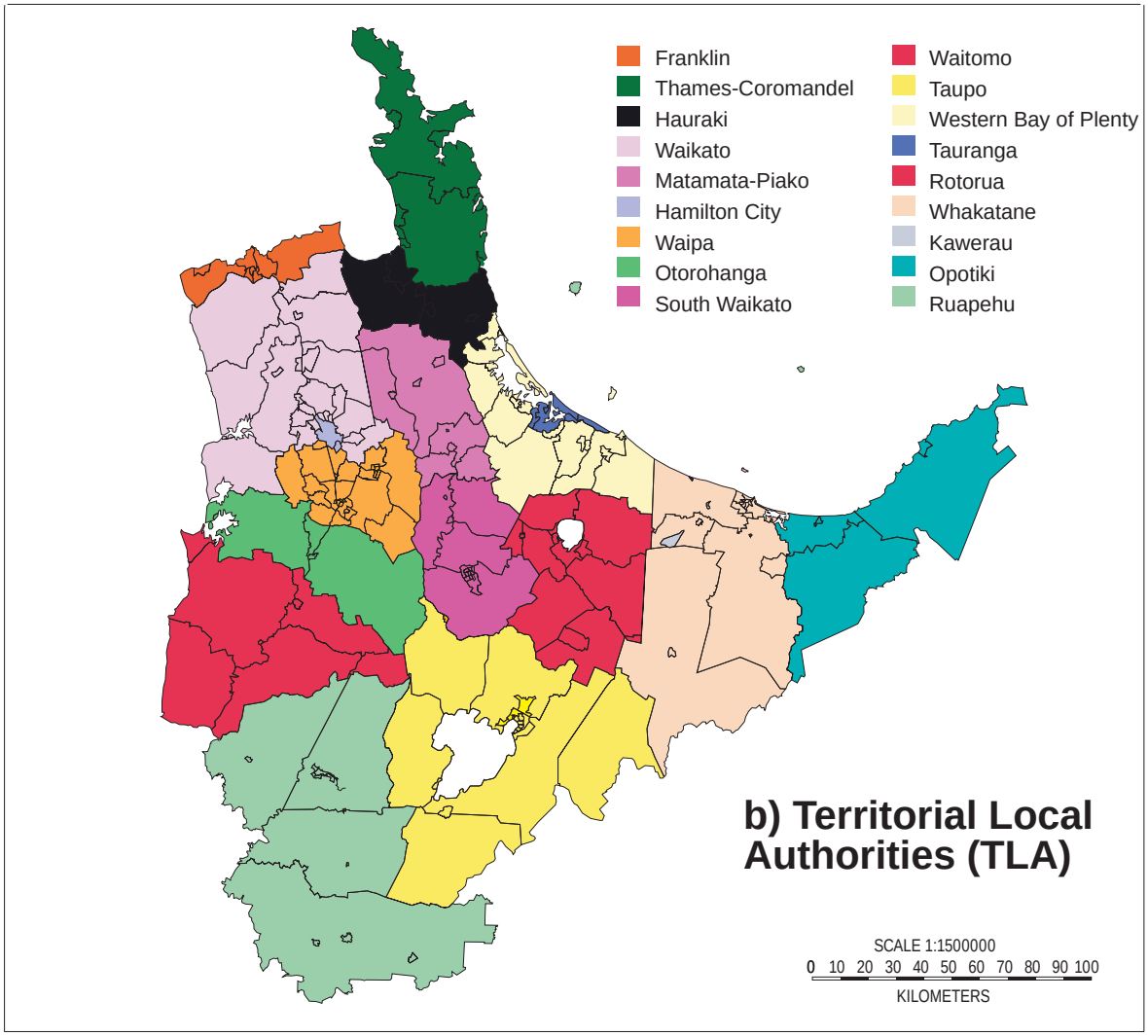

Figure 3: Territorial Local Authorities in the Central North Island, 1996]

This settlement hierarchy, which differs somewhat from the standard classification of rural and urban areas used by Statistics New Zealand in the census reports, is the same as the one used by Chalmers and Joseph (1997) in their analysis of migration amongst the elderly population of the Waikato region. We have chosen to use this classification because it allows us to isolate more effectively the "small town" ("3rd tier" settlements) and "rural" components of the population in a region which does have some major urban concentrations.

Our definitions of "rural" and "urban" are much more fine-grained than those used in Sceats *et al.* (1999 - the Portal report). In that report "rural" referred to all of the population living outside the "main urban areas" of Hamilton City, Tauranga City and Rotorua District. The 1st tier urban settlements in our classification correspond to Portal's "urban" areas. The other four tiers in our classification comprise their "predominantly rural" communities.

In the Central North Island there are 18 TLAs in total, including that part of Franklin District which is outside the Auckland Regional Council area. Also included in the maps, shown in Figure 2, are the boundaries of the Area Units defined in the 1996 Census of Population and Dwellings. These Area Units were the main unit of analysis for this part of the study, and maps show characteristics of population change at the Area Unit level. The data for these maps were obtained from *Supermap 3.*

Data on population change, employment and characteristics of land use were obtained from James Newell and from Statistics New Zealand's *Supermap* package. These data all relate to either the Census of Population and Dwellings (1986, 1991 and 1996), or the surveys of agriculture carried out by Statistics New Zealand. Details of agricultural surveys can be found in the Statistics New Zealand publications; it is important to appreciate the data relate to a sample of farm holdings, not the entire farming population (see, for example, Statistics New Zealand, 1998c for comments on the 1996 agricultural survey data). The latest agricultural census data for 1999 were not available at the time of analysis.

Standard tabulation and mapping procedures were used in the presentation of the regional data. The information relating to population characteristics and change was transferred into a Geographic Information System, and a series of maps were produced at the District, Area Unit and meshblock levels using the Arc/Info. Software package. The analysis is essentially descriptive rather than interpretive; it is designed to provide a back-drop for three sub-regional case studies which formed the core of MAF's operational research project and which are discussed in detail in Lidgard *et al.* (2000) and more generally in Joseph *et al*. (2001).

The paper is divided into three substantive sections. The first deals with population change in the Central North Island and some characteristics of population composition. The second reviews changes in rural industrial employment with particular reference to livestock farming, orchards and fruit farms, and forestry. The third section examines trends in employment in the region between 1986 and 1996. The paper concludes with an assessment of the relevance of a focus on diversity rather than decline when considering prospects for agriculture and community development in the Central North Island.

POPULATION CHANGE, 1986-1996

Between 1986 and 1996 the resident population of the Central North Island increased by just under 62,000 from 529,300 to 591,232 (Table 1). The percentage increase was 11.7, above that for the country as a whole (10.9 percent).

Table 1 Population growth, Central North Island, 1986-1996

	Central North Island	New Zealand
Population		
1986	529,300	3,263,284
1991	551,872	3,373,927
1996	591,232	3,618,302
Population growth		
1986-91	4.26	3.39
1991-96	7.13	7.24
1986-96	**11.70**	**10.88**

Within the decade there are two quite distinctive periods of population change: the late 1980s when growth was around half that for the early 1990s (Table 1). In the case of the Central North Island, the growth between 1986 and 1991 was quite a bit faster than for the country as a whole (4.26 percent as compared with 3.39 percent). In the period between the 1991 and 1996 censuses, the reverse was the case. The Central North Island lagged slightly behind the percentage increase for New Zealand's population (7.13 percent compared with 7.24 percent for New Zealand).

Sceats *et al.* (1999, 5) suggest this difference in growth between 1991 and 1996 in the Zone 2 and national population was due mainly to the smaller impact which international migration had on population change in the Central North Island compared with that for the country as a whole. We would agree with this assessment: the major immigrant influx during the early 1990s was more heavily concentrated in the Auckland and Christchurch urban areas than in other parts of the country (Bedford and Goodwin, 1997).

Population change in the settlement hierarchy

The overall percentage population changes for the intercensal periods between 1986 and 1996 for the Central North Island disguise some significant variations by settlement type. Table 2 summarises the share of the region's resident population living in the five types of settlement identified above, and the percentage increases in population for each type between 1986-91, 1991-96 and 1986-96. It can be seen from this table that almost 40 percent of the region's population lives in the three major cities while other towns with populations in excess of 3,000 people account for a further 28 percent. Thus, two-thirds of the people in one of New Zealand's quintessential "rural" hinterlands are urban residents. If those living in nucleated settlements of 500 people or more are also included the share that is "urban" increases to 76 percent. This is not a "predominantly rural" population, at least not in terms of its distribution.

The most rapid population growth during the early 1990s occurred in the small nucleated settlements with populations between 500 and 3000, and the densely settled rural areas in the Waikato and Bay of Plenty (Figure 2). These settlement types account for just under a quarter of the region's total. The slowest growth through the period was in the towns with populations over 3,000, excluding the big three (Hamilton, Tauranga and Rotorua). Even the sparsely populated rural areas experienced more rapid population growth than the small towns in the Central North Island.

Within the densely settled (Figure 3) and sparsely settled (Figure 4) rural areas there was also significant variation in growth rates by Area Unit. The keys in these two maps indicate the percentage change in population by Area Unit between 1986 and 1996 in 10 percent bands with the paler shadings showing negative or low growth, and the darker shadings showing positive growth. In the case of the densely settled rural areas, some between Hamilton and Tauranga experienced population decline, while the most rapid growth was in Area Units on the outskirts of Tauranga and, to a lesser extent, Hamilton (Figure 3).

Table 2 Population change by settlement type, Central North Island, 1986-1996

Settlement type	Share of regional population 1996	Percentage increase in population 1986-91	1991-96	1986-96
Major cities	38.2	6.2	9.4	16.2
Other towns	27.9	1.3	1.8	3.1
Nucleated settlements	9.2	9.6	10.0	20.5
Densely settled rural	14.2	4.5	10.2	15.1
Sparsely settled rural	10.4	1.7	7.3	9.1
Central North Island	**591,232**	**4.3**	**7.1**	**11.7**
Portal "urban"[a]	38.2	6.2	9.4	16.2
Portal "rural"	61.8	2.6	6.3	9.1

[a] The Portal Consulting Associates study of the Zone 2 Region (Sceats *et al.,* 1999) is referred to in the tables in this report as "Portal".

Data source: Tabulations from *Supermap 3* prepared by Bridget McLaughlin

In the case of the sparsely settled rural areas, the most rapid growth was in Opotiki District, northern Coromandel, around the eastern shores of Lake Taupo and further to the east, and south of Raglan Harbour as well as in the southern part of Franklin District. The largest losses were in the King Country and inland Whakatane District (Figure 4). Clearly there are quite different processes driving the growth of areas such as Opotiki District (return migration of Maori), northern Coromandel (retirement migration and the expansion of holiday homes/recreational land uses) and southern Franklin (urban spill-over from Auckland). It is not useful to over-generalise population trends within this region's settlement hierarchy.

