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A GEOGRAPHICAL STUDY OF THE NEW ZEALAND TEXTILE  
MANUFACTURING INDUSTRY, WITH PARTICULAR REFERENCE  
TO THE WELLINGTON REGION

A thesis presented in partial fulfilment  
of the requirements for the degree of  
Master of Arts in Geography  
at Massey University

by  
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## ABSTRACT

This thesis is a study of the New Zealand textile manufacturing industry and its components. It investigates the nature of location patterns, the changes within the components of the industry and the changes in industrial organisation which have occurred since 1950. The location of factories engaged in manufacturing textiles is detailed, shifts in components of the industry are analysed and early location factors in the industry are discussed. It is argued that technological advances in various facets of the industry have been influential in determining the present day location of the factories in the industry. The impact of technology and its requirements within the industry are examined specifically in terms of process product and organisational adjustments. The resulting developments, particularly the form of intra- and inter-industry linkages are outlined. In addition the form of industry intra-urban linkages are explored with particular reference to the Wellington Region.

## ACKNOWLEDGEMENTS

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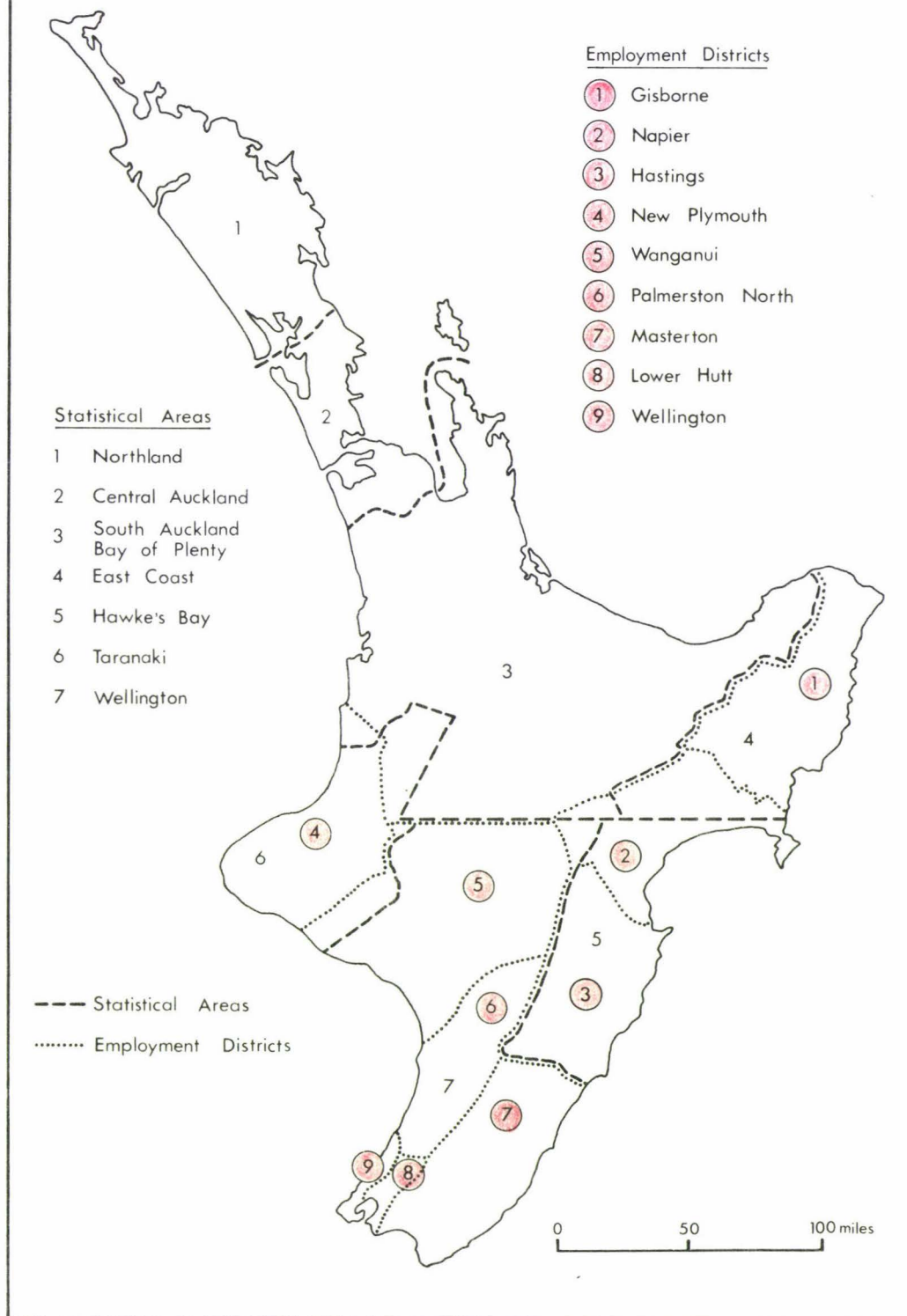
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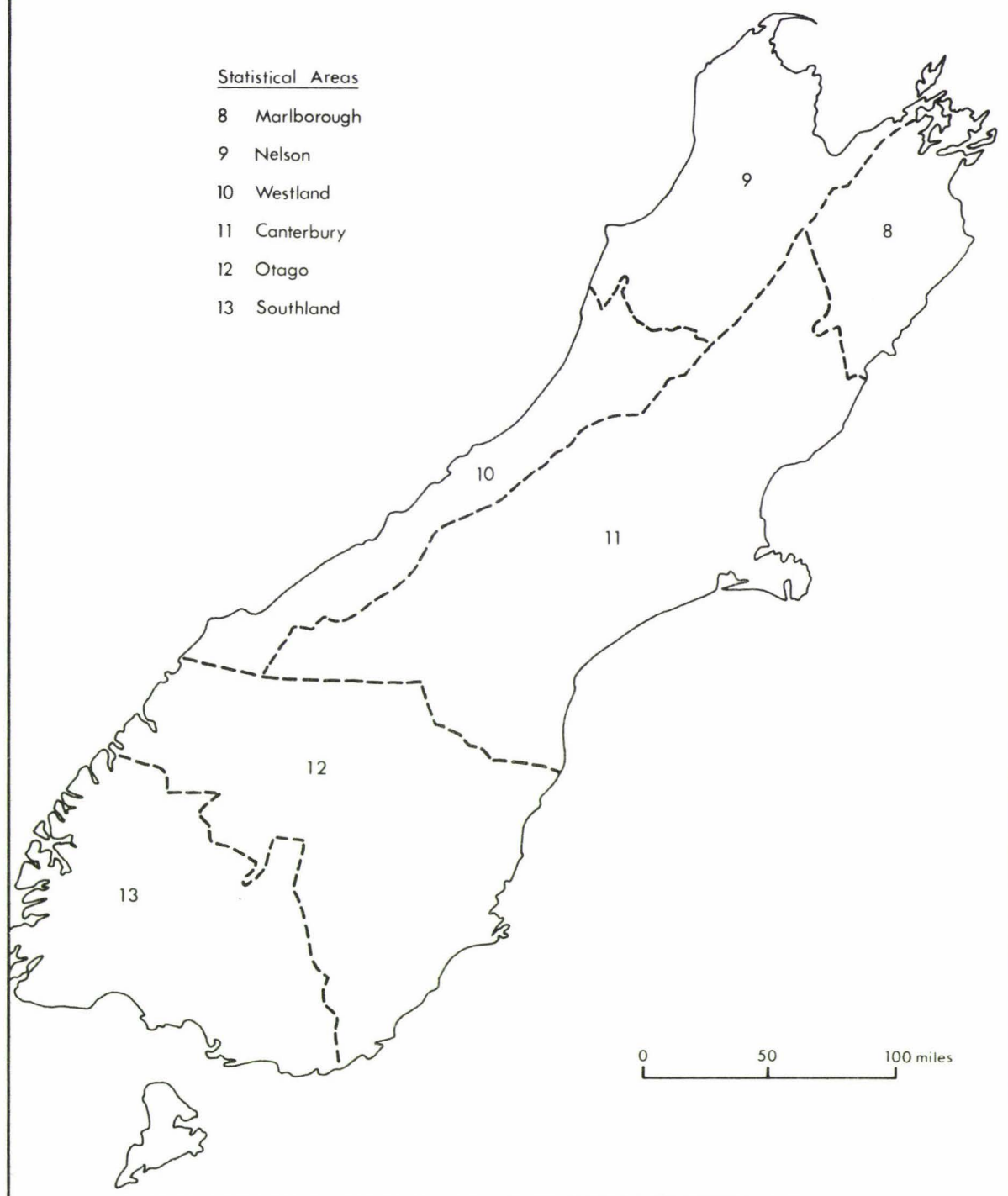
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## NORTH ISLAND STATISTICAL AREAS AND EMPLOYMENT DISTRICTS



## SOUTH ISLAND STATISTICAL AREAS



## CHAPTER ONE

### INTRODUCTION

Textile manufacturing, one of New Zealand's oldest industries (the first mill was established in Otago in 1870), is at present regarded as being in a semi-depressed state. There are a number of local and international factors which have contributed to this situation. In the Report of the Committee of Inquiry to the Minister in 1968, the Department of Trade and Industry recognised several social and economic problems associated with the industry. However, considerable changes have taken place since this report, indicating the need for more recent information and analysis. This thesis is a study of the New Zealand textile manufacturing industry, and its components. It investigates the nature of location patterns, the changes within the components of the industry, and the changes in industrial organisation which have occurred since 1950. The location of factories engaged in manufacturing textiles is detailed, shifts in components of the industry are analysed and early location factors in the industry are discussed. It is argued that technological advances in various facets of the industry have been influential in determining the present day location of the factories in the industry. The impact of technology and its requirements within the industry are examined specifically in terms of process, product and organisational adjustments. The resulting developments, particularly the form of intra- and inter-industry linkages are outlined. In addition, the form of industry intra-urban linkages is explored with particular reference to the Wellington Region.

#### Methodology

A search for both published and unpublished data revealed only limited relevant material. Overseas comparative



material was only indirectly useful, though several ideas contributed to the direction of later study. Previous unpublished New Zealand work provided useful historical background and opened up other avenues of research, as well as helping to locate some of the manufacturing units. Much of this work, however, was of historical value only.

Statistical information was sought from numerous sources and closely examined. Originally Department of Labour statistics were selected, but these were largely discarded because there was a decrease in the number of employment districts from one set of figures to the next. Also, in 1971, the Coding System was changed to comply with the Standard International Industry Classification System, leading to obvious limitations in comparisons of New Zealand industry structure before and after that date. Therefore, as an alternative source of base material, the Department of Statistics Industrial Production areas and data was found to be more appropriate (Figures 2 and 3), though even these were limited by changes in boundaries of areas and the combination of information in later years. For example, prior to 1956 the 'Auckland' area included Northland, Central Auckland, South Auckland, and Bay of Plenty. These factors made direct comparison difficult, especially in some of the fast growing sections of the industry.

Classification of the sectors of the textile industry in this study is the same as that used by the Department of Statistics. During interviews, however, one or two people raised objections to being included in what they felt were erroneous categories (eg. 'top-making' may apparently be included under Woollen Milling or Other Spinning or Weaving depending upon the end product). Similarly, one factory may make several returns depending upon the variety of end or partially completed products, thus being included in more than one category. This tends to make data on the location of plants rather arbitrary.

The year '1952/53' was selected as the base year for tables based on Department of Statistics material because prior to that date information was presented in a different form.

This would have led to further difficulties in analysis. This period also appears to mark the beginning of the major changes which have occurred since World War Two.

The most recent figures available for direct comparison are those for 1971/72, which gives a change period of nineteen years. Department of Labour figures just released for 1975 would have been valuable, but unfortunately their employment districts are not the same as those of the Department of Statistics.

No attempt was made, beyond initial identification of location, to survey the flax sections of the industry (Phormium and Linen) because although they are included within the overall textile categories, the number and importance has shown dramatic decline. There are now only six factories, only one of which is in the North Island, and in 1972 they employed only 84 people.

Over the 19 years of the study period two major trends can be noted with regard to the units in the various categories of the textile industry's classification groups. The geographical distribution of manufacturing units has changed, with a northward movement evident. Also, some textile components have shown disproportionate growth in relation to others. Calculation of Location Quotients, and shift analysis (based on Macdonald, 1972) provided useful information but did not identify the reasons for these trends. Background reading suggested some reasons but concrete evidence could only be obtained through field research. This consisted mainly of personal interviews and a mail questionnaire.

The questionnaire (Appendix 1) for both aspects of the field research (the interviews and mail survey) was very similar with only minor setting out alterations. The purpose was to establish the location of all plants (branches and subsidiaries), and then to obtain information about patterns of linkages and linkage change. The questionnaire also dealt with the impact of technology and the spread of technical information; the



degree to which modernisation of factories and companies is being achieved and the impact that competition is having within the various components; as well as the factors influencing the location of new plants, the relocation of existing plants, or the reorganisation of existing production methods at the plant level.

Because of limited time available for active field research, it was felt that a detailed case study of the Wellington region, followed by a mail questionnaire to the remainder of New Zealand, would give the best information and results. All known, and subsequently discovered factories south of Wanganui, Marton, and Woodville down to Wellington (the Wellington Region in this study) were visited personally during May, 1975. Some factories in Hawkes Bay were later visited but reliance on the mail questionnaire for the most northerly factories in Gisborne and Napier proved adequate, with follow-up where necessary. Checks on directories in the various towns and judicious questioning of local residents, competitors or building occupiers assisted in discovering possible reasons for the inability to locate some of the factories. Some factories visited were reclassified from original listings but the overall proportion in each component remained. From a possible 52 addresses, 38 completed questionnaires were received. This covered 50 different plants in the Wellington region and a number of plants outside the Wellington area which were later counted in the 'rest of New Zealand' section.

After initial checking of results, and minor alterations to the form, mentioned above, a mail questionnaire was prepared and sent to approximately 155 addresses, complete with stamped and addressed envelopes for return. After some returns had been queried, answers given, and some follow up to non-returns 35 completed forms have been obtained, covering 55 different plants. A further 34 forms were returned marked as not applicable. These included factories no longer involved in making their own textiles, but rather producing garments and



such from 'bought in' materials. Information from these returns was included as data, where applicable.

The exact number of factories sampled therefore was 105 out of 197 listed for New Zealand in 1972, excluding the flax sector of the industry. This represents a 54.6 percent sample return for New Zealand, and a 74.3 percent return of greater Wellington plants, based also on the known number of units in 1972. (Table 1)

Apart from the normal problem of non-return, a few others were noted. The questionnaire was fairly long and exhaustive, perhaps contributing to the non-return segment. Some returned it uncompleted with comments such as 'regret our staff is too busy to complete such detailed requirements'. Change of ownership and locating firms over a period of time also proved a problem. It is very difficult to ascertain whether or not an individual company occupying a building is one which has occupied that building over a given number of years. A number of the incompleted forms were returned with comments such as 'this part of our operation was discontinued five years ago'. Even more difficulty arose where a company had been subjected to a take-over. In such cases they now have a comparatively new establishment date without mentioning the fact that the previous 'establishment' in the same buildings had the same type of production. Similarly, numerous take-over bids resulted in the closure or change of a factory or factories, or production without the need to change company articles, or notification of a company dissolution. Hence, real changes of the number of factories in an area are virtually impossible to detect with absolute certainty over a period of years.