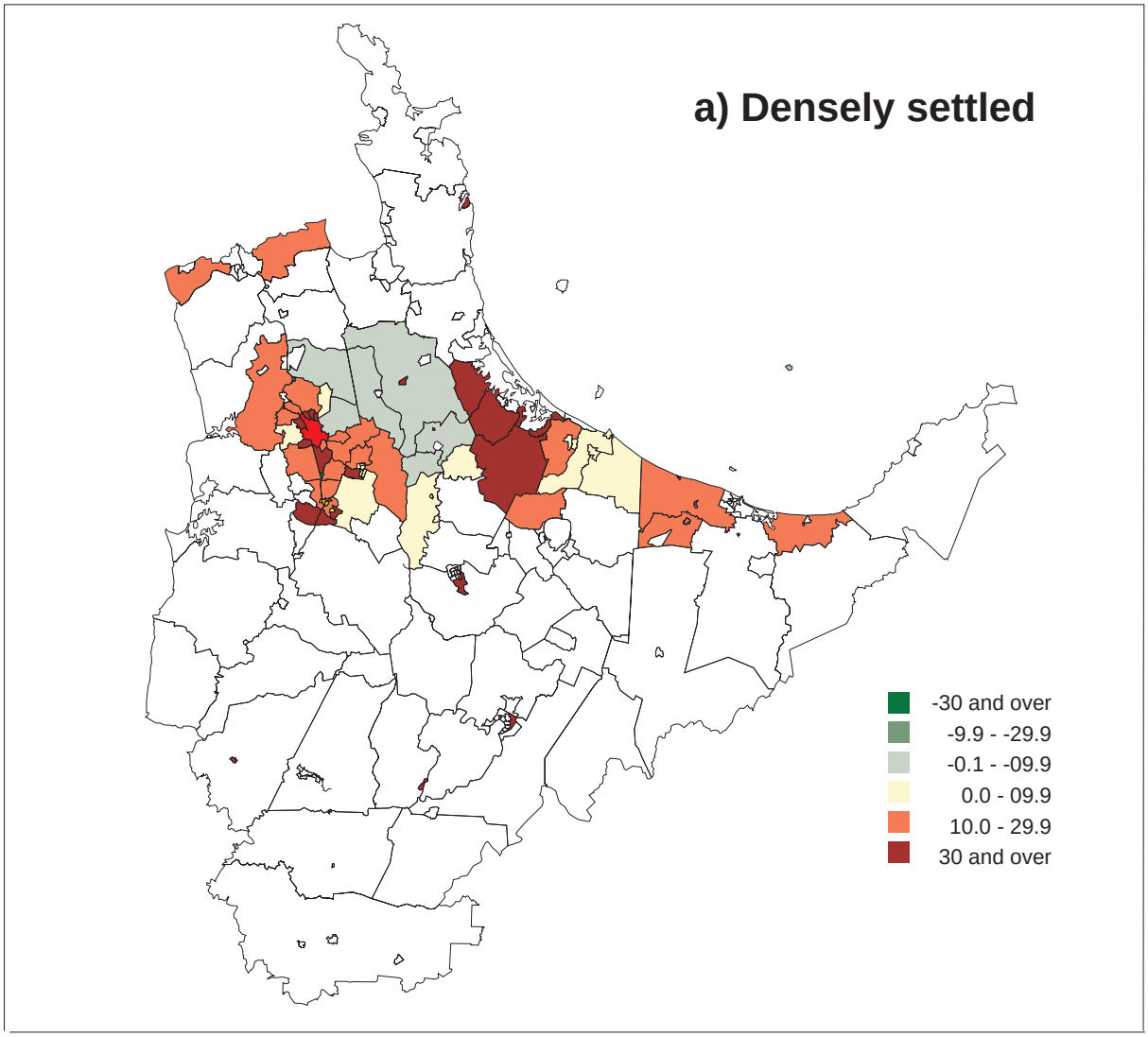

Figure 4: Population change in the densely settled rural areas by Area Unit

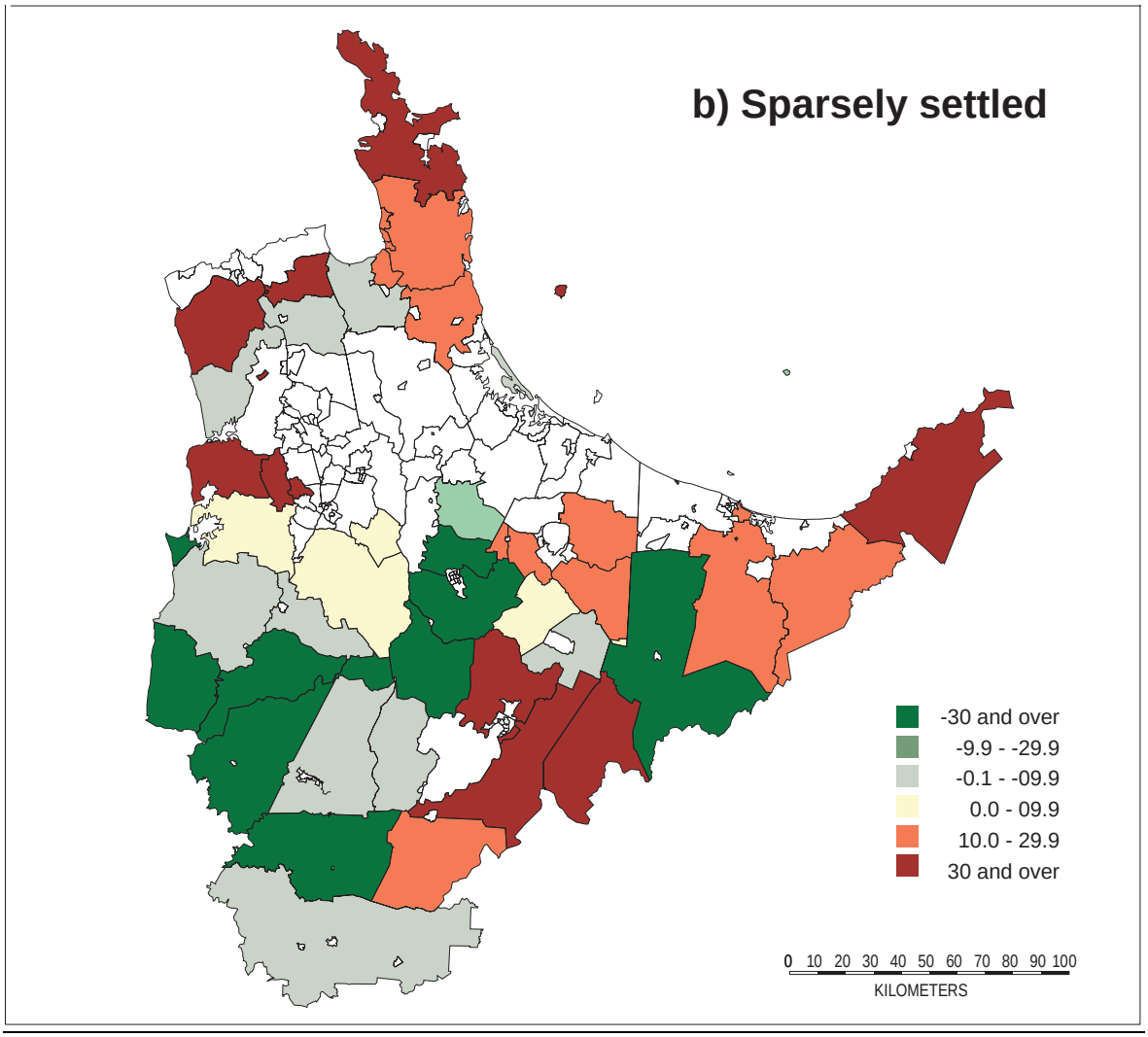

Figure 5: Population change in the sparsely settled rural areas by Area Unit

Maori population change within the settlement hierarchy

There were just over 140,000 people who indicated that they were of Maori ethnicity in the Central North Island in 1996 (Table 3). This represents 23.7 percent of the resident population – a significantly higher share of the total than for New Zealand as a whole (14 percent). Table 3 shows the distribution of the Maori population across the five major types of settlement and the intercensal rates of population change.

Table 3 Maori population change by settlement type, Central North Island, 1986-1996

Settlement type	Share of regional Maori population 1996	Percentage increase in Maori population 1986-91	1991-96	1986-96
Major cities	33.6	10.2	25.5	38.3
Other towns	34.7	10.1	11.8	23.1
Nucleated settlements	11.2	10.7	14.4	26.6
Densely settled rural	9.8	2.4	24.9	27.8
Sparsely settled rural	10.7	-1.6	17.3	15.4
Central North Island	**140,565**	**8.0**	**18.2**	**27.8**
Portal "urban"	33.6	10.2	25.5	38.3
Portal "rural"	66.4	7.1	14.9	23.0

Data source: Tabulations from *Supermap 3* prepared by Bridget McLaughlin

In the case of the Maori population an even higher share of the total is "urban" than is the case for the total resident population in the Central North Island. Just under 80 percent of Maori were living in the three tiers of urban places identified in the settlement hierarchy, with the highest share (34.7 percent) being in towns of over 3,000 excluding the three cities. The sparsely settled rural areas were home to more Maori than the densely settled rural areas, the converse of the situation for the total population (Table 2 and 3).

In terms of population growth, much higher percentage increases were recorded for the Maori population in all categories of settlement between 1991 and 1996 than was the case for the total population, and for the three tiers of urban settlement between 1986 and 1991. These increases reflect a combination of

higher rates of natural increase in a population which has a more youthful age structure than the total population, combined with some significant migration of Maori into the Central North Island. (See Scott and Kearns (2000) for an analysis of a similar phenomenon in Northland between 1986 and 1996). Another factor, which must be taken into account when considering intercensal growth in the Maori population, is the extent to which there has been an increase in self-identification as Maori in the census question on ethnicity through the 1980s and 1990s. Some of the increase in the Maori population between 1986 and 1996 can be accounted for by issues to do with identity rather than demographic processes *per se* (Gould, 2000).

Population change at the Territorial Local Authority level

There are some marked variations in rates of population change amongst the 18 TLAs (or part of a TLA in the case of Franklin District) which are within the Central North Island region defined for this report. Rates of population change between the censuses in 1986, 1991 and 1996 are summarised in Table 4. The largest increases during the decade were recorded for the Tauranga and Western Bay of Plenty Districts (both recording population growth of more than 30 percent during the decade), with Thames-Coromandel District and the part of Franklin that is within the region also recording growth by more than 25 percent. As shown in Table 4 the Central North Island's population, in total, grew by 11.7 percent between 1986 and 1996, while the decennial increase for New Zealand's resident population was 10.9 percent.

In only 8 of the 18 TLAs was population growth between 1986 and 1996 in excess of 11.7 percent. In all cases, except for Thames-Coromandel and Opotiki, these TLAs either comprised sizeable urban centres (e.g. Hamilton, Tauranga, Taupo), or were located on the fringes of major cities (Western Bay of Plenty District, Waipa District, Franklin District). The most interesting anomaly is Opotiki District, arguably one of the most disadvantaged on many of the indices used to assess socio-economic status (Crampton, *et al.*, 2000). Return migration of Maori to Opotiki District has contributed to this growth as we show below, although this appears to have been more significant in the late 1980s than the 1990s (Table 5).

Four Districts experienced absolute population decline between 1986 and 1996: South Waikato, Ruapehu, Kawerau and Waitomo (Table 4). The patterns of decline within these districts vary. The populations in South Waikato and Waitomo Districts declined steadily through the decade. In the case of Ruapehu District, there were major population losses in the late 1980s but almost no change in total numbers between 1991 and 1996. By contrast, in Kawerau District, the most rapid decrease in population has been in the early 1990s.

Table 4 Population change in the Central North Island TLAs, 1986-1996

TLA	Population 1996	Percentage change 1986-91	1991-96	1986-96
Western BOP	34,971	12.2	17.1	31.4
Tauranga	77,775	12.5	16.5	31.1
Thames-Coromandel	24,820	13.2	14.1	29.2
Franklin (part)	13,662	11.6	12.9	26.0
Opotiki	9,375	9.5	8.2	18.4
Hamilton	108,428	5.2	9.1	14.7
Taupo	30,691	3.7	9.7	13.8
Waipa	38,853	6.4	5.9	12.7
Central North Is.	**591,232**	**4.3**	**7.1**	**11.7**
New Zealand	**3,618,297**	**3.4**	**7.2**	**10.9**
Rotorua	64,509	3.8	4.8	8.8
Hauraki	17,320	5.2	1.6	6.9
Whakatane	33,125	2.7	3.2	6.0
Waikato	39,139	0.7	4.6	5.4
Otorohanga	9,662	-2.1	6.2	4.0
Matamata-Piako	29,663	0.8	-0.6	0.02
Waitomo	9,731	-4.2	-3.6	-7.7
Kawerau	7,829	-2.6	-6.1	-8.6
Ruapehu	16,742	-10.5	-0.7	-11.2
South Waikato	25,010	-7.9	-5.3	-12.8

Data source: Statistics New Zealand (1997a, 61)

Table 5 shows the intercensal growth rates for the Maori populations resident in each TLA in 1986, 1991 and 1996. The regional "average" of a 27.8 percent increase in the ethnic Maori population between 1986 and 1996 is exceeded by half of the TLAs, with the largest growth being in the areas experiencing the most rapid growth in their total populations (Table 4). The one slight anomaly is Otorohanga District which had a lower rate of overall population change between 1986 and 1996 than the regional average, while exceeding this average in the case of the Maori population growth (Table 5).

Table 5 Maori population change in the Central North Island TLAs, 1986-1996

TLA	Population 1996	Percentage change 1986-91	1991-96	1986-96
Thames-Coromandel	3,678	19.8	41.3	69.3
Tauranga	12,237	12.7	37.3	54.7
Western BOP	6,216	14.8	34.0	53.8
Opotiki	5,040	24.1	16.7	44.9
Hauraki	3,213	13.0	26.9	43.4
Hamilton City	19,026	7.8	30.2	40.4
Franklin (part)	2,751	6.3	31.9	40.2
Waipa	5,820	10.2	22.1	34.5
New Zealand	**523,377**	**7.4**	**20.4**	**29.3**
Otorohanga	2,595	5.3	22.1	28.6
Central North Is.	**140,565**	**8.0**	**18.2**	**27.8**
Rotorua	21,894	10.5	14.4	26.4
Matamata-Piako	3,702	0.3	25.0	25.4
Taupo	9,324	5.0	13.6	19.2
Waikato	10,185	7.6	10.0	18.3
Kawerau	4,536	11.3	5.6	17.5
Whakatane	13,332	5.6	8.3	14.4
South Waikato	7,398	2.5	6.8	9.5
Waitomo	3,477	3.7	0.5	4.2
Ruapehu	6,135	-4.9	6.9	1.7

Data source: Statistics New Zealand (1997b, 50)

Most TLAs have experienced more rapid Maori population growth in the 1990s than was the case in the late 1980s. Exceptions are Opotiki, Kawerau and Waitomo. In these Districts there has been a significant decline in recent years although Opotiki is still close to the regional average for the last intercensal period (Table 5). Between 1986 and 1991 Opotiki District had the largest intercensal growth in its Maori population of all TLAs in the region. This was a time of significant return migration to Maori communities as the restructuring of New Zealand's manufacturing industries impacted heavily on the availability of unskilled and semi-skilled employment opportunities throughout the country.