Additionally, data more than five years back appears to be either impossible to obtain, or at least suspect in accuracy of details. This is because of changes in management personnel (quite a large number have had changes within the last five years); and changes in company records. Nevertheless,

Table 1

Comparison of completed returns with number of factories listed by Department of Statistics, 1972

Industrial Group	250		251		254		260		262		263		269		Totals	
<u>Region</u>	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Northland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central Auckland	4	1	3	-	13	4	39	13	-	-	-	-	13	12	72	32
Bay of Plenty	2	2	-	-	-	-	3	1	1	-	-	-	-	-	6	3
South Auckland	1	1	-	-	-	-	1	-	-	-	-	-	-	-	2	1
East Coast	3	3	2	1	-	1	1	-	-	-	-	-	1	-	7	5
Hawkes Bay	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Taranaki	4	5	7	2	7	7	21	18	1	-	-	-	10	11	50	43
Wellington																
North Is. Totals	15	13	12	3	20	13	65	32	2	-	-	-	24	23	138	84
Nelson	-	-	-	-	-	-	1	-	2	-	-	-	-	-	3	-
Westland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Canterbury	6	5	6	4	5	3	11	1	-	-	1	-	5	2	34	15
Otago	3	1	5	2	1	1	8	2	-	-	-	-	1	-	18	6
Southland	2	-	-	-	-	-	1	-	1	-	-	-	-	-	4	-
South Is. Totals	11	6	11	6	6	4	21	3	3	-	1	-	6	2	59	21
N.Z. TOTALS	26	19	23	9	26	17	86	35	5	-	1	-	30	25	197	105

} Greater  
Wellington  
Area

Source: Columns 1 - 1972 Department of Statistics: Columns 2 - Returns completed

many firms were exceptionally obliging in compiling and supplying data.

Statistical tables based on the questionnaire data use only known plants, and where Head Office returns are not given for all plants, only one listing may be included if not otherwise indicated on the forms. Tables vary in the size of the sample as various sections of the questionnaire were not always fully completed. The tables are presented with abbreviated headings. The key to the abbreviations faces Table 2.

Many interesting results have emerged from the work, and these are elaborated in later chapters. The most significant feature is that within the last 19 years the textile manufacturing industry has undergone tremendous changes in structure, growth (spatially and in real terms), technology and response to competition and market demands.



## CHAPTER TWO

### INDUSTRY DEVELOPMENT AND LOCATION CHANGE IN THE TEXTILE MANUFACTURING INDUSTRY

---

Textile manufacturing involves many separate operations. These have been grouped by the Department of Statistics for Industrial Production purposes. This classification is followed with the use of the identical number system for each category in the system. To assist the reader, Figure 1 is a schematic flow chart of the industry from raw materials to the customer. It must be realised that because of the nature of the industry this chart can only be a generalisation. The main flow is marked with solid lines, other flows by dotted lines. 'Textile manufacturing' is considered to be that part of the diagram between the two horizontal lines and is all those operations involved in the production and processing, of fibres and yarns, up to and including fabric materials and floor coverings. It also includes the production of fully fashioned knitted apparel, but excludes the 'cut-make-trim' garment manufacturers.

#### COMPONENTS OF THE INDUSTRY

##### Scouring - 250

Most wool scours were initially built either as part of the Woollen Mill operation or at least in close proximity to their raw materials and main market. They have always depended on a good water supply and effluent disposal system. Increasingly though, independent scours have commenced operations and whilst some still have affiliation with their main market, a greater proportion now scour wool on a commission basis only, either for New Zealand customers or the export market. The advent of the Wool Marketing authority actions and freight charge increases may further accentuate the trend

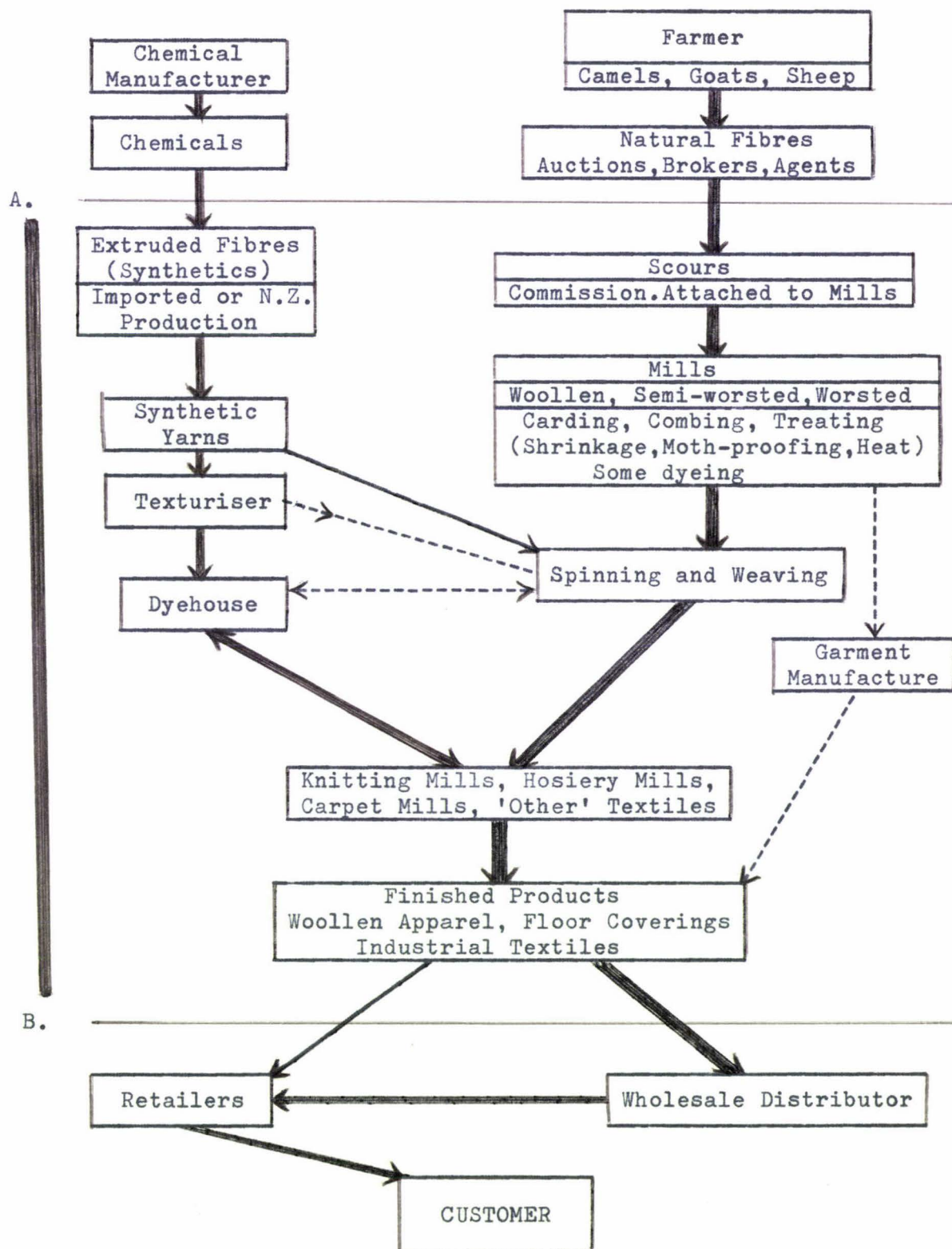


Figure 1

Schematic flow diagram of the New Zealand Textile Manufacturing Industry. (Between lines A. and B.)

Solid lines represent main flows, broken lines auxiliary flows.

for export wool to be scoured first, though consumer preference to treat their own raw materials is still strong. Port facilities are also becoming important in locating new plant.

#### Woollen Mills - 251

This component was one of New Zealand's earliest industries, and were located originally in Otago and Canterbury (Mosgiel 1871, Kaiapoi 1873) partially in response to Provincial Government Incentives. (Newsome, 1969) Earlier cottage industries were known to have existed prior to these, but they were of little lasting importance. By 1920, most existing woollen mills had been established, the bulk of them in the South Island. Notable exceptions are Holeproof, started in Auckland in 1946, Kakariki in 1947, and New Zealand Woolspinners in Dannevirke in 1975.

Although there have been tremendous changes recently in the restructuring and rationalisation of the South Island Mills (i.e. Millers, Alliance, Mosgiel) the balance of the Woollen Mills still remains heavily in favour of the South Island. However, their importance in the total organisation of the industry has not been maintained because of the dramatic expansion of 'textiles n.e.i.' (especially carpeting and industrial textiles). Nevertheless, their importance in the processing chain remains high.

The original location factors, raw materials and labour, are still very important today. Early growth of the South Island sheep population provided an incentive for locating there originally, as well as the labour availability arising from the gold rushes. To a large extent these factors still exist, but the bulk of the markets for woollen products have shifted much further north so inertia plus other factors discussed later appear to be holding these mills in the South Island.



### Other Spinning and Weaving - 254

This category of textile manufacturing has shown the greatest expansion in the period studied for a number of reasons. Prior to 1950 only 11 firms were engaged in these activities but with the advent of synthetic yarns especially nylons and elastometric fibres, together also with import restrictions, their expansion has been dramatic.

Carpets and other floor coverings were considered as luxury items for many years, but now are increasingly versatile and popular. The Riccarton Carpet Mill, established in 1946, was located in the South Island because of Government insistence, but when power supplies in the country improved, such restrictions were lifted, and most have now located in Central Auckland. Feltex now feel there may be some advantages in their Christchurch location.

### Hosiery and Other Knitting Mills - 260

Prior to 1951 the exact number of factories is not known, because some woollen mills with plants attached did not file separate returns. Nevertheless, over half the factories have been in the North Island especially Auckland, for the usual location factors of markets, labour, and materials. After World War Two the lifting of import controls apparently forced the closure of some hosiery mills, or forced alternative production, especially in men's hosiery. Recent changes however have occurred with synthetics such as pantyhose and fashion hosiery competing strongly.

### Phormium Flax and Linen Flax - 262/263

As mentioned in Chapter 1 these two categories of the industry have shown negative growth rates. Strong competition from synthetic yarns has virtually eliminated the markets for these products. There were 20 factories in 1951; now there are only six.

### Textiles not Elsewhere Included - 269

Nearly all the growth in this category, which has the second largest growth of all sectors, has occurred in Central Auckland or Wellington regions, and is almost entirely related to floor coverings (particularly 'prestwool', underfelt and tufted carpeting) and Nylon production. Comparatively, flock mills and felts have reduced in number, size and production, especially in the South Island.

### LOCATION PATTERNS

Spatial change in factories is graphically portrayed in Maps 1-4 which record the location of units at the years 1963 and 1972. Maps from earlier periods could be misleading because of boundary changes in statistical areas. The change in the total number of units is recorded by the size of the circles with 1963 as the base year. The dominance of the Central Auckland area is clear, as is the relative importance of the other centres. The change of structure within each of the graphs is an interesting feature. The preponderance of 'Hosiery and Other Knitting Mills' is evident in all centres over the time period, but the emergence of floor coverings (in group 269) is clear in Auckland and to a lesser extent 'Other Spinning and Weaving' in Otago.

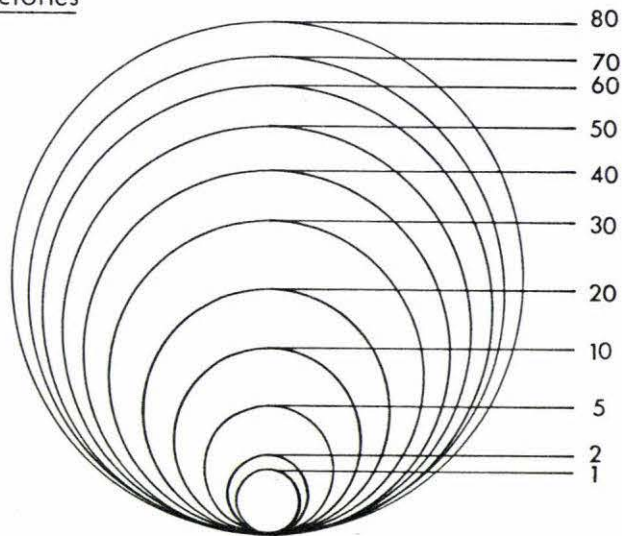
Smaller centres show greater changes within their structure, rather than in the number of units. Hence, Taranaki, East Coast and Southland show changes and decrease in relative importance, South Auckland and Hawkes Bay have become more diversified, whilst Nelson and Westland have ceased production.

Changes in location become more significant when an examination of employment is made. The significance of the textile manufacturing industry within each area can be statistically shown by using the Location Quotient formula. (The Location Quotient in this instance compares the proportion employed in textile manufacture in each area with the proportion of national employment in textile manufacture). (Table 2)




# KEY TO MAPS 1-6

## Number of Factories



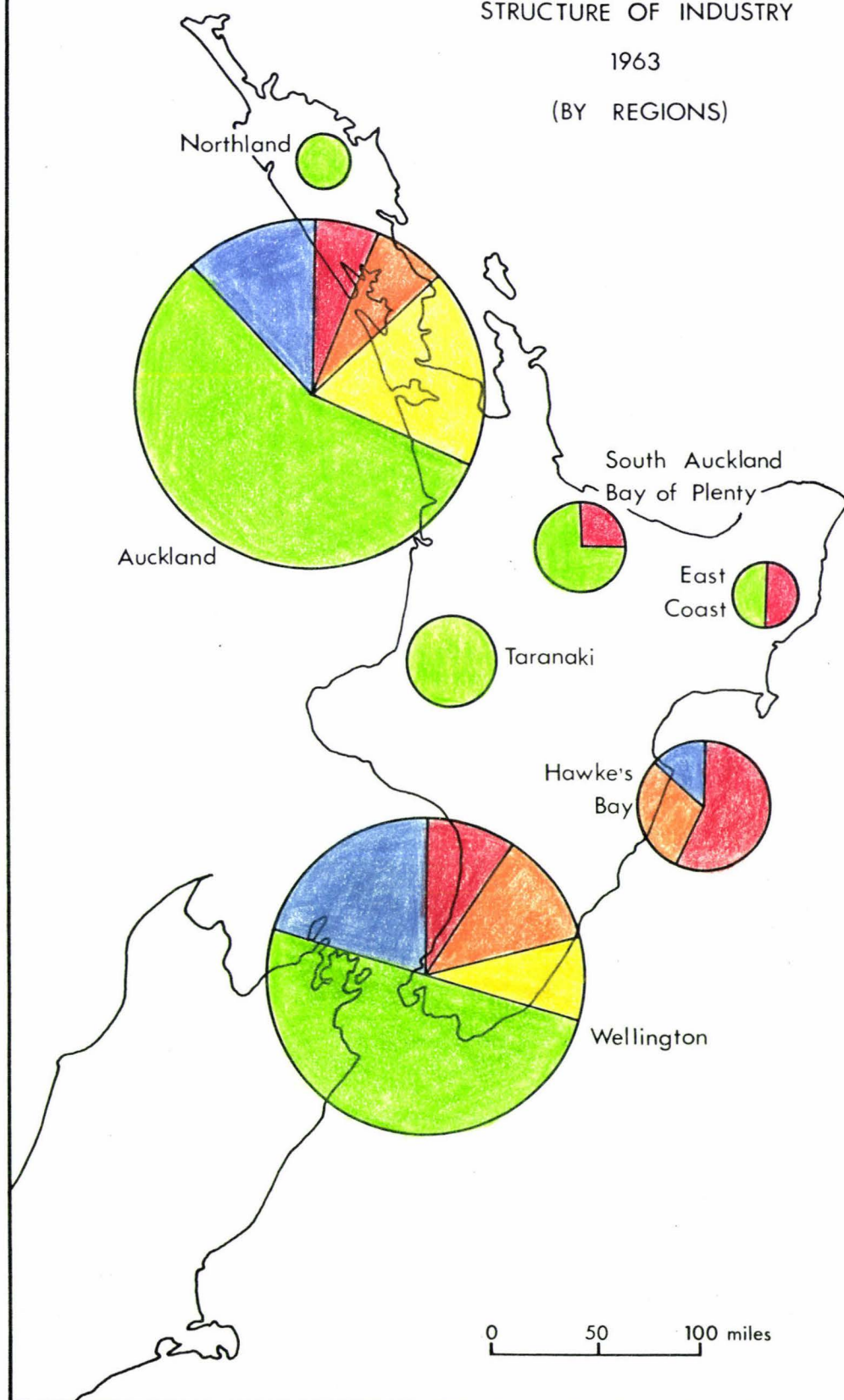
## Components of Industry

	269	Textiles N.E.I.
	263	Linen Flax
	262	Phormium Flax
	260	Hosiery and other Knitting Mills
	254	Other Spinning and Weaving
	251	Wool Milling
	250	Wool Scouring

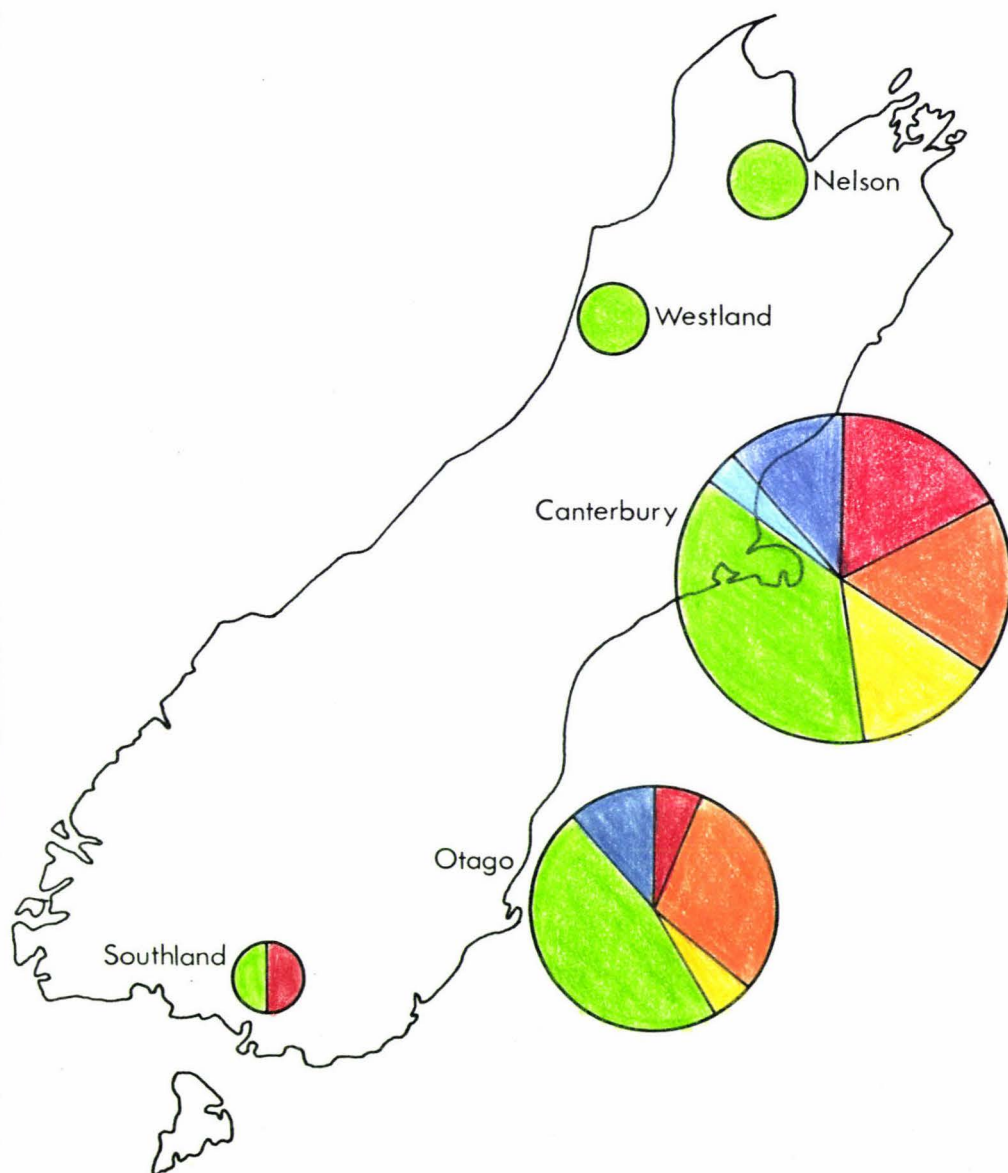
## Types of Factories

▲	269	Textiles N.E.I.
△	263	Linen Flax
□	262	Phormium Flax
○	260	Hosiery and other Knitting Mills
●	254	Other Spinning and Weaving
■	251	Wool Milling
†	250	Wool Scouring

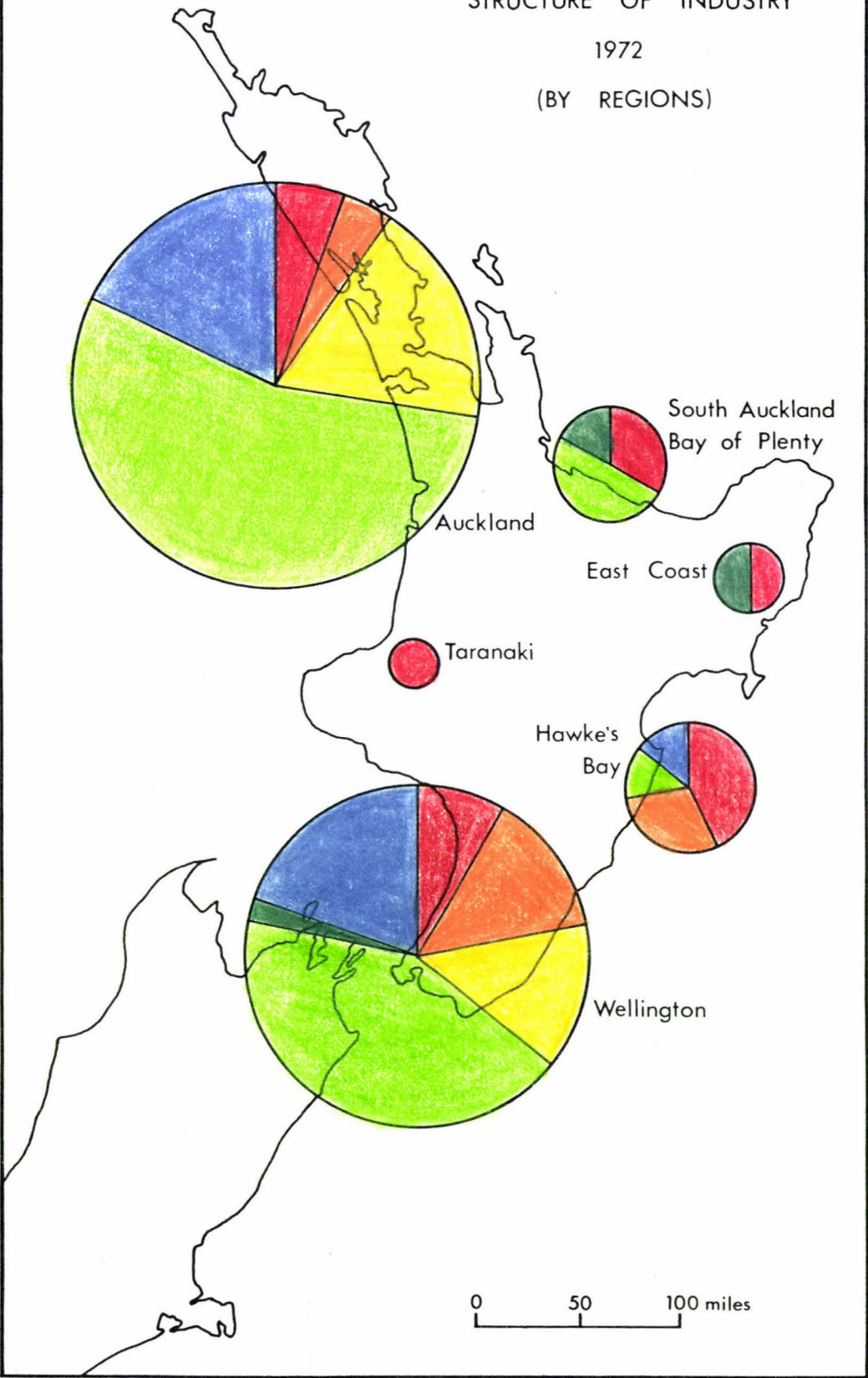
MAP 1  
NORTH ISLAND  
STRUCTURE OF INDUSTRY  
1963  
(BY REGIONS)



MAP 2  
SOUTH ISLAND  
STRUCTURE OF INDUSTRY  
1963  
(BY REGIONS)

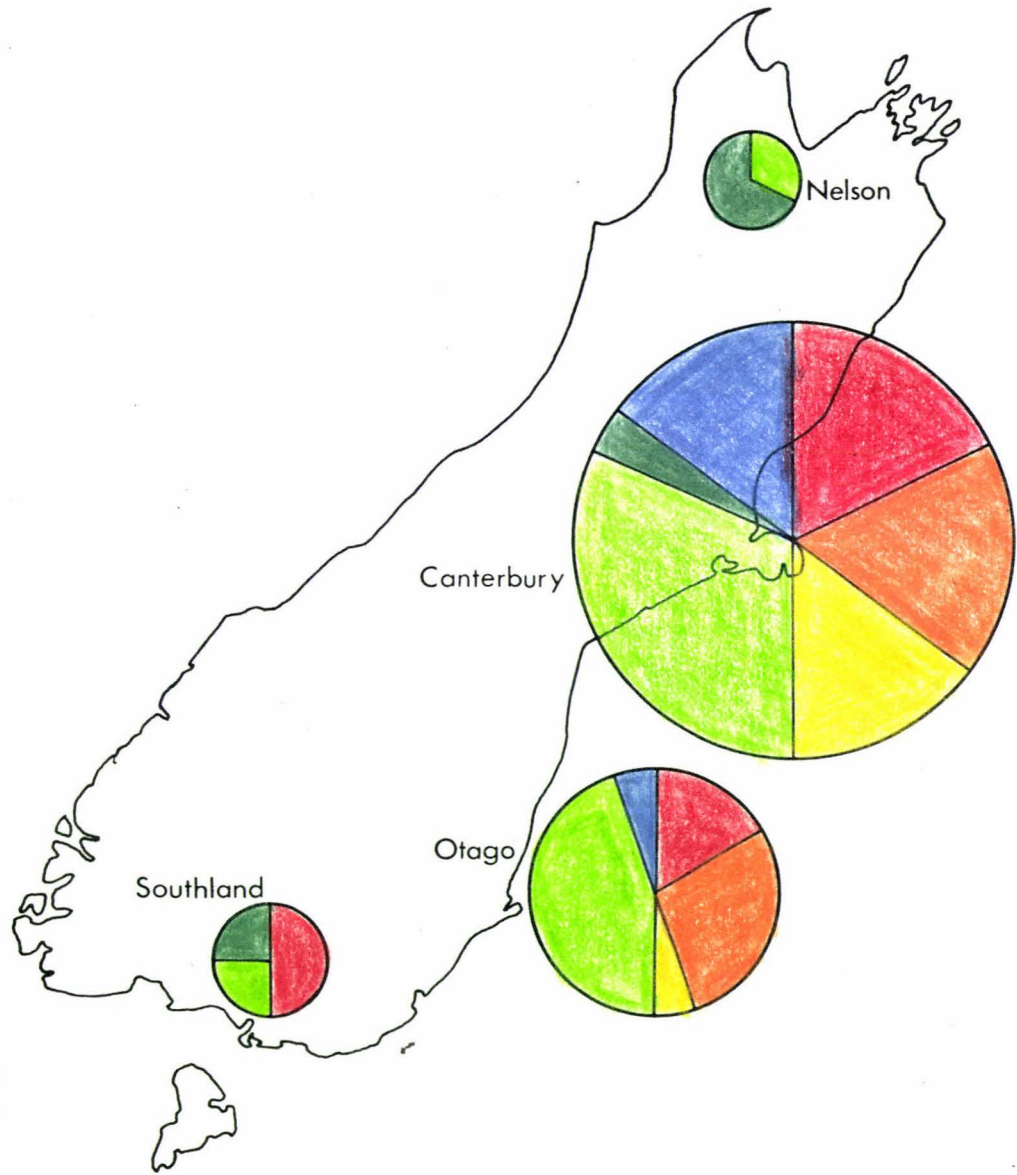


MAP 3  
NORTH ISLAND  
STRUCTURE OF INDUSTRY  
1972  
(BY REGIONS)