It is clear from the diverse patterns of growth shown in Tables 1 to 5 that an overall "average" population growth between 1986 and 1996 of 11.7 percent conveys a misleading impression of recent population change in this part of the country. The combinations of demographic factors underlying the diverse patterns of growth are complicated by quite marked intra-regional variations in the ethnic and age compositions of the population. These patterns are touched on briefly below before we examine some aspects of employment in the region.

Some characteristics of population composition

Intra-regional variations in growth rates, age and ethnic compositions of populations have implications for many dimensions of rural social and economic change. As Sceats *et al.* (1999, 5) point out, changes in the "size, distribution, age and ethnic composition of the population … are indicative, among other things, of the patterns of dependency and the "vitality" of society and thus its ability to respond to economic and other changes".

Compared with the population of New Zealand as a whole, Sceats *et al.* (1999, 10) argue that this region's population has moved to a condition of greater "age-structural vulnerability". They stress that this is "no longer a region with dynamic youth and young adult populations"; it is a region which "must sustain levels of youth dependency well above national levels, and is even facing aged-dependency levels above those for New Zealand as a whole".

This is not the place for a detailed analysis of sub-regional variations in youthful and aged dependency. However, it is clear from the data we have for dependency ratios by TLA that there is very considerable diversity in the "dynamism" of this region's population (Table 6). While 15 of the 18 TLAs have youth dependency ratios above the national average of 35.2 children aged 0-14 years per 100 people in the "economically active" age group (15-64 years) the majority (11 of the 18) have smaller aged dependency ratios. The region's TLAs thus tend to have younger populations than the national average, but the aged dependency ratio for the region as a whole (18.1) is distorted by a small number of Districts where retirement is common (Thames-Coromandel, Tauranga and Western Bay of Plenty especially). Overall levels of dependency are certainly higher than the national average but this tends to be a symptom of youthful rather than older, "less dynamic" population structures. There is no shortage of "potential workers" if the jobs can be created in the region.

Table 6 Youth and aged dependency in the Central North Island TLAs, 1996

TLA	Youth (0-14)/(15-64)	Aged	Total
Opotiki	50.2	18.3	68.6
Thames-Coromandel	33.7	31.6	65.3
Hauraki	44.5	20.1	64.5
Kawerau	53.9	10.2	64.1
Tauranga	35.0	28.1	63.1
Whakatane	45.1	16.8	61.9
Matamata-Piako	41.5	20.1	61.5
Western Bay of Plenty	38.9	21.4	60.3
South Waikato	47.7	12.6	60.3
Waitomo	43.9	16.3	60.2
Waipa	39.9	19.3	59.1
Ruapehu	45.2	13.1	58.3
Waikato	43.4	14.6	57.9
Taupo	40.8	16.9	57.7
Central North Island	**39.5**	**18.1**	**57.7**
Rotorua	41.8	15.5	57.3
Franklin	40.9	14.7	55.6
New Zealand	**35.2**	**17.9**	**53.1**
Hamilton City	32.6	14.6	47.2

Data source: Statistics New Zealand (1998a, 100-105)

Adding to the complexity in patterns of youthful dependency are trends in family patterns that are causing concern. These suggest that "in some TLAs disproportionately more households shelter multiple families [and] for the region as a whole higher percentages of families are sole parent than is true for New Zealand" (Sceats *et al*., 1999, 16). This is especially the case in TLAs with sizeable Maori populations. It is clear from Table 6 that there is a shift towards greater aged dependency in parts of the region, especially those attracting retirement migration. This is not always associated with greater vulnerability. Retirement migration of people in their 60s and early 70s to parts of the Coromandel and the Bay of Plenty is stimulating local economies and adding to a sense of well-being in places that were formerly losing population, or experiencing at best very slow growth.

The dependency ratios for Maori and non-Maori by settlement type are shown in Table 7. It is clear from this table that the smaller towns and settlements (the second and third tiers in the hierarchy) have much higher aged dependency ratios than the rural areas, especially for non-Maori. By contrast, the densely and sparsely settled rural areas have the highest non-Maori youth dependency ratios (Table 7). For Maori, the smaller towns and settlements have the highest youth dependency.

Table 7 Youth and aged dependency by settlement type, Central North Island, 1996

Settlement type	Dependency ratios			
	Youth		Aged	
	Maori	Non-Maori	Maori	Non-Maori
Major cities	60.5	28.8	5.0	23.2
Other towns	69.8	33.2	5.5	28.4
Nucleated settlements	67.6	31.0	7.0	27.4
Densely settled rural	66.5	36.7	6.6	11.9
Sparsely settled rural	62.1	37.4	7.4	12.1
Central North Island	**65.9**	**32.6**	**6.9**	**21.2**
Portal "urban"	60.5	28.8	5.0	23.2
Portal "rural"	68.6	35.0	8.0	20.5

Data Source: Tabulations from *Supermap 3* prepared by Bridget McLaughlin

In the future there could well be quite different assessments of vulnerability amongst older populations in rural communities which do not have specialist services in close proximity. Joseph and Chalmers (1995) have already explored some of these issues in small rural communities in the Waikato in the context of "growing old in place". Their conclusion is summed up well in the following observation:

> The limited capacity of small communities to cope simultaneously with the many casualties of restructuring [especially the deregulation of service provision] and the growing number of elderly people staying on in rural areas means that the words of one of our elderly Tirau respondents may be echoed in other communities in the coming years: "You have to be tough to live in Tirau" (Joseph and Chalmers, 1995, 89).

It is clear from this very cursory examination of population growth and composition in the Central North Island that this is not a region that lends itself to easy typecasting or generalisation in terms of its recent demographic development. Regional averages disguise very important differences between settlement types and ethnic groups – differences that are likely to be critically important for the future social and economic development of specific communities in the Central North Island. Interviews with residents in selected parts of the region demonstrated both resilience and vulnerability in rural and small town populations after almost two decades of economic and social restructuring (Lidgard, *et al.*, 2000, Joseph *et al.*, 2001).

EMPLOYMENT IN RURAL INDUSTRIES, 1986-1996

The Central North Island is one of New Zealand's agricultural "heartlands" and is generally considered to be one of the most dynamic and wealthy parts of rural and small town New Zealand. Included in the region is one of the fastest growing cities (Tauranga), some of the country's major tourist resorts (Rotorua, Waitomo, Coromandel Peninsula), the core of the dairy industry, major horticultural developments, and parts of the country's largest exotic forests.

In the latest New Zealand atlas, Kirkpatrick (1999, 15) captures the essential character of this "heartland" in his map of land use in 1996 (Figure 6). Dairying (with some finishing of sheep and beef) dominates the Hauraki Plains, the Waikato Basin, and the coastal Bay of Plenty from Whitianga in the north through to Opotiki in the east. Various forms of pastoralism (intensive, semi-intensive, and extensive sheep and beef farming) are common land uses along the east and south of the Hauraki Plains-Waikato Basin part of the region. Exotic forestry stands out to the southwest of the Bay of Plenty coastal strip and around Rotorua and west of Lake Taupo. Pockets of horticulture are found in the coastal Bay of Plenty and in northern parts of the Waikato region.

Kirkpatrick's map confirms many stereotypical images of this region: the dominance of dairying on the flat and low rolling land; sheep and beef farming on the hills along the west coast and in the King Country; exotic forestry around Rotorua and Taupo; horticulture in the Bay of Plenty and some extensive tracts of regenerated indigenous forest in the Coromandel, along the Kaimai ranges and through the Taumarunui and western Taupo areas. Not surprisingly, maps showing employment in different rural industries (agriculture and forestry) produce patterns that replicate quite closely Kirkpatrick's maps of land use. The four maps in Figures 7 through to 10 show the percentages of all people aged 15 years and over, resident in the Central North Island TLA, who were in the full and part-time workforces in 1996, and employed in agriculture and forestry.

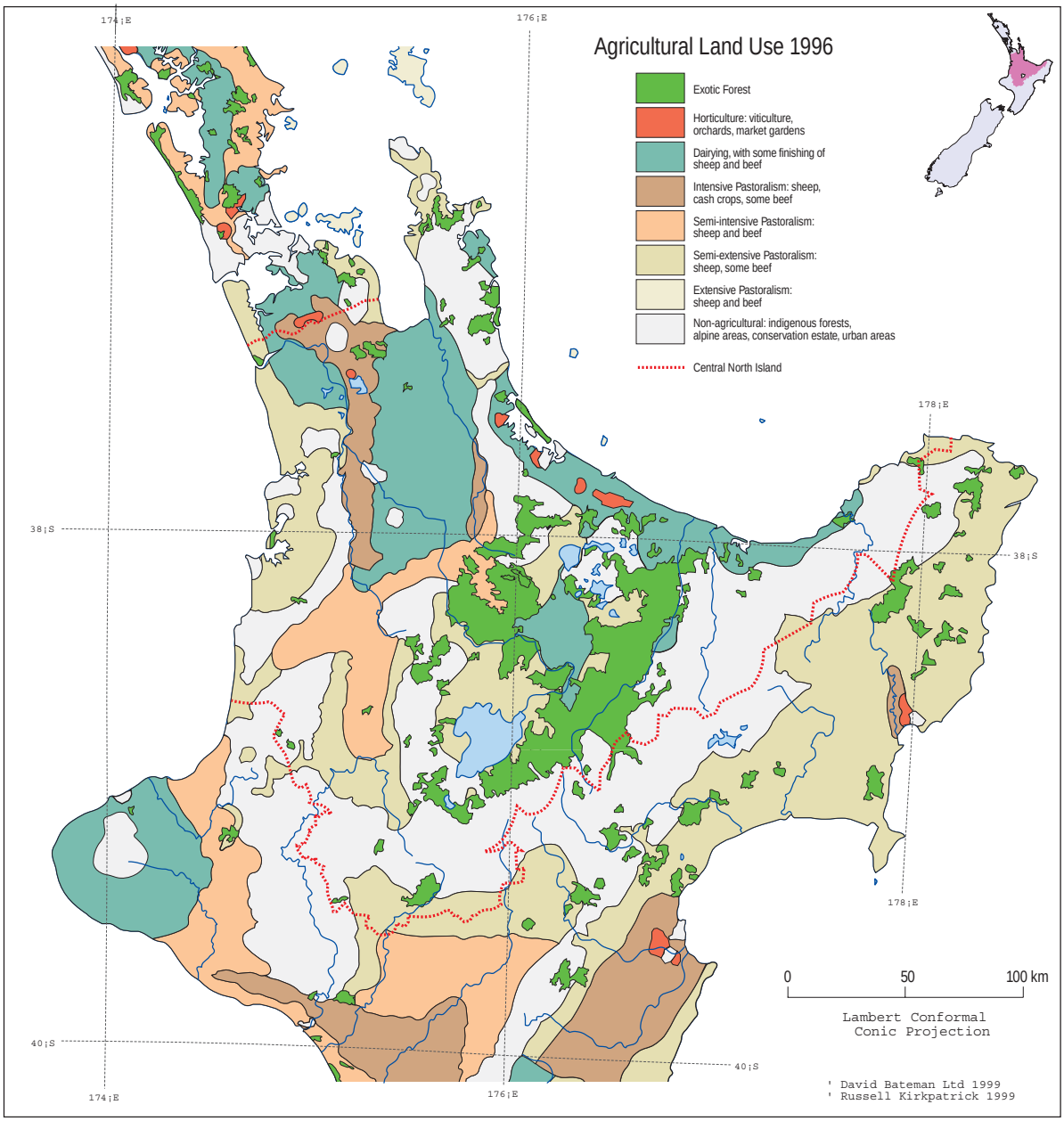

Figure 6: Land use in the Central North Island, 1996

The agricultural and forestry workforces include people employed in dairying; sheep, beef, and sheep and beef farming; mixed and other livestock farming; horticulture and orchards; forestry and logging; hunting and fishing and agricultural services.

At the time of the 1996 census, the workforce in these industries totalled 39,018 -- only 15.3 percent of all full and part-time workers in the Central North Island (254,415 people aged 15 and over) (Table 8). While the region is, without doubt, one of New Zealand's agricultural "heartlands", it is also a region where the great majority of jobs are found outside of rural industries. Economic developments saw a reduction of more than 8,000 in the agriculture/forestry workforce between 1986 and 1996 (from 47,202 to 39,018), along with a significant shift in shares of full-time and part-time work (Table 8).

Table 8 Full and part-time workforces in the Central North Island, 1986 and 1996

Workforce	1986		1996		Percentage change	
	Rural[a]	Total[b]	Rural[a]	Total[b]	Rural[a]	Total[b]
Full-time						
Male	31,497	134,688	22,425	122,835	-28.8	-8.8
Female	9,312	64,161	7,458	69,861	-19.9	+8.9
Total	**40,809**	**198,849**	**29,883**	**192,696**	**-26.8**	**-3.1**
Part-time						
Male	1,818	7,143	3,366	18,078	+85.1	+153.1
Female	4,575	27,054	5,769	43,641	+26.1	+61.3
Total	**6,393**	**34,197**	**9,135**	**61,719**	**+42.9**	**+80.5**
Total						
Male	33,315	141,831	25,791	140,913	-22.6	-0.6
Female	13,887	91,215	13,227	113,502	-4.8	+24.4
Total	**47,202**	**233,046**	**39,018**	**254,415**	**-17.3**	**+9.2**

[a] The "rural" workforce is defined as those people who stated they were employed in dairy farming, sheep, beef, mixed and other livestock farming, horticulture, orchards, forestry and logging, hunting, fishing, and agricultural services. Both full and part-time workers are included.