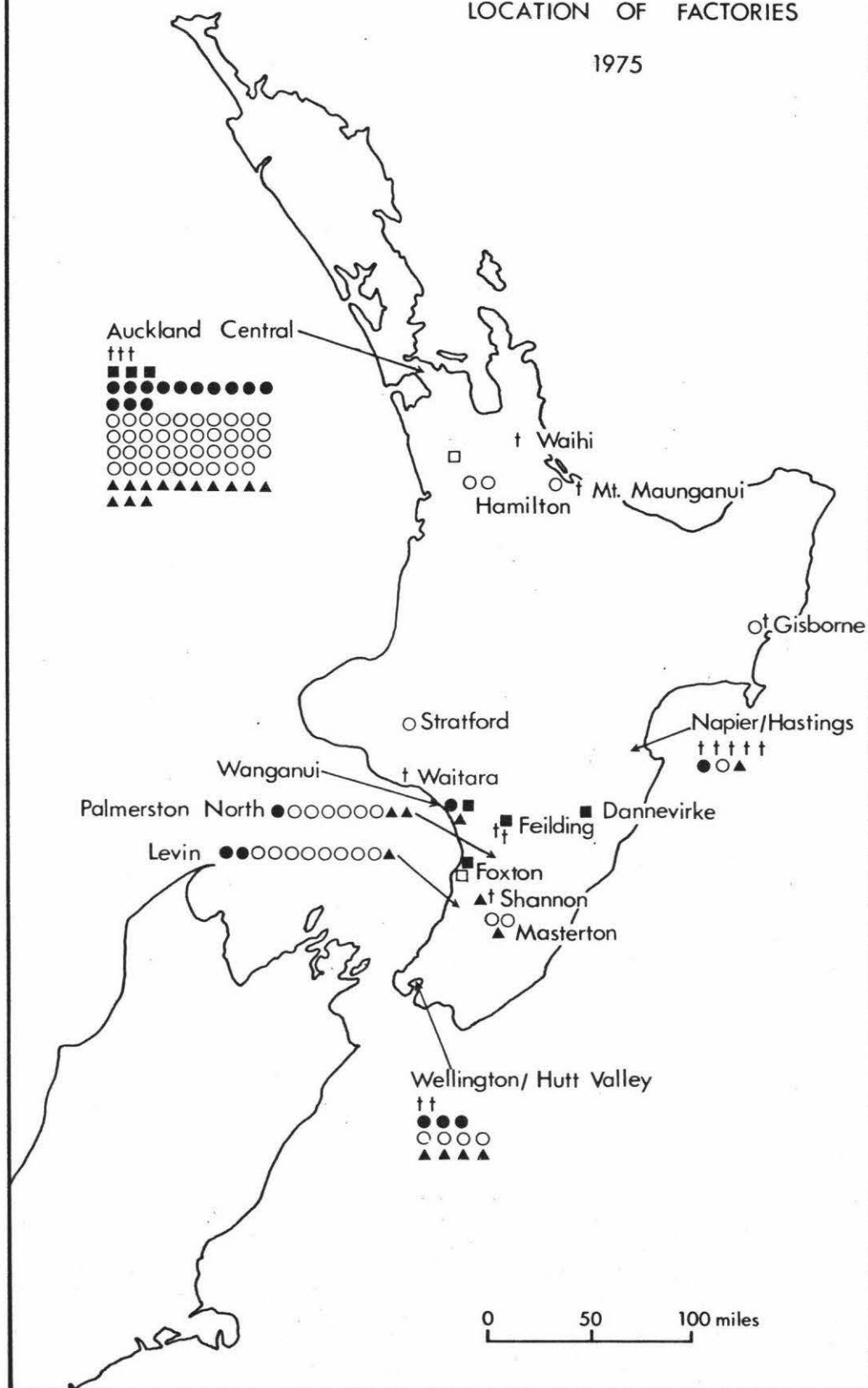




MAP 4  
SOUTH ISLAND  
STRUCTURE OF INDUSTRY  
1972  
(BY REGIONS)

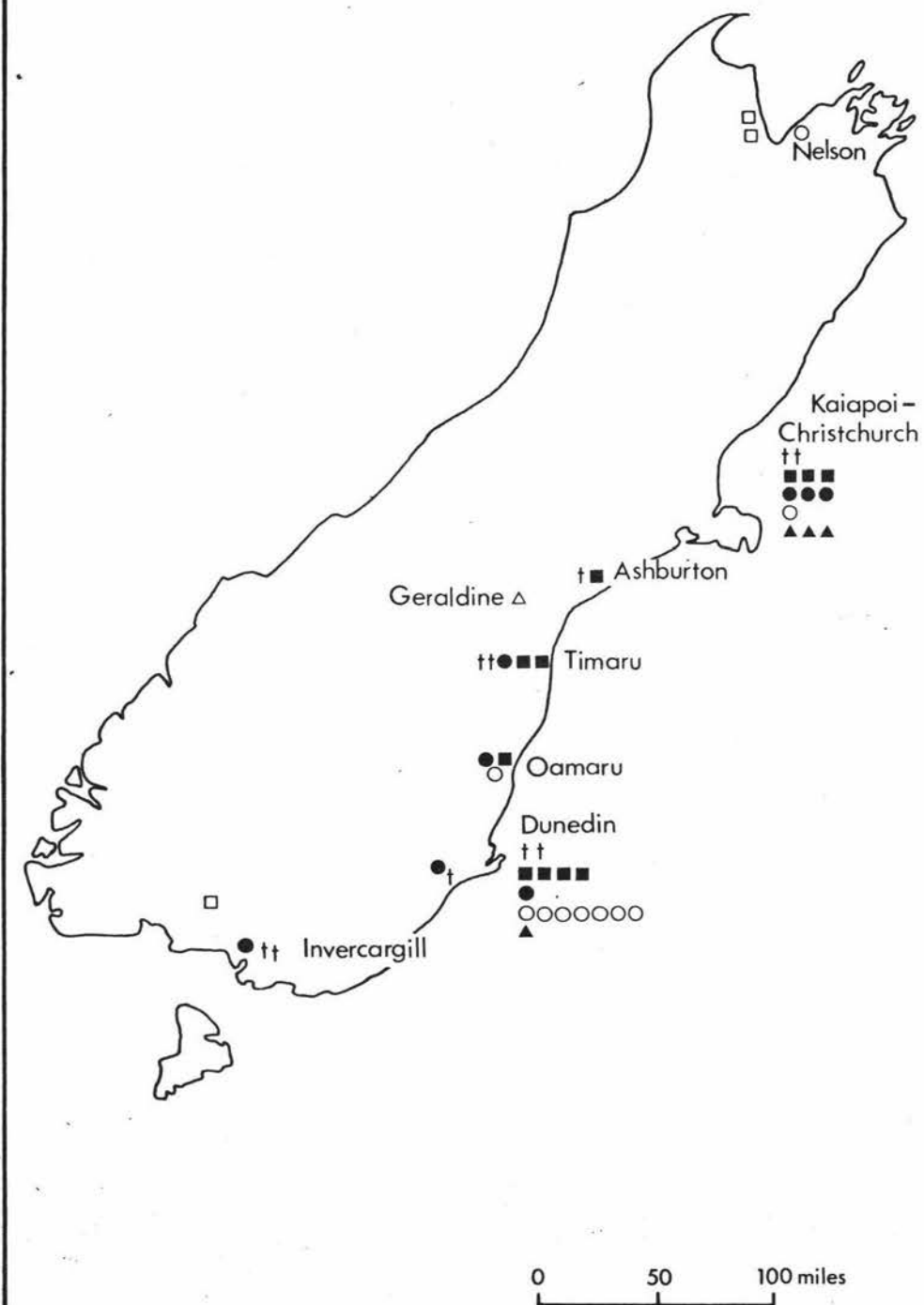


MAP 5  
NORTH ISLAND  
LOCATION OF FACTORIES  
1975



Note: 5 other Wellington Woollen Mills were not positively located.

MAP 6  
SOUTH ISLAND  
LOCATION OF FACTORIES  
1975



Note: In Canterbury 10 Hosiery or Knitting Mills, 1 Spinning or Knitting Mill and 3 Textiles N.E.I. were not positively located.

KEY OF AREAS FOR TABLES

N.	NORTHLAND
C.A	CENTRAL AUCKLAND
S.A. B.OP	SOUTH AUCKLAND, BAY OF PLENTY
E.C	EAST COAST
H.B	HAWKES BAY
T.	TARANAKI
WN.	WELLINGTON
N.I.S.T.	NORTH ISLAND SUBTOTALS
M.	MARLBOROUGH
NS.	NELSON
WTD.	WESTLAND
C.	CANTERBURY
O.	OTAGO
S.	SOUTHLAND
S.I.S.T.	SOUTH ISLAND SUBTOTALS
N.Z	NEW ZEALAND
GRPD	GROUPED
A.N.Z. TOT.	ACTUAL NEW ZEALAND TOTALS
TL. DIFF.	TOTAL DIFFERENCE
NAT.	NATIONAL

Note: Figures 2 and 3 show appropriate Department of Statistics boundaries, and Department of Labour boundaries for Wellington Region.



Table 2

Location quotients of textile manufacturing industries  
by statistical areas

	N.	C.A	S.A.B.O.P.	E.C	H.B	T.	WN.	M.	NS.	WTD.	C.	O.	S.
1952/53	-	0.53	-	-	0.46	-	1.07	0.24	0.11	0.50	1.84	2.36	0.66
1961/62	0.06	0.77	0.06	1.09	0.55	0.184	0.97	0.05	0.24	0.16	2.07	2.84	0.27
1971/72	-	1.33	0.03	0.61	0.87	0.03	1.05	-	0.09	-	1.85	2.31	0.31

Several points become obvious. Central Auckland's continued growth is readily noted. Only Hawkes Bay has a similar pattern of growth, though on a much smaller scale. This growth means that the number of employees in textile manufacturing has increased at a greater rate than the remainder of the labour force in the same area. Central Auckland, which had only a little more than half the national average of its workers in textile manufacturing in 1953 had almost a third more than the national average in 1972. Whilst Hawkes Bay's growth is accelerated, the increase still hadn't brought textile employment up to the national average level. The proportion of the population in textile manufacturing in Canterbury and Otago remains significantly higher than the national levels throughout but both areas have decreased proportionately since 1961/62, up to which time there had been an increase while most other centres had shown a decrease. The Wellington quotient showed a slight decrease up to 1961/62 followed by a return to much the same level as at 1952/53 whilst other areas continued to decrease. Northland, Marlborough and Westland had no registered textile employees in 1972.

Two questions become apparent, they are:

- 1) Was the increase in the national level at a greater or lesser rate than population growth, or labour force growth; and
- 2) From where did the increases come? These are answered by considering Tables 3A, 3B, 3C, and 3D. Table 3A indicates the generally accepted fact that the North Island population is increasing rapidly, particularly the Auckland and South Auckland areas, whereas all other regions of New Zealand have a declining percentage of the total if not even a decline in absolute terms. Table 3B shows that Hawkes Bay's percentage of the total labour force has increased, despite its population percentage remaining stable. Only Central Auckland shows a similar increase. An examination of the spread of the textile manufacturing force (Table 3C) supports and highlights the Location Quotient results, especially that of the Hawkes Bay in the latter period.

Table 3

Location SummariesChange Using Percentage Comparisons

Industrial Year	N.	C.A	S.A B.O.P	E.C	H.B	T.	WN.	N.I S.T	M.	NS.	WTD	C.	O.	S.	S.I S.T	N.Z
A. N.Z. Population % in Areas																
52/53	3.9	19.7	12.7	2.1	4.7	4.5	20.2	67.8	1.8	2.9	1.3	14.6	8.2	4.0	32.2	100.0
60/61	3.6	21.3	14.5	1.9	4.8	4.1	19.6	69.8	1.1	2.6	1.0	14.3	7.3	3.9	30.2	100.0
71/72	3.4	24.3	14.8	1.7	4.7	3.5	19.3	71.7	1.1	2.4	0.8	13.9	6.4	3.7	28.3	100.0
B. Total N.Z. Labour Force % in Areas																
52/53	—	(39.7)	—	—	3.4	3.3	22.6	69.0	0.6	1.6	0.6	16.6	8.5	3.1	31.0	100.0
60/61	1.64	(43.46) 31.11	9.72	0.99	3.61	3.27	20.18	70.52	0.63	1.52	0.61	16.43	7.21	3.08	29.48	100.0
71/72	1.7	(46.9) 34.4	9.8	1.0	4.1	2.9	19.0	73.1	0.6	1.4	0.4	15.7	5.7	3.1	26.9	100.0

Continued over ...

Table 3 Location summaries - continued

Industrial Year	N.	C.A	S.A B.O.P	E.C	H.B	T.	WN.	N.I S.T	M.	NS.	WTD	C.	O.	S.	S.I S.T	N.Z
C. N.Z. Textile Force % Area																
52/53	—	(20.8)	—	—	1.6	—	24.3	46.7	0.2	0.2	0.3	30.5	20.0	2.1	53.3	100.0
60/61	1.1	(30.57) 24.1	4.3	1.07	2.1	0.8	19.9	48.4	—	0.4	0.1	31.5	18.9	0.7	51.6	100.0
71/72	—	(33.8) 32.3	0.5	1.0	4.1	0.1	20.2	58.2	—	0.2	—	25.7	14.7	1.2	41.8	100.0
D. Textile Force as a % of N.Z. Labour Force by Areas																
52/53	—	(1.13)	—	—	0.08	—	1.32	2.53	0.01	0.01	0.02	1.65	1.09	0.11	2.89	5.42
60/61	—	(1.51) 1.42	0.03	0.06	0.12	0.05	1.17	2.85	—	0.02	—	1.87	1.12	0.04	3.05	5.90
71/72	—	(2.26) 2.16	0.03	0.07	0.27	—	1.36	3.89	—	0.01	—	1.72	0.98	0.08	2.79	6.68

Source: Calculated from Department of Statistics figures

The Location Quotient also failed to reveal several other important points, which can be shown by comparing the textile manufacturing growth with the rest of the labour force growth. (Table 3D) Throughout the period covered, textile manufacturing has absorbed a greater share of the labour force. In the first part of the period the growth was found in both islands, showing perhaps, that in the case of the South Island textile workers were less likely to shift. South Island textile workers increased as a percentage of the New Zealand labour force in contrast to both population and general labour force decline, even though the South Island's share of textile workers dropped. This increase was to be found mainly in Canterbury and Otago and to a very limited extent Nelson. Since 1960/61, the South Island proportion of the labour force has dropped below the 1952/53 figure. Southland has shown a small increase though, mainly in the wool scours. North Island growth is accounted for largely by Central Auckland which has doubled its 1952/53 proportion of the greater Auckland district. Hawkes Bay again maintained its position as an absorber of labour in that area, whereas Wellington dropped in the pre-1960/61 period, though it regained its position and increased slightly since then. Thus, in the last 20 years the percentage of the labour force involved in textile manufacturing sector has grown at a greater rate than other sectors of New Zealand manufacturing, especially in Central Auckland.

Tables 4, 5 and 6 not only confirm these growth patterns, but also illustrate differential shift patterns in areas, as well as in structure. Table 4 examines the whole period of change, whilst Tables 5 and 6 examine the change over the two smaller periods and highlight differences based on changes in tempo. The tables summarise shift analysis calculations. (Macdonald, 1969) This involves the calculation of the national growth rate of the industry in each period, then multiplying the base figure by that national percentage. The difference between the actual growth and the expected growth at the national rate, indicates the shift in growth by areas, (either positive or negative growth).