[b] The "total" workforce is all people aged 15 years and over in full and part-time employment in the Central North Island.

Data source: Tabulations derived from *Supermap 3* by James Newell, and processed by Bridget McLaughlin.

The 17.3 percent decline in agriculture and forestry employment in the region over the decade was not, however, matched by an overall decline in the total workforce. This actually increased by 9.2 percent, from 233,046 to 254,415. This increase came from growth in part-time work (+80.5 percent), not in the full-time workforce (-3.1 percent) (Table 8).

Trends in employment are examined more closely firstly, with reference to jobs in different rural industries and secondly, with reference to changes in the size and composition of the full and part-time workforces. It is interesting to note with regard to the workforce in the region that a significant share (just over 30 percent) of those classed as working in rural industries actually reside in the three classes of urban settlement (Table 9). The largest shares of this workforce were in the densely settled rural areas (37.5 percent in 1986 and 38.5 percent in 1996), well in excess of the overall share of the region's total population in this settlement type.

Table 9 Industrial workforce by settlement type, Central North Island, 1986 and 1996 (percentages)

Settlement type	Total population	Industrial workforce		
		Rural[a]	Total	% Rural
1986				
Major cities	36.8	7.5	37.7	4.0
Other towns	30.3	15.1	28.6	10.7
Nucleated settlements	8.6	8.9	7.8	23.3
Densely settled rural	13.7	37.5	15.1	50.4
Sparsely settled rural	10.7	31.0	10.8	58.2
Central North Island	**529,300**	**47,202**	**233,046**	**20.3**
1996				
Major cities	38.2	8.1	38.8	3.2
Other towns	27.9	14.1	25.1	8.6
Nucleated settlements	9.2	7.9	8.2	15.2
Densely settled rural	14.2	38.5	16.6	35.6
Sparsely settled rural	10.4	31.4	11.3	42.8
Central North Island	**591,232**	**39,018**	**254,415**	**15.3**

[a] See note [a], Table 8 for definition of "rural industrial" workforce

Data Source: Tabulations derived from *Supermap 3* by James Newell and processed by Bridget McLaughlin

The share of the rural industry workforce living in the three main urban areas (Hamilton, Tauranga and Rotorua), has increased marginally in terms of its percentage share over the decade from 7.5 percent in 1986 to 8.1 percent in 1996 (Table 9). During the intercensal period, the shares of the total workforces (all industries) in the densely and sparsely settled rural areas that were employed in rural industries (50.4 and 58.2 percent respectively in 1986) had fallen quite markedly by 1996 (to 35.6 and 42.8 percent respectively).

The employment structure of rural New Zealand has been undergoing a significant transformation for some time now, and clearly the old stereotypes of "agricultural employment" dominating in the dispersed rural settlements are no longer relevant. This is not the place for a detailed statistical analysis of these changes, but some of the processes underlying the diversification of employment in the "heartland" are discussed below with reference to findings from the case studies.

Changes in rural industrial employment, 1986-1996

It is clear from Table 8 that throughout the Central North Island there has been a decline in full-time employment in farming and forestry and an increase in part-time work for both males and females. Overall, as already noted, the total number of people in full and part-time employment in rural industries has fallen, with male jobs experiencing a much more significant decline than those for females (Table 8).

Yet there is considerable diversity within the rural economy in these trends in employment. Table 10 captures the essence of this diversity by showing the shares of rural industry employment in five key categories in the Central North Island in 1986 and 1996. Both full and part-time employment are included in these figures, which are shown separately for males and females. Dairy farming is the major employer within this cluster of industries, and the percentages of males and females employed in dairying have increased over the decade, even though absolute numbers employed (both males and females) have fallen by 6.5 percent.

The second largest employer in the rural industry sector was other livestock farming, mainly sheep and beef, but also including some deer and goat farming. The numbers in full and part-time employment in livestock farming fell from almost 12,000 in 1986 to just over 9,000 in 1996 -- an overall decline by 23.6 percent (Table 10). Male employment was more significantly affected (-30.2 percent) than female employment (-7.1 percent). The overall share of rural industry employment in "other livestock farming" fell slightly from 25 percent in 1986 to 23 percent in 1996. Despite the fall in absolute numbers employed,

livestock farming remains the second largest employer of labour in rural industries, as these are classified here.

Table 10 Employment, both full and part-time, in rural industries, Central North Island, 1986 and 1996

Industry	1986 No.	1986 % Total	1996 No.	1996 % Total	% change 1986-96
Males					
Dairy farming	11,226	33.7	10,179	39.5	-9.3
Other livestock[a]	8,463	25.4	5,904	22.9	-30.2
Horticulture[b]	4,617	13.9	4,152	16.1	-10.1
Forestry[c]	4,695	14.1	3,372	13.1	-39.2
Other[d]	4,314	12.9	2,184	8.5	-49.4
Total	**33,315**	**100.0**	**25,791**	**100.0**	**-22.6**
Females					
Dairy farming	5,298	38.2	5,277	39.9	-0.4
Other livestock[a]	3,399	24.5	3,156	23.8	-7.1
Horticulture[b]	3,732	26.9	3,243	24.5	-13.1
Forestry[c]	540	3.9	525	4.0	-2.8
Other[d]	918	6.6	1,026	7.8	+11.8
Total	**13,887**	**100.0**	**13,227**	**100.0**	**-4.8**
Total					
Dairy farming	16,524	35.0	15,456	39.6	-6.5
Other livestock[a]	11,862	25.1	9,060	23.2	-23.6
Horticulture[b]	8,349	17.7	7,395	18.9	-11.4
Forestry[c]	5,235	11.1	3,897	10.0	-25.6
Other[d]	5,232	11.1	3,210	8.3	-38.6
Total	**47,202**	**100.0**	**39,018**	**100.0**	**-17.3**

[a] Sheep, beef, sheep and beef, mixed and other livestock
[b] Including orchards
[c] Including logging
[d] Hunting, fishing and agricultural services

Data source: Tabulations derived from *Supermap 3* by James Newell, and processed by Bridget McLaughlin.

In the case of employment in horticulture (including orchards), the third largest rural industrial workforce in the region, the percentage decline in jobs was around 10 percent for males, and a little higher for females (13 percent). This part of the rural economy employs more females than livestock farming, and women comprised just under 44 percent of the total horticulture and orcharding workforce in 1996. However, during the decade the total number of jobs on these farms had fallen by almost 1000 (Table 10).

The forestry workforce, with its very heavy domination by males (86 percent of the total employed in forestry and logging in the Central North Island in 1996 were men), experienced a significant decline during the decade (26 percent). However, its overall percentage share of the total rural industry workforce showed little change, dropping from 11 percent in 1986 to 10 percent in 1996 (Table 10).

An even more dramatic decrease in job numbers was found for the remaining group of industries: agricultural services and the small hunting and fishing workforces (Table 10). In the case of the latter group, numbers of males employed fell by 50 percent from 4,314 in 1986 to 2,184 in 1996. Female employment in agricultural services increased during the decade, offsetting slightly the fall in male employment. By 1996 this group of activities comprised just over 8 percent of the rural industry workforce, down from 11 percent in 1986 (Table 10).

It is clear from this summary of shifts in employment within the major rural industries that there are some important differences in trends. These are illustrated further below with reference to full and part-time employment in dairy farming, sheep and beef farming, orchards and other fruit farms, and forestry in the different settlement types.

Dairy farming

In the year ended 30 June 1996 it was estimated from a sample survey of "all those people or businesses registered for Goods and Services Tax (GST) and classified by Statistics New Zealand's Business Directory as being engaged in horticulture, cropping, livestock farming or exotic forestry operations" (Statistics New Zealand, 1998c, 13) that there were just under 16,500 dairy farms in New Zealand. These included farms classified as "principally dairy farming" as well as "predominantly dairy farming". A decade earlier, in the year ended 30 June 1986, it was estimated that there were around 16,000 dairy farms in New Zealand. At this time the definition of a farm was "any area of land, irrespective of its size or location, used for, or potentially useable for, commercial horticulture, vegetable growing, cropping, livestock or exotic

forestry operations". A postal survey was used to obtain information on such land. There are some significant differences in the definitions used in 1986 and 1996, and direct comparisons of numbers of dairy farms is difficult. However, these figures indicate that at the level of the crude number of farms, there has not been any dramatic change over the decade. Much more important than changes in numbers of units *per se* have been transformations in the sizes of farms and their distribution.

Data for numbers of farms in the Central North Island can be aggregated from published and unpublished data derived from the annual agricultural statistics series. James Newell has been examining this series as part of his work for MAF using the Datalab facility supplied to MAF by Statistics New Zealand. Based on some preliminary tabulations for the years 1990 and 1994 a summary table has been prepared showing broad trends in numbers and sizes of dairy farms in the Waikato Region, the Bay of Plenty Region, Ruapehu District, the Central North Island (in aggregate), and New Zealand (Table 11). It is important to appreciate that there are differences in the ways in which the 1990 and 1994 data were obtained, and in the classifications of farms in the two data sets. The first year that the Statistics New Zealand Business Directory was used to define the universe of farms was 1994.

Two well-established trends can be seen in figures given in Table 11. Firstly there was a small increase in the number of dairy farms in the Central North Island (224) which was found mainly in the Waikato region. There was also an increase in larger dairy farms in Ruapehu District -- an indication of the diffusion of dairying into areas which had been used for dry stock grazing previously. In the Bay of Plenty region, on the other hand, there was a decline in dairy farms during this period. This was not the time when kiwifruit farming took over dairy land to any significant extent; indeed between 1990 and 1994 there was a decline in the number of kiwifruit orchards as well (see below). Dairy land was being absorbed into beef farming enterprises, which increased by just under 200 during the four years (Table 13).

Secondly, there was a shift towards larger farms (in excess of 100 ha), and this was as much a national trend as a regional one. This trend towards larger dairy farms (and herds) is well-documented (see Le Heron and Pawson (1996) for example), and some of the factors promoting such changes surfaced in the interviews discussed in Lidgard *et al.*, (2000) and Joseph *et al.* (2001). Dairy farming has undergone some significant transformations during the 1980s and 1990s. As already noted employment in dairy farming fell by just under 1,000 (-6.5 percent) from 16,524 to 15,456 between 1986 and 1996 (Table 10). These overall figures disguise a much more complex pattern of changes in male and female full and part-time employment.

Table 11 Trends in dairy farm numbers and sizes, 1990-1994

Size of farm	Waikato Region	BOP Region	Ruapehu District	Central Nth Is	New Zealand
1990					
Under 10 ha	222	60	3	285	842
10-100 ha	4,443	934	7	5,384	10,914
101-400 ha	1,180	491	7	1,678	4,872
Over 400 ha	32	16	1	49	226
Total	**5,877**	**1,501**	**18**	**7,396**	**16,854**
1994					
Under 10 ha	194	77	1	272	550
10-100 ha	4,429	664	7	5,100	9,927
101-400 ha	1,711	432	16	2,159	5,997
Over 400 ha	61	23	5	89	351
Total	**6,395**	**1,196**	**29**	**7,620**	**16,825**
Changes 90-94					
Under 10 ha	-28	17	-2	-13	-292
10-100 ha	-14	-270	0	-284	-987
101-400 ha	531	-59	9	481	1,125
Over 400 ha	29	7	4	40	125
Total	**518**	**-305**	**11**	**224**	**-29**

Data source: Statistics derived from the MAF Datalab by James Newell and tabulated by Joanne Goodwin.

A more comprehensive summary of changes in employment in this industry is given in Table 12. It is clear from this table that employment in dairy farming remains heavily dominated by male full-time workers, although there have been some significant increases in numbers of part-time workers, both male and female. In 1986 part-time employment accounted for only 12.5 percent of the total dairy workforce in the region. By 1996 this had almost doubled to 23.1 percent.

Another interesting development during the decade was the shift in location of residences of some dairy farmers and farm employees out of the densely and sparsely settled rural areas into the main cities, towns and other nucleated settlements (Table 12). In 1986 90 percent of those employed on dairy farms were living in the densely (55 percent) and sparsely (35 percent) settled areas. Only one percent were living in the three main urban areas. By 1996 2.4 percent

were living in the main urban areas, and the share in the rural areas had fallen to 87 percent. Increasing farm sizes and the employment of contract labour to assist with milking are changing some of the human as well as the economic dimensions of dairy farming.

Table 12 Employment in dairy farming by category of work and settlement type, Central North Island, 1986 and 1996

Category/type	1986	1996	% change
a) Workforce category			
Full-time			
Male	10,755	8,967	-16.6
Female	3,708	2,913	-21.4
Total	**14,463**	**11,880**	**-17.9**
Part-time			
Male	471	1,212	+157.3
Female	1,590	2,364	+48.7
Total	**2,061**	**3,576**	**+73.5**
All workers			
Male	11,226	10,179	-9.3
Female	5,298	5,277	-0.4
Total	**16,524**	**15,456**	**-6.5**
b) Settlement type			
Major cities	180	375	+108.3
Other towns	1,041	1,185	+13.8
Nucleated settlements	453	498	+9.9
Densely settled rural	9,048	7,803	-13.8
Sparsely settled rural	5,802	5,595	-3.6
Total	**16,524**	**15,456**	**-6.5**

Data source: Tabulations derived from *Supermap 3* by James Newell, and processed by Bridget McLaughlin.