Table 4

Differential rate of growth by statistical areas - 1952/53 to 1971/72

Statistical Area	C.A (Grpd)	H.B	T.	WN.	N.I S.T
Statistical Group					
269	645	14	-	253	916
263	-	-	-	-	-
262	20	-	-	-23	-43
260	1538	14	-	399	1951
254	1018	-	-	408	1426
251	309	328	-	92	729
250	146	153	14	124	437
Actual Totals $\frac{1971-72}{1952/53}$	$\frac{5258}{1618}$	$\frac{629}{120}$	$\frac{14}{0}$	$\frac{3139}{1886}$	$\frac{9040}{3624}$
Difference	3640	509	14	1253	5416
Expected 1971/72 Totals at National Increase Rate (99.89%)	3240	240	(14)	3770	7244
Difference from Actual (i.e. Shift)	+2018	+389	(14)	-631	+1796

Continued over ...

**Table 4** Differential rate of growth by statistical areas 1952/53 to 1971/72 - continued

Statistical Area	M.	NS.	WTD	C.	O.	S.	S.I S.T	A.N.Z Tot.	Tot. Diff.	Nat. % Increase for Each Group
Statistical Group										
269	-	-	-	-13	5	-	-8	$\frac{1232}{324}$	908	280.24
263	-	-	-	-67	-	-30	-97	$\frac{28}{125}$	-97	-77.60
262	-12	2	-25	-	-10	-49	-94	$\frac{56}{193}$	-137	-70.98
260	-	18	-	230	-60	-6	182	$\frac{5604}{3471}$	2133	61.45
254	-	-	-	877	79	-	956	$\frac{3145}{763}$	2382	312.18
251	-	-	-	554	689	-37	1206	$\frac{4425}{2490}$	1935	77.71
250	-	-	-	32	28	139	199	$\frac{1038}{402}$	636	158.20
Actual totals $\frac{1971/72}{1952/53}$	$\frac{0}{12}$	$\frac{33}{13}$	$\frac{0}{25}$	$\frac{3989}{2376}$	$\frac{2287}{1556}$	$\frac{179}{162}$	$\frac{6488}{4144}$	$\frac{15528}{7768}$	7760	99.89
Difference	-12	20	-25	1613	731	17	2344	7760		
Expected 1971/72 Totals at National Increase Rate (99.89%)	24	26	50	4750	3110	324	8284	15528		
Difference from Actual (i.e. Shift)	-24	+7	-50	-761	-823	-145	-1796	-		

**Source:** Calculated from Department of Statistics industrial production figures

Table 5

Differential rates of growth by statistical areas 1952/53 to 1960/61

Statistical Area	N.	C.A	S.A B.O.P	E.C	H.B	T.	WN	N.I S.T
Statistical Group								
269	-	79	-	-	7	-	81	167
263	-	-	-	-	-	-	-	-
262	-	-	-	-	-	-	-17	-17
260	-	445	-	-	3	82	153	683
254	-	237	-	-	-	-	64	301
251	-	358	-	-	37	-	-43	352
250	-	10	-	-	53	-	3	66
Actual Totals $\frac{1960/61}{1952/53}$	-	$\frac{2747}{1618}$	-	-	$\frac{220}{120}$	$\frac{82}{0}$	$\frac{2127}{1886}$	$\frac{5176}{3624}$
Difference	-	1129	-	-	100	82	241	1552
Expected 1960/61 Totals at National Increase Rate (37.78%)	-	2229	-	-	165	?	2599	4993
Difference from Actual (i.e. Shift)	-	+518	-	-	+55	(82) ?	-472	+183

Continued over ...



**Table 5** Differential rates of growth by statistical areas 1952/53 to 1960/61 - continued

Statistical Area	M.	NS.	WTD	C.	O.	S.	S.I S.T	A.N.Z Tot.	Tot. Diff.	Nat. % Increase for each Group
Statistical Group 269	-	-	-	5	2	-	7	$\frac{498}{324}$	174	53.70
263	-	-	-	-58	-	-30	-88	$\frac{37}{125}$	-88	-70.4
262	-7	4	-25	-	-4	-22	-54	$\frac{122}{193}$	-71	-36.79
260	-	25	10	325	-24	-9	327	$\frac{4481}{3471}$	1010	29.1
254	-	-	-	412	59		471	$\frac{1535}{763}$	772	101.18
251	-	-	-	324	430	-37	717	$\frac{3559}{2490}$	1069	42.93
250	-	-	-	-12	2	13	3	$\frac{471}{402}$	69	17.16
Actual Totals $\frac{1960-61}{1952-53}$	$\frac{5}{12}$	$\frac{42}{13}$	$\frac{10}{25}$	$\frac{3372}{2376}$	$\frac{2021}{1556}$	$\frac{77}{162}$	$\frac{5627}{4144}$	$\frac{10703}{7768}$	2935	37.78
Difference	-7	29	-15	996	465	-85	1383	2935		
Expected 1960/61 Totals at National Increase Rate (37.78%)	17	18	34	3274	2144	223	5710	10103		
Difference from Actual (i.e. shift)	-12	+24	-24	+98	-123	-146	-183	-		

**Source:** Calculated from Department of Statistics industrial production figures

Table 6

Differential rates of growth by statistical areas 1960/61 to 1971/72

Statistical Area	N.	C.A	S.A B.O.P	E.C	H.B	T.	WN	N.I S.T
Statistical Group								
269	-	570	-	-	7	-	172	749
263	-	-	-	-	-	-	-	-
262	-12	-6	-2	-	-	-	-6	-26
260	-	1059	-9	43	11	-82	246	1268
254	-	781	-	-	-	-	344	1125
251	-	-49	-	-	291	-	135	377
250	-	93	43	0	100	14	121	371
Actual Totals $\frac{1971/72}{1961/62}$	$\frac{0}{12}$	$\frac{5023}{2575}$	$\frac{78}{46}$	$\frac{157}{114}$	$\frac{629}{220}$	$\frac{14}{82}$	$\frac{3139}{2127}$	$\frac{9040}{5176}$
Difference	-12	2448	32	43	409	-68	1012	3864
Expected 1971-72 Totals at National Increase Rate (45.08%)	17	3736	66	165	319	119	3086	7509
Difference from Actual (i.e. Shift)	-17	+1287	+12	-8	+310	-105	+53	+1531

Continued over ...

**Table 6** Differential rates of growth by statistical areas 1960/61 to 1971/72 - continued

Statistical Area	M.	NS.	WTD	C.	O.	S.	S.I S.T	A.N.Z Tot.	Tot. Diff.	Nat. % Increase for Each Group
Statistical Group 269	-	-	-	-18	3	-	-15	$\frac{1232}{498}$	734	147.39
263	-	-	-	-9	-	-	-9	$\frac{28}{37}$	-9	-24.32
262	5	-2	-	-	-6	-27	-40	$\frac{56}{122}$	-66	-54.10
260	-	-7	-10	-95	-36	3	-145	$\frac{5604}{4481}$	1123	25.06
254	-	-	-	465	20	-	485	$\frac{3145}{1535}$	1610	104.89
251	-	-	-	320	259		489	$\frac{4425}{3559}$	866	24.33
250	-	-	-	44	26	126	200	$\frac{1038}{471}$	567	120.38
Actual Totals $\frac{1971/72}{1961/62}$	$\frac{0}{5}$	$\frac{33}{42}$	$\frac{0}{10}$	$\frac{3989}{3372}$	$\frac{2287}{2021}$	$\frac{179}{77}$	$\frac{6488}{5527}$	$\frac{15528}{10703}$	4825	45.08
Difference	-5	-9	-10	617	266	102	961	4825		
Expected 1971/72 Totals at National Increase Rate (45.08%)	7	61	15	4892	2932	112	8019	15528		
Difference from Actual (i.e. Shift)	-7	-28	-15	-903	-645	+67	-1531	-		

**Source:** Calculated from Department of Statistics industrial production figures

Auckland's dominance over the total period is clearly evident throughout, with Hawkes Bay maintaining positive growth in all components though at a slower rate. In all three tables the actual and differential shift is in favour of the North Island, at the expense particularly of Canterbury and Otago.

When the shift in organisation is examined by observing the totals in the columns of the same tables it becomes obvious that the flax oriented factories have had consistently negative growth. They employed a mere 84 people in 1972 (Department of Statistics). As expected Auckland and Hawkes Bay had positive growth in all components of the industry in their areas, whilst Southland had negative growth in all components except the woollscours.

Hosiery and Other Knitting Mills have also had consistently below average growth, and dropped from 44 percent in 1952-53 to 36.1 percent. (Table 7) However, they still remain the largest component of employment within the industry, and this size factor would probably contribute to its comparatively slow growth rate.

Woollen Mills had a period of expansion following 1953, but since 1961 have grown at only slightly more than half the national percentage growth rate. None the less they remain the second largest employer. As expected Canterbury and Otago mills had the highest growth rates, but Southland recorded a negative growth rate, probably with the shift of Millers Ltd to Christchurch and the subsequent closure of the Invercargill mill.

Woollscours have dramatically increased their number of employees since 1961-62, and all regions in which scours are located had an overall increase of labour.

The two largest growth components, percentage wise, were 'Other Spinning and Weaving' and 'Textiles n.e.i.' The former had the greatest percentage increase as well as actual growth difference but the latter had the higher percentage growth in

Table 7  
Summary of structural change in statistical group  
 (by percentages)

Percentage structure change of textile manufacturing labour force				Textile manufacturing groups as percentages of total New Zealand labour force		
1952/53	1960/61	1971/72	Statistical Classification	1952/53	1960/61	1971/72
4.2	4.7	7.9	269	0.23	0.27	0.53
2.5	0.3	0.2	263	0.13	0.02	0.01
1.6	1.1	0.4	262	0.08	0.06	0.02
44.7	41.9	36.1	260	2.43	2.47	2.41
9.8	14.3	20.2	254	0.53	0.85	1.35
32.0	33.3	28.5	251	1.74	1.96	1.90
5.2	4.4	6.7	250	0.28	0.27	0.45
100.0	100.0	100.0	Totals	5.42	5.90	6.68

Source: Calculated from Department of Statistics industrial production figures

the second period. Central Auckland accounted for over half of the growth in both categories.

Table 7 summarises the changes as percentages of the industry and then as a percentage of the total New Zealand labour force. Table 8 has the latest available figures published in August 1975, from the Labour Department Survey. Although not directly comparable with statistics used previously, it shows up several important points of location, especially in the breakdown of the greater Wellington region. The role of Palmerston North (including Levin) becomes very clear, though Hawkes Bay does not show up significantly. (The inclusion or exclusion of woolscours is not definite). The real importance of Wellington City does not become obvious until the apparel sector is included i.e. the 'cut-make-trim' sector of the industry, which this study does not consider. The inclusion of Hosiery Mills under Knitting Mills, or Weaving Apparel (under the sub-total row) is uncertain. Also the inclusion of the 'cut-make-trim' manufacturers in the apparel section makes the table's value in this study, limited.

### Factories and Mills

The actual number of factories in the textile manufacturing classification has not shown large scale increase. In fact only a 3.7 percent increase is recorded, with a drop during the recession period around 1961. (Table 9) While the number of factories has not shown great growth, the average number of employees per factory has almost doubled. However, since it has already been established that labour growth has not been evenly distributed through all components of the industry, some factories must have increased dramatically in size.

Every region of the South Island shows some decrease in numbers of factories, though Nelson and Otago did have small increases in 1960/61. The loss of 15 factories occurs mainly in the flax processing sectors and the 'Hosiery and Other Knitting Mills', but there is no corresponding increase in the North Island. This means that the labour growth in the

Table 8

Textile section of surveyed labour force as at April 1975 - by labour employment districts

Industrial Group	W.	A.	H.	T.	RT.	G.	N.	HS.	N.P	WG	P.N
Spinning & Weaving & Finishing Textiles	-	1238	12	-	-	8	348	93	11	86	422
Manufacture of madeup goods except wearing apparel	11	874	85	32	8	15	12	21	-	154	107
Knitting mills	-	2046	-	14	16	125	-	-	-	-	849
Manufacture of Carpets and rugs	-	1152	-	-	-	-	-	12	-	29	193
Cordage, rope & twine industries	9	241	-	-	-	-	-	-	-	-	-
Manufacture of Textiles N.E.C	-	281	6	-	6	-	-	-	-	-	101
Sub-totals	20	5832	103	46	30	148	360	126	11	269	1672
Manufacture of wearing apparel except footwear	414	7854	1447	461	886	139	224	176	577	645	794
Totals	434	13686	1550	507	916	287	584	299	588	914	2466

These areas form the Case Study area of  
the Wellington Region

Note: Classifications are not directly comparable with Department of Statistics figures

Continued over ...

**Table 8** Textile section of surveyed labour force as at April 1975 by labour employment districts  
- continued

Industrial Group	M.	L.H.	WN.	B.	NS.	GM.	CHCH	TM.	D.O	IN.	Total
Spinning & Weaving & Finishing Textiles	-	186	-	-	8	-	796	462	2040	110	5820
Manufacture of made- up goods except wearing apparel	3	34	117	4	14	-	227	-	134	6	1858
Knitting mills	18	46	282	-	31	-	1471	164	80	15	5157
Manufacture of carpets and rugs	-	318	3	-	-	-	968	-	-	-	2675
Cordage, rope & twine industries	-	-	-	-	-	-	24	-	70	-	344
Manufacture of textiles N.E.C.	2	55	4	-	-	-	6	-	5	-	466
Sub-totals	23	639	406	4	53	-	3492	626	2329	131	16320
Manufacture of wearing apparel except footwear	273	484	1255	175	132	235	2552	89	603	230	19642
Totals	296	1123	1661	179	185	235	6044	715	2932	361	35962

These areas form the  
Case Study area of  
the Wellington Region

Source: Department of Labour Survey of Labour Half Yearly Return



Table 9  
Numbers of factories

Region	Scours			Woollen Mills			Other Spinning & Weaving			Hosiery & Other Knitting Mills			Phormium Flax			Linen Flax			Textile N.E.I			Total		
	250			251			254			260			262			263			269					
	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.
N.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	
C.A	4	3	4	2	4	3	7	8	13	37	31	39	3	1	-	-	-	-	4	5	13	57	52	72
B.O.P S.A	-	-	2	-	-	-	-	-	-	-	3	3	-	1	1	-	-	-	-	-	-	-	4	6
E.C.	-	1	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	2	2
H.B	4	3	3	2	2	2	-	-	-	2	3	1	-	-	-	-	-	-	-	1	1	8	9	7
T.	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2	1
WN.	6	4	4	5	5	7	2	4	7	26	24	21	2	3	1	-	-	-	10	9	10	51	49	50
S.T.N.I	14	11	15	9	11	12	9	12	20	65	64	65	5	6	2	-	-	-	14	15	24	116	119	138

Key: Columns A = 1952/53  
B = 1960/61  
C = 1971/72

Continued over ... 35.