Sheep and beef farming

There have been some very significant changes in sheep and beef farming during the decade 1986 to 1996, both nationally and in the Central North Island. At the national level, the number of farms classed as “principally sheep”, “predominantly sheep with beef”, “predominantly sheep with crops” and

"predominantly sheep with other" fell from around 25,700 in 1986 to 14,300 in 1996 -- a decline by 44 percent. Between 1990 and 1994, the period for which we have data for different parts of the Central North Island, the number of sheep farms in the Central North Island fell by 44 percent (from 2,360 to 1,309) while the national total dropped by 31 percent (from 21,785 to 14,942) (Table 13). Again, it is important to add a caveat here that the definitions of farms changed between 1990 and 1994, and to recall that the 1994 figures relate to a census of farms while the 1990 data refer to a sample. The numbers are, therefore, not directly comparable. However, it is clear from both national and regional data that sheep farming has been in decline for some time.

In the case of farms specialising in beef the trends have been very different. Between 1990 and 1994 numbers of farms increased, both nationally and in the Central North Island (Table 13). The regional increase was much larger in percentage terms (21 percent) than the national increase (7 percent). Within the Central North Island, Ruapehu District recorded particularly significant growth in numbers of beef farms (83 percent), while the percentage increases in the Waikato and Bay of Plenty were much closer to the regional average. There has clearly been some shift from sheep to beef farming in the region, especially in the Waikato and Bay of Plenty.

Table 13 Trends in sheep and beef farm numbers, 1990-1994

Type of farm	Waikato Region	BOP Region	Ruapehu District	Central Nth Is	New Zealand
Sheep					
(all categories)					
1990	1,436	431	493	2,360	21,785
1994	784	137	388	1,309	14,942
Change	-652	-294	-105	-1,051	-6,843
% change	**-45.4**	**-68.2**	**-21.3**	**-44.5**	**-31.4**
Beef					
(all categories)					
1990	2,189	698	116	3,003	11,694
1994	2,525	891	212	3,628	12,490
Change	336	193	96	625	796
% change	**+15.3**	**+27.7**	**+82.8**	**+20.8**	**+6.8**

Data source: Statistics derived from the MAF Datalab by James Newell and tabulated by Joanne Goodwin.

The numbers employed in sheep, beef and "mixed/other livestock" farming in the Central North Island in 1996 are summarised in Table 14. Full and part-time workforces are shown by category and settlement type in 1996, along with the percentage changes in each category/type between 1986 and 1996

Table 14 Changes in employment in sheep, beef and mixed/other livestock farming by category of work and settlement type, Central North Island, 1986 and 1996

Category/ Type	Number of farms 1996			Percentage change 1986-1996[a]		
	Sheep	Beef	Mixed	Sheep	Beef	Mixed
a) Workforce category						
Full-time						
Male	963	1,158	2,883	-77.5	-23.6	+27.9
Female	261	426	942	-74.7	-3.4	+17.6
Total	**1,224**	**1,584**	**3,825**	**-76.9**	**-19.0**	**+25.2**
Part-time						
Male	186	267	447	+8.8	+147.2	+231.1
Female	243	450	834	-53.5	+89.9	+127.9
Total	**429**	**717**	**1,281**	**-38.1**	**+107.8**	**+155.7**
All workers						
Male	1,149	1,425	3,330	-74.2	-12.2	+39.5
Female	504	876	1,776	-67.6	+29.2	+52.2
Total	**1,653**	**2,301**	**5,106**	**-72.4**	**0.0**	**+43.6**
b) Settlement type						
Major cities	102	114	195	-19.0	+5.6	+7.1
Other towns	126	180	432	-50.6	+7.1	+10.8
Nucleated settlements	51	153	291	-67.9	+6.3	+49.2
Densely settled rural	438	897	1,626	-70.3	-6.3	+4.2
Sparsely settled rural	936	957	2,562	-76.6	+3.5	+113.5
Total	**1,653**	**2,301**	**5,106**	**-72.4**	**0.0**	**+43.6**

[a] Percentage change between 1986 and 1996 in numbers in full or part-time employment. For space reasons, only the 1996 employment figures are given to indicate sizes of the respective workforces at the last census.

Data source: Tabulations derived from *Supermap 3* by James Newell, and processed by Bridget McLaughlin.

It is difficult to establish the workforces for the same categories of farms listed above as "predominantly sheep" or "predominantly beef" in the employment data that we have available -- hence the inclusion of the "mixed/other livestock" category in the employment table.

The employment data show that there has been a very significant drop in numbers employed on sheep farms in the Central North Island, especially in the full-time workforce (Table 14). Numbers employed on beef farms remained static, although the mix of full and part-time workers changed quite markedly, especially for males. Indeed an increase in female employment on beef farms, especially part-time workers, offset an overall decline by 12 percent in the male workforce. In the "mixed/other livestock" category there were increases over the decade in both male and female full-time as well as part-time employment (Table 14). By 1996 numbers employed in this category of farming were quite a bit greater than the combined workforces on sheep and beef farms.

The distributions of sheep, beef and "mixed/other livestock" farm workforces across the settlement hierarchy used in this study are shown in the second part of Table 14. Not surprisingly, given the nature of the farming categories, the largest numbers were resident in the sparsely settled rural areas. These were also the areas which experienced the largest percentage decline in sheep farming workers (-76.6 percent) as well as the largest increase in workers on mixed/other livestock farms (+113.5 percent) between 1986 and 1996. Again, there has been some substitution of workforces here; a substitution which suggests that the decline in sheep farming has not been accompanied by a complete loss of jobs in livestock farming in the Central North Island.

Orchards and other fruit farming

The decade 1986 to 1996 saw some significant fluctuations in farm units where 50 percent of more of the total income comes from producing fruits of various kinds (vegetable and flower growing are not included here). The Central North Island is particularly well-known for its kiwifruit orchards, especially in the Bay of Plenty (Table 15). Growth in the kiwifruit industry was slowing during the late 1980s before prices collapsed and the industry went into significant recession.

In the year ended March 1996, only 1,700 kiwifruit orchards were recorded in the agricultural statistics -- a decline by 39 percent on the number of farms in 1990. Between 1990 and 1994 kiwifruit farming in the Central North Island effectively determined the national trend, given that 69 percent of the country's orchards were in the region (65 percent in the Bay of Plenty alone). However,

there was a smaller percentage decline in number of kiwifruit farms in the region (18 percent) than in the country as a whole (28 percent) (Table 15).

Other farms specialising in fruit growing (citrus, pip and stone fruit orchards; berry fruit; grapes and other fruits) showed quite marked increases in numbers over the decade in New Zealand. In 1986 there were around 1,400 orchards (citrus, pip and stone fruit) and 1,400 berry fruit, grape and other fruit farms. By 1996 the orchards numbered more than 2,500 and the berry and other fruit farms had risen to around 2,000. Again it is important to keep in mind the differences, outlined earlier, in classifications of farms in 1986 and 1996.

Table 15 Trends in numbers of farms growing fruits, 1990-1994

Type of farm	Waikato Region	BOP Region	Ruapehu District	Central Nth Is	New Zealand
Kiwifruit					
1990	125	1,813	0	1,938	2,801
1994	118	1,476	1	1,595	2,026
Change	-7	-337	+1	-343	-775
% change	**-5.6**	**-18.6**	**--**	**-17.7**	**-27.7**
Other orchards[a]					
1990	114	151	1	266	2,058
1994	135	233	2	370	2,529
Change	+21	+82	+1	+104	+471
% change	**+18.4**	**+54.3**	**--**	**+39.1**	**+22.9**
Other fruit[b]					
1990	116	218	0	334	1,347
1994	142	318	0	460	1,731
Change	+26	+100	0	+126	+384
% change	**+22.4**	**+45.9**	**0**	**+37.7**	**+28.5**

Data source: Statistics derived from the MAF Datalab by James Newell and tabulated by Joanne Goodwin.

The Central North Island has followed the national trend between 1990 and 1994 in terms of growth in this farming sector (Table 15). However, it is important to note that this part of New Zealand contributed much smaller shares of the national totals in 1990 for farms classified in Table 15 as "other orchards" (13 percent) and "other fruits" (25 percent) than it did for kiwifruit orchards (69 percent). That said, in the Waikato region the numbers of "other orchards" and

"other fruit" farms exceeded the number of kiwifruit farms in 1994, and the percentage increases in both of these types of farm were much higher in the Bay of Plenty between 1990 and 1994 than for the nation as a whole (Table 15). Fruit farming is increasing in popularity in many parts of the Central North Island.

Table 16 Employment in horticulture and orchards by category of work and settlement type, Central North Island, 1986 and 1996

Category/type	1986	1996	% change
a) Workforce category			
Full-time			
Male	4,287	3,429	-20.0
Female	2,316	1,896	-18.1
Total	**6,603**	**5,325**	**-19.4**
Part-time			
Male	330	723	+119.1
Female	1,416	1,347	-4.9
Total	**1,746**	**2,070**	**+18.6**
All workers			
Male	4,617	4,152	-10.1
Female	3,732	3,243	-13.1
Total	**8,349**	**7,395**	**-11.4**
b) Settlement type			
Major cities	1,197	939	-21.6
Other towns	1,407	1,200	-14.7
Nucleated settlements	1,539	1,200	-22.0
Densely settled rural	3,462	3,024	-12.7
Sparsely settled rural	744	1,032	+38.7
Total	**8,349**	**7,395**	**-11.4**

Data source: Tabulations derived from *Supermap 3* by James Newell, and processed by Bridget McLaughlin.

In terms of employment, there has been a decline in the number of workers in the "horticulture and orchard" cluster of rural industries in the Central North Island between 1986 and 1996 (Table 16). The overall decline (11 percent) is relatively small by comparison with that recorded for the sheep farming industry (72 percent) (Table 21), notwithstanding the difficulties experienced by kiwifruit farmers during the 1990s.

Female part-time employment is a significant element of this workforce, especially during the picking and packing seasons, and this also declined during the decade. Male part-time employment increased significantly, but not enough to offset the decline in full-time work on orchards and fruit farms. However, it does appear from the figures in Table 16 there is some substitution of male for female workers taking place as the employment situation has deteriorated, especially in the part-time workforce.

It is also interesting to note from Table 16 that the biggest percentage declines in the workforce on these farms were amongst people resident in the urban settlements in the Central North Island. The sparsely settled rural areas, on the other hand, experienced some growth in their orchard/fruit farm workforces, a reflection of the diffusion of this type of farming through the Waikato and Bay of Plenty regions.

Forestry

There are two dimensions to the forestry economy: the large-scale commercial plantations that are being milled by major New Zealand and overseas companies, and the much smaller-scale farm forestry holdings. The Central North Island has some very extensive tracts of land devoted to exotic forests (Figure 6). The number of farms classified as "forestry" in the agricultural statistics is, however, comparatively small -- 461 (2.5 percent) out of a total of 18,245 farms (excluding idle and unused blocks) in 1994 (Table 17). Although the number of farms with forestry is small, it is growing quite rapidly, both in the Central North Island as well as nationally. Between 1990 and 1994, for example, numbers of farms in this category increased by over 50 percent (Table 17). While half of them (230) were 100 ha or less, the larger units have been increasing in number more rapidly in recent years.

Statistics relating to employment in forestry (including logging) in the 1986 and 1996 censuses refer, for the most part, to people working in the commercial forestry industry. There have been some significant changes in the ownership of the forests and the organisation of production forestry during the decade (see, for example, Le Heron and Pawson, 1996), and the number in the forestry workforce (full and part-time) fell by 25 percent between 1986 and 1996 (Table 18). Forestry is one of the major employers of labour in rural industries in this part of the country, and the 5,235 full and part-time employees in 1986 were not far behind the total number employed in sheep farming (6,000). Forestry and logging accounted for 11 percent of the region's 47,200 jobs in rural industries in 1986; by 1996 numbers had fallen to 3,897, or 10 percent of the 39,000 rural industry jobs.

In this heavily male-dominated part of the rural economy it is perhaps not surprising that 86 percent of the total forestry/logging workforce in 1996 was male (Table 18). Both male and female full-time employment declined during the decade, just as both male and female part-time employment increased.

Table 17 Trends in numbers and sizes of farms with plantation forestry, 1990-1994

Type of farm	Waikato Region	BOP Region	Ruapehu District	Central Nth Is	New Zealand
Under 100 ha					
1990	75	79	4	158	1,049
1994	123	95	12	230	1,550
Change	+48	+16	+8	+72	+501
% change	**+64.0**	**+20.3**	**+200.0**	**+45.7**	**+47.8**
100 ha and over					
1990	66	68	6	140	696
1994	123	95	13	231	1,132
Change	+57	+27	+7	+91	+436
% change	**+86.4**	**+34.2**	**+116.7**	**+65.0**	**+62.6**
All farms					
1990	141	147	10	298	1,745
1994	246	190	25	461	2,682
Change	+105	+43	+15	+163	+937
% change	**+74.5**	**+29.3**	**+150.0**	**+54.7**	**+53.7**

Data source: Statistics derived from the MAF Datalab by James Newell and tabulated by Joanne Goodwin.

Overall, opportunities to employ men decreased much more rapidly than was the case with women -- the male workforce declined by 28 percent by comparison with a 3 percent decline in the female workforce (Table 18). Although forest maintenance and logging are very much industries of the "sparsely settled rural areas", the great majority of the workforce in this industry live in urban places. In 1986 4,140 (79 percent) of the 5,235 employed in forestry and logging in the Central North Island were living in the three categories of urban settlement shown in Table 18. A similar proportion of the 3,897 workers in 1996 was in these settlements, although the small communities of between 500 and 3,000 inhabitants had experienced a decline by almost 60 percent in the number of forestry workers since 1986 (Table 18).

For some parts of the Central North Island, particularly small "forestry towns" such as Murupara, restructuring of the forestry industry during the 1980s and 1990s has had a profound impact on employment opportunities.

Table 18 Employment in forestry and logging by category of work and settlement type, Central North Island, 1986 and 1996

Category/type	1986	1996	% change
a) Workforce category			
Full-time			
Male	4,494	3,093	-31.2
Female	402	321	-20.1
Total	**4,896**	**3,414**	**-30.3**
Part-time			
Male	201	279	+38.8
Female	138	204	+47.8
Total	**339**	**483**	**+42.3**
All workers			
Male	4,695	3,372	-28.2
Female	540	525	-2.8
Total	**5,235**	**3,897**	**-25.6**
b) Settlement type			
Major cities	1,002	924	-7.8
Other towns	2,091	1,716	-17.9
Nucleated settlements	1,047	426	-59.3
Densely settled rural	318	330	+3.8
Sparsely settled rural	777	501	-35.5
Total	**5,235**	**3,897**	**-25.6**

Data source: Tabulations derived from *Supermap 3* by James Newell, and processed by Bridget McLaughlin.

A DIVERSE EMPLOYMENT SCENE

The diversity in trends in employment in the major rural industries between 1986 and 1996 is matched by the marked variations between TLA in the shares of workers in the different industries. Again, regional averages mean little; a much more fine-grained spatial analysis is needed if one is to examine effectively the effects of restructuring during the 1980s and 1990s on the rural workforce of the Central North Island. Table 19 summarises the distribution of full and part-time employees across the major rural industry groups used in this analysis. In the case of dairying, it can be seen that shares employed in this industry range from 69 percent in Hauraki District to 3 percent in Kawerau District. In the case of sheep and beef farming, the shares range from 60 percent in Waitomo District to 5 percent in Matamata-Piako District (Table 19).

Table 19 Full and part-time employment in Central North Island TLAs, 1996

TLA	No. in rural Industry	Percentage of rural industry total					
		Dairy	Sheep/ Beef[a]	Other livest.	Hort/ Orchards	Forestry/ logging	Other[b]
Franklin[c]	1,890	27.3	25.6	14.1	27.1	0.5	5.4
Thames-Coromandel	1,140	29.2	18.4	6.1	15.3	10.3	20.7
Hauraki	1,806	69.3	9.0	4.9	9.5	1.8	5.5
Waikato	3,978	49.2	20.5	8.8	14.1	1.2	6.2
Matamata-Piako	4,224	74.6	4.8	6.2	8.6	0.2	5.6
Hamilton	1,191	20.9	14.4	9.6	32.2	3.3	19.6
Waipa	3,717	53.4	12.6	9.6	15.7	1.1	7.6
Otorohanga	1,869	60.4	21.5	6.3	5.1	0.8	5.9
South Waikato	2,211	50.9	5.4	3.4	5.2	30.4	4.7
Waitomo	1,317	12.5	59.7	11.2	5.9	2.1	8.6
Taupo	1,854	15.7	22.8	8.3	6.6	38.2	8.4
Western BOP	4,578	17.4	8.4	6.6	55.6	2.9	9.1
Tauranga	1,317	8.0	6.2	5.0	48.3	9.6	22.9
Rotorua	2,871	32.6	10.1	7.5	6.2	37.5	6.1
Whakatane	2,367	44.2	7.7	6.2	15.5	19.9	6.5
Kawerau	201	3.0	6.0	6.0	13.4	67.2	4.4
Opotiki	807	33.5	11.9	5.2	28.6	7.8	13.0
Ruapehu	1,650	5.1	54.7	7.5	11.3	8.9	12.5

[a] Sheep farming, beef farming, sheep and beef farming

[b] Hunting, fishing, trapping, agricultural

[c] Only that part of Franklin District within Waikato Region

Data source: Tabulations derived from *Supermap 3* by James Newell, and processed by Bridget McLaughlin.

Horticulture and orchard workforces comprise more than 55 percent of the Western Bay of Plenty District's rural industrial employees, with the smallest District shares in this category being found in Otorohanga and Waitomo (5 percent each). The forestry industry employs more than two-thirds of Kawerau District's rural industrial workforce, and more than 30 percent of the rural workforces in Taupo, Rotorua and South Waikato Districts (Table 19). Yet, this industry employs less than one percent of the workforces of Matamata-Piako, Franklin and Otorohanga Districts. Employment opportunities in the Central North Island thus vary markedly from one TLA to another, depending in large measure on the structure of the local economy. Another indicator of this diversity is given in Table 20 where total (full and part-time) employment by status (including the unemployed) in 1996 is summarised.

With regard to overall levels of unemployment in 1996 (the percentage of people stating they were unemployed and seeking work in the total workforce which includes full and part-time workers as well as the unemployed), it can be noted that the Central North Island in aggregate had a higher level of unemployment (8.7 percent) than was the case for New Zealand as a whole (7.7 percent). However, some of the most "rural" parts of the region had lower levels of unemployment than the national average (Table 20). Matamata-Piako, Waipa, Otorohanga, and Waitomo Districts all had total unemployment levels for the population aged 15 years and over below the national average, while the major urban areas (Hamilton, Tauranga and Rotorua) exceeded this average.

There are parts of the region with very high levels of rural unemployment, especially Kawerau, Opotiki, Whakatane and South Waikato Districts (Table 20). Yet it is clear that there is considerable variability, rather than uniformity, in the disadvantaged position relative to New Zealand as a whole for overall levels of unemployment.

Considerable variability is also evident in the shares of the labour force that are found in the major employment status categories: paid employees, employers, self-employed (no employees), and unpaid family help) (Table 20). For the region as a whole, there was a lower share of wage and salary earners (paid employees, 64 percent) compared with the national average (69 percent) in 1996, and this was off-set by higher shares of employers, self-employed and unpaid family workers. Not surprisingly, many of the most "rural" Districts (Hauraki, Waikato, Matamata-Piako, Waipa, Otorohanga, and Waitomo) have higher than average shares of employers, self-employed and unpaid family help. These are common employment status categories for people living on farms. By contrast, and equally unsurprising, the major urban areas in the region have higher than

average shares of paid employees, with Hamilton having almost three quarters of its labour force in this category (Table 20).

Table 20 Status in employment (including unemployed) in the full and part-time labour force in Central North Island TLAs, 1996

TLA	Total[a]	Percentage of total					
		Paid employee	Em-ployer	Self-emp.	Unpaid family help	Unemp.	Not stated
Franklin[b]	24,048	62.9	8.8	14.0	5.7	5.3	3.3
Thames-Coromandel	10,392	55.6	10.7	17.0	5.1	7.9	3.7
Hauraki	7,719	55.1	9.9	18.0	5.2	9.1	2.7
Waikato	18,204	56.2	9.6	15.3	6.2	8.8	3.9
Matamata-Piako	14,811	57.8	11.6	17.8	4.7	4.9	3.1
Hamilton	55,026	73.6	5.4	7.1	1.7	9.5	2.8
Waipa	19,110	62.5	9.8	15.1	4.6	5.4	2.6
Otorohanga	4,761	49.7	12.1	19.0	7.5	6.0	5.8
South Waikato	11,169	63.8	8.4	9.5	3.5	12.3	2.5
Waitomo	4,641	58.7	8.0	14.7	8.1	7.4	2.9
Taupo	14,586	64.3	8.7	10.7	3.6	8.5	4.2
Western BOP	16,530	51.3	10.5	19.1	8.1	7.6	2.9
Tauranga	35,373	66.2	8.4	10.8	2.3	9.5	2.8
Rotorua	31,020	67.2	7.3	9.4	2.7	9.6	3.7
Whakatane	14,478	61.0	8.0	10.4	4.4	12.3	3.9
Kawerau	3,153	70.6	2.7	3.6	1.5	17.5	4.1
Opotiki	3,468	49.4	8.8	11.9	8.7	16.3	5.0
Ruapehu	7,929	66.2	6.4	9.9	6.0	8.2	3.3
Central North Is	**296,418**	**63.7**	**8.3**	**12.0**	**4.1**	**8.7**	**3.3**
New Zealand	1,767,324	68.6	6.9	10.5	3.1	7.7	3.2

[a] Population aged 15 years and over employed full-time and part-time, including those unemployed and seeking work

[b] Total Franklin District

Data source: Statistics New Zealand (1997c, 201-202)

It has already been shown that there have been significant shifts between 1986 and 1996 in the shares of the region's labour force that are in full-time and in part-time employment. We conclude the paper with a closer examination of these changes indicating changes in levels of unemployment.

Towards disadvantage and social exclusion?

In 1996 the Central North Island was home to 16.7 percent of New Zealand's population aged 15-64 years, the major labour force age group (Table 21). This age group had increased by 10.8 percent in the region between 1986 and 1996, compared with an increase of 11.2 percent for the country as a whole. Just over half of this population (52.3 percent) was in full-time employment in New Zealand in 1996, with a slightly lower proportion (51.0 percent) of the region's population aged 15-64 years in this category (Table 21). The region's share of the full-time workforce (16.4 percent) was lower than its share of the 15-64 year old population (16.7 percent), but the difference is essentially off-set by a slightly higher share in the part-time workforce (15.4 percent for the region compared with 15.1 percent for the country as a whole).

Table 21 The labour forces in the Central North Island and New Zealand, 1996: some summary statistics

Labour force group (15-64 years)	Central North Is	New Zealand	Percentage in Central Nth Is.
Population aged 15-64 yrs	396,724	2,363,556	16.7
% increase 1986-96	10.8	11.2	
Full-time workforce	202,161	1,236,636	16.4
% population 15-64 yrs	51.0	52.3	
Part-time workforce	61,266	357,180	17.2
% population 15-64 yrs	15.4	15.1	
Full and part-time	263,427	1,593,816	16.5
% population 15-64 yrs	66.4	67.4	
Unemployed and seeking work	25,632	136,506	18.8
% population 15-64 yrs	6.4	5.8	
Total labour force	289,059	1,730,322	16.7
% population 15-64 yrs	72.9	73.2	

Data source: Tabulations from *Supermap 3* prepared by James Lindop and Statistics New Zealand (1998b).

In terms of participation of the population aged 15-64 years in the full and part-time workforces, the region's share (66.4 percent) is one percent below the nation's share (67.4 per cent). The Central North Island's full and part-time workforce aged 15-64 comprised 16.5 percent of the nation's total -- only 0.2 percent less than its share of the population in this age group (Table 21). When the final component of the labour force is considered -- the unemployed -- the biggest percentage difference between the region (6.4) and the nation (5.8) emerges. The Central North Island has 18.8 percent of the nation's unemployed in the age group 15-64 years -- 2 percent above its share of the population in this age group (16.7 percent) (Table 21). When the numbers of unemployed are added to the full and part-time workforces to obtain the total labour force, the region's share (16.7 percent) equates with its share of the population aged 15-64 years. There is a very small difference between the percentage of 15-64 year olds in the Central North Island in the labour force (72.9) and in percentage for the national population (73.2 percent).

These aggregate statistics indicate that there are small differences between the region and the nation of some simple indices of participation in the labour force in 1996, but the differences are not really suggestive of significant disparities. Much more significant variations can be found within the region. Table 22 summarises the shares of the population aged 15-64 years in each of the TLAs in 1996 that were in the full-time, part-time, and unemployed components of the labour force. Shares in the full-time workforce range from a low of 35.7 percent (Opotiki) to 57.7 percent (Matamata-Piako), indicating considerable spread around the regional average of 51 percent.

In the case of shares of 15-64 year olds in the part-time workforce, the spread is within a narrower range around the regional average of 15.5 percent -- from a low of 11.7 percent in Kawerau to a high of 16.5 percent in Taupo District (Table 22). The spread in shares of people aged 15-64 years who are unemployed is also considerable -- from a high of 11.5 percent in Kawerau to a low of 3.9 percent in Matamata-Piako around a regional average of 6.5 percent.