Table 9 Numbers of factories - continued

Region	Scours 250			Woollen Mills 251			Other Spinning & Weaving 254			Hosiery & Other Knit- ting Mills 260			Phormium Flax 262			Linen Flax 263			Textile N.E.I. 269			Total		
	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.	A.	B.	C.
M.	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	1	-
NS.	-	-	-	-	-	-	1	-	-	1	2	1	-	3	2	-	-	-	-	-	-	2	5	3
W.C	-	-	-	-	-	-	-	-	-	2	1	-	2	-	-	-	-	-	-	-	-	4	1	--
C.	8	7	6	4	6	6	3	5	5	16	14	11	-	-	-	4	1	1	4	4	5	39	37	34
O.	1	1	3	5	5	5	1	1	1	9	9	8	1	1	-	-	-	-	1	2	1	18	19	18
S.	1	1	2	1	-	-	-	-	-	2	1	1	5	4	1	1	-	-	-	-	-	10	6	4
S.T.S.I	10	9	11	10	11	11	5	6	6	31	27	21	8	9	3	5	1	1	5	6	6	74	69	59
N.Z. Total	24	20	26	19	22	23	14	18	26	96	91	86	13	15	5	5	1	1	19	21	30	190	188	197

Key: Columns A = 1952/53  
 B = 1960/61  
 C = 1971/72

Source: Department of Statistics

latter sector must result in larger scaled factories, in both islands. This was confirmed by comparing the number and size of establishments for 1952/53 and 1971/72. (Table 10)

Wellington, Taranaki and Hawkes Bay show a loss of factories. This is surprising for Hawkes Bay since it showed a large percentage increase in labour. Auckland's additional factories needs no further explanation at this stage, other than to note that the bulk of it is found in the 'Other Spinning and Weaving' and 'Textiles n.e.i.' sectors ie. the carpet making groups.

Several managers commented on the balance of males and females in the industry, along the lines that there was a higher proportion of male labour than there would be if they could employ females after 10 p.m. It was not possible to check the balance because Department of Statistics production figures for 1952/53 and 1960/61 did not give the breakdown. In the 1971/72 statistics 44.8 percent of all textile employees were women, compared with a national average of only 27.26 percent. However, 81 percent of all women in textiles were in the Hosiery and Knitting Mills (54 percent) and Woollen Mills (27 percent), which are the slower growth sectors of the industry.

So far, location has been discussed in terms of regional areas, in a statistical sense, but as it is critical that a fuller understanding of individual locations be developed for the remainder of this study, Maps 5 and 6 were developed using the known 1975 addresses for the survey. It was not possible to produce maps for 1953 or 1961 because accurate address lists for those years could not be obtained or developed. With the establishment of many plants since 1953 (Table 11, together with cautionary note in methodology in Chapter 1) location of individual factories on a national basis would be too time consuming. Had it been possible, location change, closure, and migration would have been more obvious and detailed. It was possible to some degree in the Wellington region case study recorded in Chapter 4.

Table 10  
Size of textile factories (by number of employees)

Number Employees	Under 6	6-10	11-20	21-50	51-100	101-200	201-300	301-400	401-500	501-600	601-700	Totals
1952/53	39	35	36	40	17	16	7	-	-	-	-	190
1971/72	21	23	39	40	21	31	11	-	6	3	2	197

Source: Department of Statistics

Table 11  
Establishment year of factories

Period	Wellington Region	Rest of New Zealand	Totals
Pre 1900	2	7	9
1900-1910	1	-	1
1911-1920	-	-	-
1921-1930	2	1	3
1931-1940	7	3	10
1941-1950	5	2	7
1951-1960	11	12	23
1961-1965	4	8	12
1966-1970	6	13	19
1971	1	-	1
1972	5	1	6
1973	-	1	1
1974	1	1	2
1975	2	1	3
Totals	47	50	97

Source: Survey 1975

- Notes:
1. Where a company supplied only one date, and has more than one branch, only one date has been included.
  2. Where separate dates are available, they have been placed accordingly.
  3. Dates of original establishment (i.e. before take-over) are used where known.

In the maps, the actual location of manufacturing units is apparent. Auckland's dominance is clear, but the clustering of units of Greater Wellington in the smaller centres such as Palmerston North, Levin and Napier, together with Ashburton, Oamaru and Mosgiel in the south is not so readily explained. In the South Island location close to a coastal port is evident. Reasons for these locations are largely historical (mentioned earlier) but many companies have had organisation changes which will be discussed later.

### Location Factors and Trends

Optimum location of a factory seems to result from the decisions aimed to balance many location factors in order to provide maximum profit of a company for its owners. Few, if any, companies are fortunate enough to have all location factors providing the least possible cost for the greatest return, so decisions need to be made to balance the factors. Furthermore, these factors are not static, so the decision usually requires continual reappraisal, occasionally requiring a decision to either relocate or close. This means that location decisions really fall into three main categories:

1) The initial decision, when a company is established and a site chosen. This is a once only opportunity, but few companies appear to consider all the factors involved before a decision is reached. Often if there is only one owner, personal factors such as residential preference take precedence over the weighting of the other factors.

2) Rationalisation of the operations of the company to adjust to changing circumstances on a major scale. Closure by sale or take-over of a company would really fall into this category. The initial operations of the company would usually still be continued, albeit in a modified form, and the company taking over or buying out the other is doing so in the hope that it will provide a better economic return as a result.

3) The original owners decision to cease operation in a given location, without sale or takeover. In the following

discussion labour, raw material supply and markets become evident as major location factors, but others are also apparent.

Historically, textile manufacturing has been a labour intensive industry particularly the 'base' processing units ie. wool scouring and woollen mills. In New Zealand, early provincial governments in Otago and Canterbury offered incentives for the supply of certain quantities of locally manufactured cloth in order to attract industries to utilise available labour. Markets and capital were a problem but the gold rushes helped solve both, particularly in the south by providing a local market with the resultant immigration, and capital, directly through shareholders, and indirectly, through incentives arising from taxes. Raw materials were also more readily available in the south because the absence of bush cover enabled large flocks of sheep to be grazed over greater areas. Port facilities were fairly close at hand at the provincial settlements so it is little wonder that these components were initially established in the South Island.

It was not until after the turn of this century that the market balance favoured the North Island, and by then most traditional woollen mills had already been established in the south. Since then, most woollen mills that have been formed have tended to be the specialist type mills, such as for carpet yarns, though some, such as Wanganui, were opened to avail themselves of labour and materials.

Even in 1975 the factors of labour and raw materials still play a large part in determining location. In the industry the New Zealand Woolspinners Ltd plant was located in Dannevirke mainly because there was a pool of experienced labour available from a previous operation, together with raw material availability. Management stated that its operation would have gone ahead in some form, even if it hadn't had the incentive of Government assistance under the Regional Development Scheme.

Traditional textile location factors are still pre-eminent but recent take-overs of existing businesses or buildings have had a salient impact on actual location of

present establishments. (Table 12) . A factor not always recognised is the owner's residential or personal influence. Few would-be owners shift to another centre in order to set up a business.

In this study, it became evident that location information was not readily available unless the original management or owners were still present but many companies had management personnel with only a few years in the company. Often those who were in this situation at first gave the residential qualifications of the original owners, or availability of suitable land or buildings as the important location factors, especially in the smaller factories. However with subsequent discussion, labour, raw material supply and market outlets soon became evident as major factors of the original and continuing location decisions.

When location factors change after the factory has been established, companies are faced with the alternatives of either, improving productivity or rationalisation to become more competitive with others whose location has factors more in their favour, or closing down. New Zealand industry is constantly faced with these problems, on an international front as well as on a regional one. When New Zealand textile manufacturers first established their industry, shipping delays and costs associated with overseas products enabled New Zealand compete very capably, on the basis of the proximity of raw materials and the availability of labour and markets. They were comparatively small scale operations, and high transport costs were not incurred. As New Zealand's equipment became outdated, and as overseas transport became more efficient and rapid, and the industry less competitive, various degrees of import protection were needed. A number of managers commented that the imports of fabrics and knitted and woven goods that were allowed around 1955, especially following the economic crisis from the wool sale 'boom' in 1951, meant New Zealand manufacturers were hardpressed to compete effectively and economically. Some also claimed that this resulted in the closure of uneconomic factories and forced a reappraisal of the



Table 12  
Specified reasons for present location

Category	Wellington Region	Rest of New Zealand	Totals
Building available or take-over of existing business	14	21	35
Available labour	21	6	27
Residential (Owner)	8	6	14
Good transport	3	10	13
Good water and effluent disposal (scours)	7	1	8
Raw material proximity	2	6	8
Market proximity	3	5	8
Suitably zoned site	2	5	7
Cheap land/rent	5	1	6
Totals	65	61	126

Source: Survey 1975

Notes: In addition a number of other factors were stated by companies but were of insufficient number to warrant tabulating fully. Actual number in parenthesis:

- (a) Land with room to expand (1)
- (b) Association with an adjacent company (2)
- (c) Government influence (including regional development assistance) (1)
- (d) To provide national coverage (2)
- (e) Take-over of existing concerns (2)
- (f) Proximity to energy (1)

industry and its organisation. This would partly account for the reduction of factories at the time, but the general economic situation could also have caused these closures, together with other factors. Nevertheless, management invariably pointed out the need to re-vitalise and modernise New Zealand production, which has been going on for the past twenty years. The ensuing technological advance in plant, buildings, equipment and skills, as well as materials, is having continued impact on the organisation and location of the industry.

## CHAPTER 3

REASONS FOR LOCATION CHANGE

Chapter two detailed the changes which have occurred within the industry over the last 19 years, and briefly suggested some of the set of factors which may be involved. Little is known about why companies established in their particular location, or under what circumstances relocation might be made. In this chapter, factors are analysed to assess at what juncture a company might relocate, and where possible, the reasons leading to a consideration of alternative locations and the choice of final location.

Location Satisfaction and Location Alternatives

An attempt was made to assess company satisfaction with the existing site, by asking 'if the opportunity to locate the present branch without restrictions of any kind was given, where would the company locate?' The results of this question are presented in Table 13.

It would appear that the great majority of companies are more than satisfied with their existing sites and facilities, particularly in the Wellington area. In fact, a number of Levin and Palmerston North companies stated that there now existed a good pool of textile operators, especially knitting machine operators in Levin, which makes it a very attractive area. Of the remainder, the majority of those in group 1 were in Central Auckland, though the woollscours generally were also satisfied, with their existing sites. One scour in Timaru area preferred a shift to Dunedin, and another inland scour preferred a port town such as Wanganui for better shipping facilities.

A synthetic yarn producer gave the same reason for

Table 13  
Relocation of companies (if free choice given)

Choices	Wellington Region	Rest of New Zealand	Totals
1 Same site	24	18	42
2 Same location, different site	7	10	17
3 Other North Island town	5	6	11
4 South Island town	(-2)	-	(-2)
Totals	36	34	70

Source: Survey, 1975

Notes: It was stated by two managers in Levin, that it had a good pool of knitting operators and semi-skilled labour.

Two North Island managers stated they would definitely not locate in the South Island.

selecting Mount Maunganui/Tauranga, but his preference was for imports, rather than shipping finished goods. One large underfelt producer wished to move out of Auckland to avoid zoning and labour problems, but still be close to main markets. A South Island carpet producer also originally felt that Auckland would have been preferential but feels now that they have better staff relationships where they are, although transport to a main market still remains a problem.

It would seem, therefore, that the greater the degree of finish in the Textile product, the stronger the wish to locate close to the market. It was pertinent that two large manufacturers in the Wellington area stated definitely that they would not consider a South Island location under prevailing market balance and conditions, whilst all but one South Island company wished to locate in the North Island.

Only one manufacturer indicated any real consideration was being given to the possibility of shifting, however, and he stated that the likelihood of shifting was rapidly diminishing because inquiries had shown that labour problems alone would probably negate the advantages of shifting. One other was in the process of relocating in the same town, for increased site size. Thus, location inertia in the industry is considerable, and advantages of relocation would have to be significant, economically and socially, before a decision to relocate was made.

### Existing Site Advantages and Disadvantages

In order to confirm reasons Tables 14a/b detail evidence about the advantages and disadvantages of sites. The table shows there are far more companies which feel that their location is suitable, because of the number of advantages claimed in comparison with the disadvantages. Many expressed no disadvantages at all.

More importantly, though, is the relative position of some of the rankings. As expected, labour ranks highly in advantages claimed. Conversely, only one factory gave this as a disadvantage (though one wool scour visited, although not fully renovated, also claimed problems). Both these operations were in the Hutt Valley where problems of obtaining and keeping labour are difficult.

The second greatest advantage of sites seen was that of market access, as distinct from proximity of the market. Included here are those companies that felt they had good transport links and services, with both raw materials and finished goods. Factories in ports, and those close by the railway trunk lines, generally expressed this as an advantage, but those who were not, found that delays were often excessive. Even some at ports, such as Wellington, expressed dissatisfaction with delays in getting raw materials, chemicals, yarns or fibres, over the wharf. Quite a few of



Table 14a  
Advantages of site

Reason	Ranking of Wgtn Choices					Total Wgtn	Rest of N.Z.	Totals
	1st	2nd	3rd	4th	5th			
Labour pool availability	11	6	3	1	1	22	14	36
Market proximity	3	1	3	-	-	7	6	13
Market access transport services	7	4	3	2	-	16	12	28
Advantages buildings & site	6	3	2	-	-	11	5	16
Raw materials	3	1	-	-	-	4	5	9
Other	8 <sup>a</sup>	2	4	-	-	14	3	17
Totals	38	17	15	3	1	74	45	119

Source: Survey, 1975

Note: a Scours - good water, and effluent disposal

Table 14bDisadvantages of site

Reason	Ranked selection Wellington			Total Wgtn	Rest of N.Z.	Totals
	1st	2nd	3rd			
Size of site or buildings	8	2	-	10	5	15
Poor site facilities	2	1	-	3	5	8
Labour skills or difficulties	1	-	-	1	3	4
Transport: pilferage ) slow       ) delays     )	5	1	1	7	4	11
Raw material supplies	-	-	1	1	-	1
Distance from market	3	1	-	4	4	8
Other	-	-	-	-	5	5
Totals	19	5	2	26	26	52

Source: Survey, 1975

the knitted or hosiery manufacturers stated that this problem with transport was in 'loss' in transport, either through damage or loss or pilferage. A number of them said that they had changed their mode of transport to avoid this loss. The South Island woollen mills expressed distance from their main markets in the upper North Island with the companion costs of freight, as one of their biggest disadvantages.