Table 22 Shares of population aged 15-64 years in the three major labour force categories, Central North Island TLAs, 1996

TLA	Population 15-64 years	Percentage of population, 15-64 years Full-time work	Part-time work	Unemployed
Franklin[a]	30,734	57.0	14.7	4.1
Thames-Coromandel	15,019	45.2	16.3	5.4
Hauraki	10,528	48.5	16.1	6.6
Waikato	24,781	49.6	15.3	6.4
Matamata-Piako	18,362	57.7	16.2	3.9
Hamilton	73,661	51.0	15.6	7.0
Waipa	24,420	55.9	16.0	4.2
Otorohanga	6,215	52.8	16.0	4.6
South Waikato	15,602	47.5	14.1	8.8
Waitomo	6,074	52.1	15.7	5.6
Taupo	19,456	50.2	16.5	6.4
Western BOP	21,816	51.0	16.2	5.7
Tauranga	47,676	49.8	15.8	7.0
Rotorua	41,022	52.0	14.9	7.2
Whakatane	20,465	45.2	15.1	8.7
Kawerau	4,772	42.0	11.7	11.5
Opotiki	5,562	35.7	14.3	10.1
Ruapehu	10,577	53.1	13.4	6.2
Central North Is	**396,742**	**51.0**	**15.4**	**6.5**

[a] Total Franklin District

Data source: Tabulations from *Supermap 3* produced by James Lindop

The figures for the total labour force age group hide significant differences between males and females. These are summarised for the full-time, part-time and unemployed components of the labour force in Table 23. The percentages refer to shares of the populations of males and females aged 15-64 years in each of the components. The widely recognised higher shares of women in the part-time workforce are clearly apparent in the table with some of the more "rural" Districts (Matamata-Piako, Otorohanga, Waipa and Waitomo) having greater percentages than the regional average of 22.3 percent (Table 23). However, other "rural" Districts, such as Opotiki, Ruapehu, South Waikato and Whakatane have lower than average shares of women in part-time work, indicating that there is no simple pattern to the figures.

Table 23 Shares of males and females aged 15-64 years in the three major labour force categories, Central North Island TLAs, 1996

TLA	Percentage of population, 15-64 years					
	Full-time work		Part-time work		Unemployed	
	Males	Females	Males	Females	Males	Females
Franklin[a]	73.1	40.7	6.9	22.7	3.7	4.5
Thames-Coromandel	58.2	32.5	9.6	22.7	6.1	4.8
Hauraki	64.9	32.7	9.1	22.9	6.8	6.6
Waikato	63.5	35.5	8.5	22.2	6.5	6.4
Matamata-Piako	74.5	40.3	7.7	25.1	3.7	4.1
Hamilton	63.2	39.6	9.4	21.3	7.2	6.9
Waipa	71.1	41.0	8.2	23.7	4.2	4.4
Otorohanga	64.9	37.3	8.4	25.4	4.4	4.8
South Waikato	65.0	29.5	7.3	21.0	7.8	9.9
Waitomo	67.0	36.4	8.1	23.5	5.7	5.6
Taupo	64.8	35.1	8.8	24.7	6.2	6.5
Western BOP	66.0	36.1	8.5	23.8	6.0	5.5
Tauranga	65.7	35.1	8.4	22.7	7.0	7.0
Rotorua	66.0	38.6	8.1	21.3	7.3	7.2
Whakatane	58.3	32.3	8.8	21.4	9.4	8.0
Kawerau	59.7	25.1	5.3	18.1	10.9	12.2
Opotiki	44.3	27.1	9.7	18.9	12.4	7.7
Ruapehu	67.6	36.3	7.4	20.3	5.7	6.7
Central North Is	**65.4**	**36.7**	**8.4**	**22.3**	**6.5**	**6.5**

[a] Total Franklin District

Data source: Tabulations from *Supermap 3* produced by James Lindop

In the case of full-time work amongst males aged 15-64 years, Matamata-Piako has the highest share (74.5 percent), well above the regional average of 65.4 percent and the Hamilton City share of 63.2 percent. Opotiki District, on the other hand, has a very low share of male full-time employment (44.3 percent) and this area, plus its neighbours Whakatane and Kawerau, are well below the regional average. Not surprisingly, these are also the three TLA in the Central North Island with the highest shares of males aged 15-64 stating they were unemployed and seeking work (Table 23). In the case of female unemployment, South Waikato stands out as something of an anomaly with just under 10 percent of women aged 15-64 years stating they were seeking work, well above the

regional average (6.5 percent), and only exceeded by Kawerau (12.2 percent) within the region.

Changes in components of the labour force, 1986-1996

It was noted earlier that between 1986 and 1996 the labour force age group in the Central North Island increased by 10.8 percent (Table 21). In numerical terms, this equates to an extra 36,381 people aged between 15 and 64 years. During the decade the labour force (including the unemployed) grew by 10 percent or 26,289. There was thus little difference between growth in the age group and growth in the labour force in the age group. However, there were major differences in the changes found in the three major components of the labour force (Table 24). The full-time workforce declined by 6,444 (-3.1 percent) while the part-time workforce grew by 26,661 (+77 percent). The increase in numbers unemployed almost matched the decrease in the full-time workforce (6,072), representing a 31 percent increase over the number unemployed in 1986 (Table 24).

There are major differences between males and females in the patterns of change in their labour force components between 1986 and 1996. The male labour force grew by only 2,184 (or 1.4 percent) compared with growth by over 24,000 (22.6 percent) in the female labour force. In 1996 there were over 12,000 fewer full-time male workers, and growth in the part-time male workforce (9,915) failed to off-set this decline. The number of unemployed males aged 15-64 years grew by just under 53 percent (4,386) over the number in 1986 (Table 24).

In the case of females, all three components grew between 1986 and 1996, but the increase in unemployment (1,734 or 15.5 percent) was much less significant than for males. The numerical increase in part-time workers (16,746) was almost 60 percent above the number found in 1986, and almost three times the numerical increase in the full-time female labour force (5,694) (Table 24). Although the increase in the male part-time labour force was numerically much smaller than that for females (9,915 compared with 16,746), it was proportionately a much more significant increase (just under 150 percent) on the comparable component of the male labour force in 1986.

Table 24 Changes in the major components of the labour force aged 15-64 years in the Central North Island, 1986 to 1996

Component of labour force	Change 1986 to 1996 Number	Percentage
Full-time workforce		
Males	-12,117	-8.6
Females	5,673	8.4
Total	**-6,444**	**-3.1**
Part-time workforce		
Males	9,915	149.7
Females	16,746	59.9
Total	**26,661**	**77.0**
Unemployed		
Males	4,386	52.5
Females	1,686	15.5
Total	**6,072**	**31.0**
Total labour force		
Males	2,184	1.4
Females	24,105	22.6
Total	**26,289**	**10.0**

Data source: Tabulations from *Supermap 3* by James Lindop

There is enormous variability in the statistics on change over the decade in the major components of the labour force for the TLA within the Central North Island. This is not the place for a detailed analysis, but a few points can be highlighted with reference to the total labour force aged 15-64 years. The first thing to note is that the growth by 10 percent in the region's labour force is an average of widely divergent figures ranging from 30 percent increases in Franklin and Thames-Coromandel to 20 percent declines in numbers in South Waikato and Kawerau (Table 25). There is only one TLA close to 10 percent and that is Taupo (11.8 percent).

This variability has been generated in the main by significant differences between TLA in the growth (or decline) of the full-time workforce. The regional average of -3.1 percent does not come close to the percentage change for any particular TLA. The percentages range from just under a 20 percent increase for

Franklin to decreases in the full-time labour force by almost 33 percent in South Waikato and Kawerau (Table 25). The Western Bay of Plenty, Tauranga and Thames-Coromandel also had increases of over 12 percent in their full-time workforces while also having the greatest proportional increases in their part-time workforces.

Table 25 Changes in the major components of the labour force aged 15-64 years in Central North Island TLAs, 1986 to 1996

TLA	Percentage change 1986 to 1996			
	Full-time workforce	Part-time workforce	Unemployed	Labour force
Franklin[a]	19.8	99.2	31.8	30.5
Thames-Coromandel	12.6	113.9	39.5	29.6
Hauraki	-12.8	90.9	28.7	2.9
Waikato	-9.5	66.7	22.9	3.1
Matamata-Piako	-9.0	60.6	-7.5	0.1
Hamilton	0.1	86.4	37.2	14.3
Waipa	4.1	79.4	12.8	14.7
Otorohanga	-7.6	73.8	-5.0	3.1
South Waikato	-32.9	44.1	12.0	-20.4
Waitomo	-17.5	45.9	-0.9	-7.8
Taupo	-0.9	81.4	13.7	11.8
Western BOP	12.8	106.3	54.9	28.4
Tauranga	12.8	100.6	61.6	28.8
Rotorua	-8.9	54.8	41.6	3.3
Whakatane	-12.8	66.3	26.4	1.8
Kawerau	-32.3	14.8	30.7	-19.6
Opotiki	-18.6	74.3	40.3	1.5
Ruapehu	-26.8	32.0	16.0	-17.4
Central North Is	**-3.1**	**77.0**	**31.0**	**10.0**

[a] Total Franklin District

Data source: Tabulations from *Supermap 3* produced by James Lindop

Finally, with regard to unemployment, only 7 of the 18 TLA had increases between 1986 and 1996 which were above the regional average of 31 percent, and these were either the major urban areas (Hamilton, Tauranga, Rotorua) and the peri-urban areas of Franklin and Western Bay of Plenty. The only mainly

"rural" TLA to experience a higher percentage increase in unemployment than the regional average were Opotiki (40.3 percent) and Thames-Coromandel (39.5 percent), with Kawerau (30.7 percent) coming in just below the region's 31 percent (Table 25). Three regions actually experienced a decline in the numbers unemployed between 1986 and 1996 – Matamata-Piako, Otorohanga and Waitomo -- but in all cases their overall labour force growth was well below the regional average. Indeed, Waitomo's labour force fell by almost 8 percent during the decade (Table 25).

Explaining change

Several demographic and economic factors account for this intra-regional variability in employment change. Differences in the ethnic and age composition of TLA populations, different mixes of industries and land uses in the rural and urban TLA, and some highly locality-specific factors such as restructuring of a particular industry or service, have all influenced trends. Since 1996 the impact of decisions taken outside the region on location-specific changes in employment patterns has continued. Small towns throughout the region continue to be impacted severely by restructuring of industries. Examples of closures which had significant employment impacts during 1998 and 1999 include: Toyota's car assembly plant in Thames, a major meat processing plant in Taumarunui, Anchor Products' milk powder factory in Morrinsville and the Bendon underwear factory in Te Aroha. As Eugene Bingham (1999, A11) asked in his article on the "depressing reality" of further restructuring in the textile industry: "Is the trend leading us upwards or downwards?" It must be noted, however, that there has been some recent investment in the region, such as the new dairy factory at Litchfield, which helps to balance this downward economic trend.

At the level of the locality, clear examples of disadvantage and growing social exclusion manifested in high levels of unemployment and welfare dependency, poor accommodation, low levels of educational achievement and rising crime can be found in the Central North Island. In the Waikato region a significant up-turn in economic activity has been slow in coming, according to Warren Hughes (1999a, 2). He notes:

> Within the Waikato region, some districts that rely on agriculture have experienced very tough times in recent years. Low commodity prices, the Asian crisis and a high NZ dollar have meant low returns for businesses in these districts. … Much of the manufacturing and service sectors are closely related to farming as well. This lack of diversification makes such districts vulnerable economically. In good times, they can be very

> profitable but may lack the opportunities to diversity much beyond agriculture. The trend to large processing plants (often located elsewhere) means these districts will need to exercise creative strategies to generate new employment opportunities within their districts.

However, it is not appropriate to cast the region as a whole in a mould of disadvantage. It contains some of the most dynamic areas in the country in terms of economic growth potential. As Hughes (1999a, 2) observed with regard to the western Bay of Plenty:

> The attractiveness of this region for retirees is now being augmented by optimism in the forestry, wood products, kiwifruit and horticulture sectors. In addition, significant growth in cargoes through the Port of Tauranga mean increased business for the transport and storage sectors in this region. A healthy growth rate of 9% is projected for the Tauranga and Western Bay zone, significantly higher than the 3% rate projected for NZ as a whole.

Casualisation of work

The very different patterns of growth for the full and part-time workforces identified in Tables 23 and 24 reflect national and international trends towards casualisation of work within advanced industrial economies. Another dimension of this shift can be found in the significant increase in unpaid family work amongst men in the full and part-time workforces in the Central North Island (Table 26).

It is difficult to establish whether this reflects a discouraged worker effect, and a tendency for people who have been looking for work unsuccessfully to state they are “unpaid workers” rather than “unemployed and seeking work”. Some of the highest percentage increases in unpaid family work between 1986 and 1996 are in the same TLA that have higher than average levels of unemployment in 1996 (e.g. Opotiki and Hamilton).

For males there have been absolute declines in numbers of wage and salary earners, employers and self-employed in the full-time workforce, and increases in all of these amongst part-time workers between 1986 and 1996 (Table 26). In the case of females, there were increases in all of the status of employment categories in both the full and part-time workforces in the Central North Island between 1986 and 1996. However, the percentage increases in the full and part-time wage and salary earner category for women were smaller than those for the

other employment status categories. The self-employed and unpaid family work categories for part-time female workers had greater percentage increases than the employer and wage/salary categories (Table 26). This is indicative of an on-going shift towards self-employment in the labour force.