The newer factories and companies, especially in the Levin area, realised the advantages of space on their site for future expansion. Some far sighted companies had allowed ample space for development when they originally located and when land was cheaper. Now, others wishing to expand find that they either cannot, or find the cost of purchase of neighbouring land prohibitive, and building costs skyrocketing, making expansion well nigh impossible. This applies particularly in Auckland, but also in the Wellington area, where half of those noting this category found that town planning requirements for off street parking for staff, or changes in zoning were becoming very restrictive or costly. In only two cases was the age or structure of the buildings, considered a disadvantage.

#### Government Assistance

Two possibilities for government assistance exist; namely assistance to establish operations, and assistance in maintaining the present operations. Only one company claimed that a direct loan assisted their establishment, and the two South Island woollen mills recognise the 'prize' from their Provincial governments. Some of the large scale operations also recognised that the export incentives, re-equipment provisions, tax concessions and import restrictions, such as that which surrounded the now defunct Von Kohorn nylon plant at Shannon, influenced the establishment of some of their factories. It could not be established though which came first; the establishment and then the decision of government;

or government action first; or in fact whether as a result of discussions these happened simultaneously. Nor could the degree to which the assistance influenced the final decision to go ahead really be established. As in the case of one of the latest mills, mentioned earlier, the operation would have proceeded without it.

Regional Development Corporation finance appears to be having more impact on maintaining operations, by assisting machinery replacement costs, for modernisation and expansion particularly in lesser centres such as Masterton, Wanganui and Invercargill. In addition, assistance by way of subsidies on transport costs, is helping South Island manufacturers to compete more effectively with North Island counterparts. Again, however, it was not possible to ascertain the degree to which this has influenced these manufacturers to maintain their operations in those locations.

In the past ten years, government has been encouraging New Zealand manufacturers to increase exports, and also to increase the labour content, by provision of incentives and concessions. The Battelle Institute was asked to prepare a report on New Zealand's chances to sell more textile products overseas. (Battelle, 1971) Whilst not greatly encouraging concerning normal markets, it was felt that greater scope existed in the carpet yarns and tops, and floor coverings trade. These are the fields in which greatest expansion is occurring and in which exports were mentioned as forming an increasing share except for very recent problems in transport costs and devaluation.

Government incentives, therefore, can be said to have some part in determining and maintaining some of the textile manufacturers. It has also announced its intention to encourage more factories in Hawkes Bay, Wanganui, and Southland, and it appears these units are coming to fruition in Dannevirke, Wanganui and Kennington. Government is also closely involved in exploring possible international markets such as in Europe or Japan (Battelle, 1971) but New Zealand will face stiff

competition in this field from numerous sources.

Government action is not seen always as a benefit. Some managers in fact thought that recent moves would be far reaching and detrimental. These managers expressed grave doubts whether it would be economically viable to continue small operations in country areas because of Government policies. Toward the conclusion of the National government term of office, two things occurred which have had considerable impact. Regional pay variations were eliminated, and legislation was introduced to bring about equal pay for women. Equal pay legislation meant that costs of textile goods would rise considerably because of the high proportion of female employees. It also meant that the advantages of location in a country area to obtain labour at a lower rate would be lost. Possible advantages accruing from lower wages bills would be lost and therefore other costs such as involved in transport of raw materials and finished products would raise the finished product costs in comparison to their competitors. It would depend upon whether other factors such as cheap land, labour stability or building costs and services could affect the disadvantage of increased labour costs, to make location in the smaller centres as attractive. It may also mean that if governments are serious in their 'decentralisation' policies, they will have to become much more involved with incentives on subsidies to firms locating outside the major market centres, or alternatively with 'penalties' for those wishing to locate in those centres.

Whilst closure of textile manufacturing factories arising from the above has not been evident yet, it is known that several garment manufacturers in small centres such as Bulls or Shannon threatened to close recently for these reasons; and one major wholesale manufacturer stated that he was seriously contemplating closing several of his factories and re-locating much nearer the major markets because the advantage of wage differentials was gone.



### Problems of Manufacturing and Location

Analysis of production problems reveal some regional differentiation but problems with the various components were fairly universal. Many scours mentioned effluent disposal as an increasing problem. Labour problems centred on stability of labour rather than skill and it became evident that smaller towns or South Island centres had less trouble in this regard than some of their North Island counterparts. Some in Wellington area claimed extreme difficulty in obtaining any labour, and had resorted to high levels of overtime in order to hold labour.

Many knitting and other textile manufacturers felt that their main labour problem was to attract skilled labour. In order to overcome this, one Auckland carpet manufacturer has developed automated machinery which can run continuously over weekends or nights without staff being present.

Within the woollen mills, much the same as stated exists. The South Island mills expressed that the more stable employment situation in their centres was less of a problem than in the North, and that staff relationships were of a higher order, assisting them to keep up quality and production. North Island mills, particularly in Auckland were having to draw staff from wider surrounding areas, which in turn meant that location on other than public transport routes became disadvantageous.

Throughout the industry, general feeling was strong that seasonal demand fluctuations were a big problem, and that economic demands made planning and ordering tricky or extremely taxing. Economic variations were felt fairly universally and were a great concern in industrial planning. Fashion changes and demands for quick drying, crease resistant, lighter weight fabrics were having a definite influence in raw materials, machinery, technology and services within the industry, and some patterns of linkage between sectors have developed to solve the problems. These in turn are possibly having an influence on general location.

## The Role of Technology

To determine more precisely the degree of influence that the spread of technology has had, a major section in the questionnaire examined machinery, machine suppliers, technical information, and the degree of change that has occurred. This was to establish what patterns of dispersal of information and technology existed, and whether these patterns had any regional variations.

### Early Changes

At the conclusion of World War II, New Zealand manufacturers were producing with largely obsolete, antiquated and in many cases, secondhand machinery, that made production slow, inferior and inefficient. This was recognised by government when in 1946 Professor Barker made his report to the Department of Industries and Commerce on the Development of the Woollen and Worsted Industries. (Newsome, 1969) His recommendations included rationalisation and increased efficiency, especially in the worsted side of the industry, in four stages:

- '1. The development of separate scouring and carbonising plants. Scouring is in a disadvantageous position in the vertically integrated plant. Either expensive equipment is not used to its full capacity, or cheaper equipment is used giving economy, but poorer results.
2. The development of top-combing plants. Such a plant would also benefit from larger production runs, since one worsted comb may produce up to 70lb. per hour.
3. The development of specialised spinning plants. A major problem during the war, besides the shortage of labour, was the inadequate spinning capacity of the mills, especially for the knitwear trade, since imported yarn supplies were cut off.

4. The development of separate dyeing and finishing plants. This final stage would be conditional on the successful development of the first three.'  
(Newsome, 1969)

The implementation of these proposals has taken many years, but whilst the impact has been slow, and had only minimum direct influence on location, it has had tremendous impact on the structure, mechanisation and linkage patterns, especially in the last ten years.

A further factor at this time was the growing tendency to use synthetic materials, although the real impact did not come until the early 1960s. At first, synthetics tended to be used as 'pure' yarns, but by the mid-1960s synthetic blends were increasingly popular. The blending is usually done either at the top-making stage, or more commonly at the spinning stage of yarn production.

Government encouragement was given to enable the textile manufacturers to expand and utilise new raw materials. For example, the Tariff and Development Board report of March 1964 (Department of Industries and Commerce, 1964, 17) notes:

' It should be recognised that an efficient textile industry based on wool, but extending, as demand requires to other fibres, can develop into a major exporting industry and that only by so doing will it achieve the economies of large scale production and specialisation, the lack of which are mainly responsible for the present state of the industry.'

Government favoured the development of top-making plants to supply New Zealand and the export trade, and preferred the separation of these from the traditional woollen mills, though not necessarily divorced from them. These specialised plants required new machinery, new technology, considerable capital expenditure, and skilled labour. The changes that have taken place, and are continuing to take place, revolve around these

factors. They are discussed below, not necessarily in any order, because they are not single factor developments.

### Company Organisation

In order to find the capital to re-organise and modernise the equipment after the re-imposition of import restrictions in 1955, a number of companies embarked on take-overs and mergers. This occurred especially in the woollen mills and scours, and more particularly in the South Island, where most mills were located. This growth resulted in the development of many of the large integrated companies, including Alliance Textiles Limited, Mosgiel Limited, Lane Walker Rudkin Limited, and to a lesser extent Millers Limited, in the South Island, and Feltex New Zealand Limited and United Empire Box Industries Limited, in the North Island. (Hereafter, these are known respectively as Alliance, Mosgiel, L-W-R, Millers, Feltex and U.E.B.).

(Table 15) Since these companies exemplify many of the changes within the industry, a brief description of each is noted in Appendix 2. In examining the changes of structure of the present companies at this point of the discussion, it is important to note the emergence of the specialist units, as advocated by Professor Barker in his 1946 report; the impact that these have had in the chain of textile manufacture; the large impact that costly machinery has had in terms of what was a traditionally labour intensive industry; and the impact on location that these have had.

### Machinery

In Chapter 2, we saw the recent development of a number of scouring plants, after a period of no change in scour numbers. For scours, a good water and effluent disposal system has ranked very high in priorities for site location. Most traditional woollen mills had scours attached, but with the re-organisation, and now also with environmental issues becoming important, some of the older factories have closed

Table 15  
Organisation of companies

Company	Wellington Region	Rest of New Zealand	Totals
Alliance	-	4	4
Bonds	1	1	2
Feltex	8	4	12
Mosgiel	1	4	5
N.Z. W.M.A. Wool Scours	1	4	5
U.E.B.	2	6	8
Subtotals	13	23	36
'Other factories'	37	32	69
TOTALS	50	55	105

Source: Survey, 1975

Notes: 1 'Other' factories include a number of companies whose organisation has not been completely identified, such as Dunlop (Holeproof), and dual-factory organisations such as 'Sallee Carpets', or Autex Limited.

2 Subsidiary Companies are not included unless completely owned.

their scours. As one company remarked, it is more economic for them to have an agreement with a commission scourer, or subsidiary, than to install and maintain new equipment to meet the updated requirements. Thus in recent years, most scouring equipment has either been totally replaced, or at least vastly modernised, and capacity increased. Moreover, it is significant to note that one of New Zealand's engineering companies, Annett and Darling Ltd., Timaru, has built practically all this equipment, and is ranked as a world leader by many of the scouring firms with regard to workmanship,



technical know-how, and advice. (This aspect is discussed further in a later section).

As mentioned earlier, the locations of recently developed scouring plants have been at the optimum point where raw materials (wool, water, effluent disposal, chemicals), plus transport, market and labour were balanced. In addition, there is a definite tendency at the present time to give a national 'spread' of scours. This is particularly so because of the change in bulk of the raw material, during scouring, whereas 'value added', or capital investment per unit of production is not so great.

However, in other plants, the type of machinery now being installed, and the degree of technology involved as a result, is changing the industry from labour intensive to capital intensive, particularly further 'along' the manufacturing chain, hence the tendency to locate closer to 'market' than 'labour or raw materials'.

Table 16  
Changes in machinery (by percentages)

Category	Wellington Region		Rest of New Zealand	
	1965-69	1970-74	1965-69	1970-74
No change	20.0	7.0	13.3	-
Machinery for additional capacity	50.0	38.6	53.4	43.1
Modernisation of machinery	25.0	36.8	23.3	41.2
All new plant	-	8.8	-	-
Decrease in capacity	2.5	-	-	3.9
Specialisation only	2.5	8.8	10.0	11.8
TOTALS	100.0	100.0	100.0	100.0
Number of cases	40	57	30	51

Source: Survey, 1975

Table 17  
Comparative changes in values

Classification	No. of Operators		Net Value Added per Person		Cost of mats, % Total Cost		Average Value of Plant Machinery Land and Building	
	1952/53	1971/72	1952/53	1971/72	1952/53	1971/72	1952/53	1971/72
250 Wool scours	402	1038	\$ 2702	\$ 5786	% 94.1	% 90.8	\$000 44.5	\$000 343.8
251 Woollen mills	2490	4425	1706	3410	52.7	45.1	157.2	848.8
254 Other spinning & weaving	763	3145	1968	4928	67.6	53.4	139.7	614.3
260 Hosiery and other knitting mills	3471	5604	1506	3514	63.0	56.2	45.7	250.9
262 Phormium flax	193	56	2068	2346	49.5	49.7	19.3	15.8
263 Linen flax	125	28	1212	1586	26.7	18.2	39.0	65.0
269 Textiles N.E.I.	343	1232	3524	6266	67.9	72.1	48.4	291.5

Source: Department of Statistics industrial production figures

The upgrading and degree of mechanisation is only partly portrayed by this table, but when it is compared with Table 17 further points emerge. It is unfortunate that the last figures available have been those for 1971/72. In spite of large increases of labour, the net value added per person has increased in all sectors, though of course, the flax sector's increases are very small comparatively. The greatest sectors of growth in this regard have been the carpet sectors (included in 254 and 269), the Hosiery Mills (260) then the Scours (250) and Woollen Mills (251).

When the average value of the plant, machinery, land and buildings is considered, large scale increases show the degree to which investment has taken place, even if allowance is made for inflation and devaluation. In this regard, Woollen Mills top the list in actual size, but the proportionate increase in growth goes to the Scours, followed by Textiles n.e.i., the Hosiery Mills, then Woollen Mills closely behind, Other Spinning and Weaving, then the Flax sectors well behind.

This massive injection of capital has had its impact in many ways, in the communities, in the service sectors, and in linkage developments.

Important, too, in Table 16, is the degree to which the cost of materials is a part of the firms' total costs. In the scours, the highest percentages are recorded, and this also has one of the highest values added per person. These tend to be located nearer raw materials.

By comparison, group 269 also has a high value added and percentage of materials to final cost, yet these seem to be market orientated, perhaps because of the fact that these are the extremities in the chain of operations, and whilst scours have a relatively low initial price per unit, the floor covering sectors have a high initial cost per unit of raw materials.

Then again, the scours (and all other sectors except 269) have a reduced percentage cost of raw materials. This may in

part be accounted for by the record prices for wool in 1951 and immediately following, whereas the costs in 1971/72 had decreased considerably with the competition with synthetics.

In total, however, the tables substantiate the fact that the textile industry is becoming increasingly capital intensive. In relation to the location of the companies, which has already been detailed, and the shift in the organisation of the components of the industry, it is evident that investment in the industry is occurring throughout New Zealand, therefore unlike centres in Great Britain no town or city is becoming 'the Textile centre' of New Zealand, nor is any one component located solely in one town. The closest to this is Levin, which is discussed in a later section.