Table 26 Changes in status of employment of the labour force aged 15-64 years in the Central North Island, 1986 to 1996

Status of employment	Change 1986 to 1996			
	Number		Percentage	
	Full-time	Part-time	Full-time	Part-time
Wage & salary earner				
Male	-15,858	5,940	-15.4	127.9
Female	1,146	10,227	2.1	46.0
Total	**-14,712**	**16,167**	**-9.3**	**60.1**
Self-employed				
Male	-363	1,050	-1.8	79.4
Female	744	1,719	12.4	63.0
Total	**381**	**2,769**	**1.4**	**68.4**
Employer				
Male	-510	297	-3.2	77.3
Female	777	762	17.5	50.2
Total	**267**	**1,059**	**1.3**	**55.7**
Unpaid family work				
Male	1,578	1,587	267.0	801.5
Female	822	2,622	51.1	184.8
Total	**2,400**	**4,209**	**109.1**	**260.3**

Data source: Tabulations from *Supermap 3* by James Lindop

The progressive shift from full to part-time work in the different status of employment categories is summarised in Table 27. The dominance of full-time wage and salary employment for both males and females is clearly evident, even though there has been a shift of just under 10 percent into other categories between 1986 and 1996. It is important to recognise the continued heavy dominance of this form of employment throughout the Central North Island, notwithstanding the percentage increases in full and part-time unpaid work noted above.

Table 27 Distribution of the full and part-time components of the labour force aged 15-64 years in the Central North Island by status of employment, 1986 to 1996

Status of employment	Percentage of population, 15-64 years Males 1986	Males 1996	Females 1986	Females 1996
Full-time				
Wage & salary	70.0	60.2	57.7	47.8
Self-employed	13.8	13.8	6.2	5.7
Employer	10.8	10.7	4.6	4.4
Unpaid family work	0.4	1.5	1.7	2.1
Not stated	0.5	2.5	0.5	2.2
Total Full-time	**95.5**	**88.6**	**70.8**	**62.2**
Part-time				
Wage & salary	3.2	7.3	23.2	27.5
Self-employed	0.9	1.6	2.8	3.8
Employer	0.3	0.5	1.6	1.9
Unpaid family work	0.1	1.2	1.5	3.4
Not stated	0.0	0.7	0.1	1.3
Total Part-time	**4.5**	**11.4**	**29.2**	**37.8**
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**

Data source: Tabulations from *Supermap 3* by James Lindop

Reference to another aspect of casualisation of work, the rising incidence of voluntarism, has been made in a number of studies of restructuring in New Zealand (see, for example, Le Heron and Pawson, 1996; Liepins, 1998; Sceats *et al*. 1999). In their report on Zone 2 for Local Government New Zealand, Sceats *et al.* (1999, 44) noted that the data on voluntary work across recent censuses is not consistent and cannot be compared directly from one census to another because the results have been published in different formats. They show, using data from 1986, 1991 and 1996 censuses that the percentages of adults stating they were involved in voluntary work were consistently higher for Zone 2 at all three censuses, and especially for Zone 2 "rural" areas, than for New Zealand as a whole. They go on to note that:

> As the age structure in Zone 2 is generally younger [than that for New Zealand as a whole], it is unlikely that this slightly higher

> level of participation [in voluntary work] is due to increased numbers of retired people. Given the increase in unemployment and the growing casualisation of work, especially in rural communities, noted elsewhere in this report, the growth of involvement in the voluntary sector may be seen as a response to social and economic changes, particularly in the period 1991-1996. (Sceats *et al.*, 1996, 44).

We did not carry out additional analysis of the census information on voluntary work. However, the interviews conducted with residents in different parts of the Central North Island contained frequent reference to the growth in voluntarism especially in communities which have lost essential services as a result of restructuring (Lidgard *et al.*, 2000; Joseph *et al.*, 2001).

A concluding comment

This *Discussion Paper* has highlighted considerable demographic and economic diversity within the Central North Island. This is a complex region in terms of its population composition, its mix of rural and urban places and industries, and its linkages to other parts of New Zealand's society and economy. The consistently poorer "performance" which Sceats *et al.* (1999) found in a wide range of indices of social and economic change in this part of New Zealand is, as they note, "very sobering". The fact that such a large number of indices point systematically in one direction is certainly "disturbing" (Sceats *et al.*, 1999, i).

The region has a significantly higher share of Maori than is found in the national population, and in 8 of the 18 TLAs in the Central North Island, Maori population growth was significantly higher than the national and regional averages. The Maori population in this region, as elsewhere in New Zealand, is essentially an "urban" population; only 20 percent live in areas classed as "densely" or "sparsely" settled rural areas.

In terms of age structure, the Central North Island has higher aggregate levels of dependency than New Zealand as a whole. Only 7 of the 18 TLAs have aged dependency ratios in excess of the national average. The region's youthful dependency is much more widespread -- 14 of the 18 TLAs have youth dependency ratios in excess of the national average. There is no shortage of potential workers in this region, if jobs can be found.

Only 15 percent of all full and part-time workers in the region in 1996 were employed in agriculture, forestry, hunting, fishing and agricultural services -- rural industries. Even though this is one of New Zealand's "agricultural

heartlands", employment as with settlement is essentially urban-based. Just over 30 percent of those employed in rural industries were living in urban places in 1996.

Employment in rural industries declined by 17 percent between 1986 and 1996 while there was a nine percent growth in the region's total full and part-time workforce. In common with the national trend, there was rapid growth in the region's part-time workforce, especially amongst women. The part-time workforce in rural industries, however, grew at only half the rate of the region's total workforce in this category, and did little to offset a very significant decline in the full-time rural industry workforce.

At the level of the locality, clear examples of disadvantage and growing social exclusion manifested in high levels of unemployment and welfare dependency, poor accommodation, low levels of education achievement and rising crime can be found in the Central North Island. Yet, as we show elsewhere, where we draw directly on the voices of residents in three of the more "disadvantaged" parts of the region (South Waikato, Whakatane and Ruapehu Districts), it is not all "bad news". The creative strategies that Hughes (1999a) sees as being essential for generating new employment opportunities are being developed to cope with a very different world in the Central North Island from that which existed 15 years ago. The aggregate statistics may not look all that promising yet. Hughes (1999b, 35) notes, for example, that whereas the unemployment rate in New Zealand declined between June 1998 and June 1999 from 7.6 to 7.0 percent; the rate in the Waikato region rose from 7.8 to 8.1 percent. But these aggregate statistics disguise some remarkable success stories, even in areas as disadvantaged and plagued by social exclusion as Opotiki (Opotiki District Council, 1999).

In the context of this significant diversity of responses to changes since the mid 1980s, it is appropriate to conclude with a quotation from a paper by Ann Pomeroy (1998a, 116) presented at a workshop on dimensions of identity held by the Population Studies Centre and the Department of History at the University of Waikato:

> Rural New Zealand contains one-quarter of New Zealand's population. It has an equal share of the country's social problems but few of the resources needed to deal with them are actually located in rural areas. Government restructuring had major impacts which occurred on top of generally unrecognised long-term economic and social trends (Pomeroy, 1998b). The cost of accessing services which urban people take for granted is already highly problematic for some rural people, but this relocation is likely to continue. Rural

New Zealand is in a transitional stage. Communication technology is not yet sufficiently sophisticated to compensate for service relocation, local market niches are just beginning to be developed, and rural people are still learning how to adjust to the post-seventies impacts of change on their communities. Despite this most rural communities are growing in size, are dynamic and have accepted the challenge to build community capacity through working co-operatively with a common vision.

REFERENCES

Bedford, R.D. and Goodwin, J.E. 1997*:* Migration and Urban Population Change: A Preliminary Analysis of the 1996 Census Data. *Population Studies Centre Briefing Paper No. 6,* Population Conference 12-14 November 1997. University of Waikato, Hamilton.

Bedford, R.D., Joseph, A.E. and Lidgard, J.M., 1999. *Rural Central North Island: Studies of Agriculture-Community Linkages,* A report prepared for MAF as part of the: "Evaluation of the Impact of Agricultural Change on New Zealand's Rural Economies and Societies, 1986-1998, Phase2", Department of Geography, University of Waikato, Hamilton.

Bingham, E. 1999. "High fashion dream, depressing reality", *New Zealand Herald,* Friday 22 October, A11.

Chalmers, A.I. and Joseph, A.E., 1997. Population dynamics and settlement systems: A case study of Waikato, *New Zealand Geographer,* 53, 14-21.

Crampton, P., Salmond, C., Kirkpatrick, R., Scarborough, R. and Skelly, C., 2000. *Degrees of Deprivation: An Atlas of Socio-economic Difference* Bateman, Auckland.

Department of Internal Affairs 1999: *Ethnic Diversity in New Zealand: A Statistical Profile* Ethnic Affairs Series, Department of Internal Affairs, Wellington.

Elliott, M., Peace, R., Barnes, J. (eds), 1999. *Hard Times: Poverty in New Zealand 1990-1999: An annotated bibliography,* University of Waikato, Hamilton.

Environment Waikato, 1999. *State of the Environment* Environment Waikato, Hamilton.

Gould, J.D., 2000. Counting Maori, *New Zealand Population Review*, 26(2), 1-19.

Hughes, W. 1999a. "Commentary", *Regional Economic Bulletin,* September 1999, Department of Economics, University of Waikato, Hamilton, 2.

Hughes, W. 1999b. "Regional indicators and outlook", *Regional Economic Bulletin,* September 1999, Department of Economics, University of Waikato, Hamilton, 33-35.

Joseph, A.E., 1999. Toward an Understanding of the interrelated dynamics of change in agriculture and rural communities, *Population Studies Centre Discussion Paper No. 32,* University of Waikato, Hamilton.

Joseph, A.E., Lidgard, J.M. and Bedford, R.D., (in press). Dealing with ambiguity: On the interdependence of change in agriculture and rural communities. *New Zealand Geographer,* 57(1).

Joseph, A. E. and Chalmers, A.I., 1995. Growing old in place: a view from rural New Zealand, *Health and Place*, 1(2) 79-90.

Kelsey, J. 1997. *The New Zealand Experiment: A World Model for Structural Adjustment*? 2nd edition, Auckland University Press, Auckland.

Kirkpatrick, R. 1999. *Bateman Contemporary Atlas New Zealand. The Shapes of Our Nation,* David Bateman, Auckland.

Lidgard, J.M., Bedford, R.D. and Joseph, A.E., 2000. "Agriculture-Community Linkages: Diversity and Change in the Central North Island". Final report for the Ministry of Agriculture and Forestry, Wellington.

Liepins, R. 1998. *Roxburgh and the Teviot Valley: A Case Study of Agriculture – Community Linkages.* Department of Geography, University of Otago, Dunedin.

Ministry of Pacific Island Affairs 1999: *The Social and Economic Status of Pacific Peoples in New Zealand.* Pacific Vision Status Report Series, Wellington.

Opotiki District Council 1999. *Profile of the Opotiki District, 1999* Opotiki District Council.

Pomeroy, A. 1997. *Impacts of recent economic reforms on rural communities,* Paper presented to the New Zealand Agricultural and Resource Economics Society conference, Blenheim, July, 1997.

Pomeroy, A., 1998a. Rural and farming populations, in Ball, D. and Pool, I. (eds), *The Building Blocks of National Identity: Population in New Zealand's History*, Population Studies Centre and the Department of History, University of Waikato, 101-118.

Pomeroy, A. 1998b. "Impact of recent economic reforms on rural communities", *Public Sector Journal* 21(1), 23-28.

Pomeroy, A. 1999. Policy for regional community development, Keynote paper to *Third Sustainable Economic Growth for Regional Australia Conference,* Maroochy Shire, 15-17 September, 14pp.

Roche, M. and Pomeroy, A. (eds), 1996. *New Zealand Geographer,* 52(2), Special Issue of contributions by the IAG/NZGS Rural Study Group, 1-2.

Sceats, J., Pool, I., and Brown, P. 1999: *Provincial/Rural Impact Study.* Report prepared by Portal Consulting and Associates Ltd for Zone 2 of Local Government New Zealand, Hamilton.

Scott, K. and Kearns, R., 2000. Coming home: Return migration by Maori to the Mangakahia Valley, Northland, *New Zealand Population Review,* 26(2), 21-44.

Statistics New Zealand, 1997a. *1996 Census of Population and Dwellings: Population and Dwelling Statistics,* Statistics New Zealand, Wellington.

Statistics New Zealand, 1997b. *1996 Census of Population and Dwellings: Maori,* Statistics New Zealand, Wellington.

Statistics New Zealand, 1997c. *1996 Census of Population and Dwellings: Regional Summary,* Statistics New Zealand, Wellington.

Statistics New Zealand, 1998a. *1996 Census of Population and Dwellings: Population Structure and Internal Migration,* Statistics New Zealand, Wellington.

Statistics New Zealand, 1998b. *1996 Census of Population and Dwellings: Employment and Unemployment,* Statistics New Zealand, Wellington.

Statistics New Zealand, 1998c. *Agriculture Statistics 1996,* Statistics New Zealand, Wellington.

Statistics New Zealand 1999. *New Zealand Now: People Born Overseas,* Statistics New Zealand, Wellington.

Te Puni Kokiri, 1998. *Progress Towards Closing Social and Economic Gaps Between Maori and Non-Maori:* A Report to the Minister of Maori Affairs, Ministry of Maori Development, Wellington.