#### Machinery Information

Because of the importance of new machinery, a check was made of the means used by the companies to obtain information about machinery. (Table 18)

It was evident that a variety of means were available and used. There was, however, a degree of difference depending on the size of the company. More large companies sent management representatives overseas, particularly to Europe and to the World Textile Shows each four years (the most recent in Milan, October 1975); whilst smaller companies relied more heavily on the visits of representatives and trade bulletins for information. It was interesting to note the degree to which all types of manufacturers relied on word of mouth contacts, or the extra-industry contacts for accurate information and assessment. In both Wellington area, and the rest of New Zealand, nearly a quarter of all companies referred to the category or commented on the value of these contacts to keep up-to-date, and to assess the worth of the trade 'bumf' or 'reps'. A small number had information from parent companies overseas, perhaps because only a few companies are of foreign ownership, though quite a few more have overseas associates. In those cases, however, fashion

Table 18  
Source of machinery information (by percent)

Choice	Wellington Region	Rest of New Zealand	Total
Trade representatives' visits	19	25	23
House Journals	1	9	5
Trade Bulletins	10	14	12
Own specifications	15	12	14
Word of mouth contacts (buddy system)	25	20	22
Trade Fairs/Shows (especially in Europe)	14	5	9
Overseas visits (to competitors or manufacturers)	8	8	8
Parent Mill advice	6	3	4
Other (unspecified)	2	4	3
Totals	100	100	100

Source: Survey, 1975

designs or trends, and product information is gained rather than machinery details.

#### Purchase Patterns

Nearly all foreign machinery is obtained through New Zealand representatives (Table 19 and Note) and it would appear that New Zealand is well served by them. There appears to be little restriction in the type of machinery, nor in countries of origin. However, there does definitely seem to be a change in the origin of machinery. Until World War II, it was reported in numerous interviews that British machinery was either preferred, or purchase restricted by government decision to that source. Since then, however, continental machinery has become far more popular, in most manufacturing components,

Table 19  
Machinery purchase links (by percent)

Category	Wellington Region	Rest of New Zealand	Total
Direct from overseas manufacturer <sup>(a)</sup>	31	36	33
Direct from New Zealand representatives	40	33	37
New Zealand manufacturer <sup>(b)</sup>	21	18	20
Second hand	8	13	10
Totals	100	100	100

Source: Survey, 1975

Notes: a Although stated in this way, companies stated almost invariably that machinery was brought in through the New Zealand agents even though selected directly from overseas principals.

b Woolscours invariably obtained machinery from a New Zealand manufacturer.

because of its speed, its quality of engineering and importantly, to New Zealand, its versatility, i.e. the ability to alter the machinery for a variety of gauges, lengths, widths or materials, or because New Zealanders can modify the machines to fit in with the comparatively short-run production experienced here. Whilst continental machinery is the main source now, Japanese and American machinery is also selected, the latter in particular by the tufted carpeting sector, from whence this type of product was largely derived.

Important in these machinery patterns is the growing use of automated, computer controlled, or complex machinery with low labour requirements. Even though labour in the industry has increased by almost a hundred percent, the output and the output capacity, has increased many more times.



### Machinery Agents and Servicemen

New Zealand machinery manufacturers feature little in the major machine purchases, with the exception of the scouring machines as mentioned earlier. However, their skill in adapting machinery is recognised. Of increasing importance is the electrical or electronic specialist. So far, the degree of automation has been within the scope of local technicians, but the time is approaching when fully computerised machinery will be installed, and will require the services of experts.

No company expressed any dissatisfaction with the services of the local representative company. On the contrary, quite a number said that they were very satisfied. In the survey, a total of 18 firms were mentioned though by far the most popular were J.H. Walker (Wellington and Auckland), William Terry (Wellington, Auckland and Christchurch - also known as Chemtex), N.P. Hunt (Lower Hutt) and Frank Lee Proprietary (Auckland). Again practically all the scours dealt directly with Annett and Darling (Timaru). Others were mentioned a few times. Excepting Annett and Darling, only five had branches in the South Island, and only two of these with Dunedin branches. One of these (Farra Bros.) was more a sheet metal contract worker than a representative, which would mean that they were manufacturing competitively for the trade in the North Island. The fact that only three of the 18 companies (including Annett and Darling and Farra Bros.) had no branch in Auckland indicates the growth of the servicing industry in that region, and the volume of trade that goes through there.

Apart from supply of machinery, these representatives have a vital part to play in maintaining the industry. Spares form a major part of their business, but the dissemination of technical advances from firm to firm as well as from their principals keeps all parts of New Zealand at a fairly uniform level of technology, which is generally appreciated by the manufacturers. Many machinery and chemical agents now have representatives calling from their principals on a regular basis, and some of these travel with the field representatives,

partly to bring latest developments from overseas, but also to help solve any technical problems as they affect the customers.

### Buildings

Over the last ten years, the pattern of building changes is very similar to machinery changes. (Table 20) Some differences are apparent between the two columns. In the Wellington area, most change has included additional space on the same site, more plant, and re-organisation of flow. Over the rest of New Zealand, there does not appear to have been as much change taking place, although it is significant that few companies indicated no change, or general maintenance only. The higher than expected rate of change of buildings for the Wellington area is discussed in Chapter 4.

Table 20  
Indicated building changes 1965-1975  
(by percentage of surveyed companies)

Choice	Wellington Region	Rest of New Zealand
No change	5.8	-
Only general maintenance	15.6	10.1
Material flow reorganisation	31.4	15.9
Additional space on same site	49.0	27.5
Additional space on different site	21.6	17.4
New plant	37.3	27.5
Shifted plant and building	3.9	-
New operation	1.9	1.4
Number of cases in survey	51	69

Source: Survey, 1975

### Management

Managers reported a variety of methods that they use to acquaint themselves with developments in the trade, including production planning. (Table 21) The influence of Trade Journals is strong, particularly amongst the smaller manufacturers, but travel to other plants, and overseas is very important. The influence that these have in New Zealand is strong, but it would be very difficult to quantify the degree. Each component mentioned certain aspects which they found rewarding as a result. The Woollen Mills have gained not only machinery but the experience in a range of goods, and also the chemical suppliers have become more active in woollen processes, such as shrink resistance or crease resistant materials. This is also applicable in the Spinning and Weaving sections, where a great deal of research is continuing and where new processes are producing materials to match synthetics, but with wool qualities as well, such as fully machine washable wool jerseys. In the Hosiery and Knitting trade in addition to the above, several trading agreements with 'fashion houses' have produced fashion goods more rapidly.

### Research

It would appear that the main form of research with regard to product development remains 'customer' preference and demands. Hence, the 'market' produces linkage development, such as the present demand for lighter weight goods with simple maintenance, i.e. wash n' wear qualities. With the demand for these type of goods, knitting and garment manufacturers put pressure on their yarn and fabric suppliers, who try to produce accordingly. In turn, the spinners and weavers require the mills to produce finer yarns for the apparel segment, and at the same time coarser wool for the carpet and flooring segment.

Very few, apart from the large mills, have a separate Research and Development department within their structure, though a few more have quality controllers. About a quarter

Table 21  
From where management obtains information  
(Raw scores)

Category	Wellington Region	Rest of New Zealand	Totals
Trade Journals	22	23	45
Travel to other factories	20	14	34
Conferences and seminars	16	15	31
Own research and development	15	13	28
Top management communication	19	8	27
Overseas visits	12	5	17
Inter-industry social contacts	10	5	15
House Journals	7	8	15
Government research and development	10	4	14
Overseas alliances	5	1	6
Overseas consultants	-	2	2
Institute of management	1	-	1
Number of Choices	137	98	235

Source: Survey, 1975

Note: Presentation of choices by 'weighting' was impossible because not all companies gave ranked choices.

of the companies have a continuing research programme 'on the floor' in attempts to meet the customer requirements. It would appear that this is a very valuable facet of the New Zealand trade, as it was recognised in the 1969 report of the Committee of Inquiry (Department of Industries and Commerce, 1969). It would also appear that many New Zealand plants have in the past catered for the short-run production, but with the advent of re-organisation, the number of these factories is declining in favour of longer run stable output. Furthermore, the ability to call on one's raw material manufacturers to help

remedy problems, or to satisfy demands, is having a pronounced, but subtle effect on industry. As one manufacturer of synthetic materials said, "In today's market you are buying brains and time as well as materials".

Allied to this, the cut-throat, completely competitive secrecy in a factory appears to have largely disappeared. In fact, social contacts appear to be very strong. A number of interviewees rated this category quite high in their lists, together with conferences and seminars. The contacts provide more immediate or general information whilst longer term trends or problems are discussed at seminars and conferences, some within the bigger companies but also at national and international levels.

The importers of the chemicals (resins and dyes) tend to refer to their principals increasingly when problems arise beyond their local competence.

One component that has used outside research assistance is the scouring sector (250). The wool scours recognise the importance of the Wool Research Organisation at Lincoln College. They have been responsible for quite large scale updating and modernisation of processes, such as devising methods of lanolin extraction processes and better materials handling and flows. This has improved the raw materials passed on to the mills.

Thus there is a reversed linkage back towards the raw material suppliers, when seeking improved products. This in turn means that the base manufacturers hold a very important position in development possibilities. Their modernisation and research can have many fold results further along the chain of utilisation.

#### Integration, Rationalisation and Specialisation

Within the large companies vertical integration has developed. This involves linkages from buying the greasy wool, to marketing the final products, including retailing in some

cases. 'Alliance' for instance, operating through its subsidiaries, controls the flow of products through its own chain, as well as providing raw materials for other customers, some of which are competitors. Alliance's recent purchase of a pattern maker has provided a stimulus for its fingering yarns and broadened the operations from a straight textile field. Garments are also being produced through a new subsidiary, 'Swanndri', allowing a further outlet for the woven fabric production, and a further diversification of the production base. It also represents a greater degree of specialisation. Another new development is a spinning plant at Wanganui, in connection with Kimberley Carpets of Auckland. In the Levana subsidiary, one of the more recent achievements has been the production of a fully washable jersey fabric, following work with raw material suppliers and company research. This fabric (Aqualana) is a change, in that no synthetic fibres or yarns are used. Its production requires very specialised machines and skills, highlighting the growth of specialised production units. 'The company's vertical integration in the textile industry is its strength in its particular area of operation'. (Alliance Textiles, 1975 p.5)

Mosgiel follows a similar pattern. It produces a wide range of finished products itself, as well as providing raw materials for others, especially in the knitwear trade. As in the case of Alliance, its production base has both widened and factories have specialised. The acquisition of Kaiapoi and Roslyn has enabled production within each mill to be integrated and become more specialised, together with longer runs of basic products. This creates some problems in organising material flows, and in rationalising production, but results in greater flexibility and a more diversified range of products. For example, Kaiapoi Mill used to buy its raw materials, produce the goods and market them. Now most of these functions are done by the parent company, and the mill is virtually a producing factory only. The flow of raw materials has been affected, and purchasing links with the original company have changed. Also the merger brought further outlets and gained access to a



larger section of the market in different areas of the country. Other mills of the Kaiapoi-Petone group were also affected. The Petone mill was closed, and has since been demolished. The plant and machinery in it were old, and labour problems in the Hutt Valley were increasing. The Palmerston North spinning and weaving mill has been maintained at present, but no long term decision has yet been made. Raw materials for this mill are drawn from the South Island now (mainly Dunedin) and it supplies its spun yarns to knitting mills mainly in the lower North Island. Mosgiel, through its subsidiary Shepherd Wools, has also produced a fully machine washable yarn and is, therefore, also likely to produce advanced fabrics in the near future. Thus, 'production now ranges from the old popular rugs and blankets to a variety of knitwear products, fashionwear for men, women, and children; woven products including curtain fabrics, and yarns from knitting to carpet as well as the tops'. (Stewart, 1975, 122)

Millers in Christchurch has been noted as one of the first companies to have developed this vertical pattern of production. From early times, Millers operated a factory with all stages of textile production, for its own retail shops throughout New Zealand. With the shift to Christchurch they maintain that one site integration reduces the costs to the final customer.

Feltex is somewhat different in that the main products it produces are floor coverings, whilst the fine worsted tops are largely for the knitting mills. It does, however, produce the raw materials for successive parts of its own organisation as well, and has developed strong forward linkages. Feltex has moved into a variety of products in response to customer's needs, rather than merely satisfying intra-company needs. To some degree this marks the emergence of horizontal linkages. This is more apparent when the non-textile divisions are taken into account.

Other divisions work together making a wide range of products, many of which are sold through the subsidiary Smith

and Brown-Maple stores; e.g. the underlay for carpeting, made by another subsidiary Reidrubber (which also produces many other goods including tyres). Braids and ribbon, also available in these shops, are a product of the cordage divisions, whilst innerspring mattress production through Tattersfield subsidiary, and lofting and waddings, including pillows, are further products of other branches of textile divisions.

Recent diversification of non-textile divisions into related activities, has been the purchase of Consolidated Plastics, which produce most types of moulded plastics for industrial and domestic use, some of which relate to textile goods such as car upholstery moulds.

The present expansion of the Kakariki plant including the installation of the most modern equipment for fine worsted top production, marks a further development of skill and technology. When the original plant was established, a little more than ten years ago, partly in order to supply demand for otherwise imported goods, production was started with second hand equipment. In order to conserve overseas funds at the time, government had to be assured that more equipment would not be sought for a period of time. That time has elapsed, and with the new machines, it may be possible that imports may be further reduced, and perhaps even some exported, which could help achieve the government's aim to increase the New Zealand labour content of exported materials. The production is also linked to the latest spinning plant being established this year in Wainuiomata, near Lower Hutt, at a cost of \$1.5 million. This factory will process the worsted yarn from Kakariki, and it will then be used in the New Zealand knitwear industry for jersey cloth. (Manawatu Evening Standard, 1975)

Feltex's move into other fields of manufacturing has a counterpart to some extent in the operations of U.E.B. whose name implies original production in the box and package design fields of manufacture. Company capital investment requirements and business expertise led their entry into the textile manufacturing division. To satisfy the former requirement,

their entry was by way of take-over of existing concerns, mainly in the 'other textile' field at first, but then in the woollen mills. (Napier and Roslyn) Since then, production problems and other reasons have seen their withdrawal from Roslyn. The original mill in Napier, which had been planned to be transferred to Awatoto prior to U.E.B. control, has also closed but production of the 'replacement' scour and spinning plant at Awatoto has increased production. Within the U.E.B. range now, production has been very closely geared to floor coverings, in Christchurch and Auckland, and the degree of specialisation increased accordingly.

A recent development is the Auckland Textile Manufacturing Co. Ltd (Autex) which is also concentrating on floor coverings. Until very recently it mainly used synthetic materials, but it is now expanding through its subsidiary, New Zealand Wool Spinners at Dannevirke.

It would appear, therefore, that considerable and rapid vertical integration is occurring. In the course of integration, production is becoming increasingly rationalised and specialised.

Control of the large groups is centred in a variety of locations - Dunedin, Timaru, Christchurch and Auckland, largely as a result of historical factors, although Feltex has just completed relocating its head office from Wellington to Auckland because the majority of its operations, particularly the non-textile divisions are located there.

The location of subsidiary plants, though, is largely the result of location of the firm before take-over, and re-location costs are not off-set by the gains. In fact, many benefit from the original location factors, such as stable labour force, or skills.

In spite of these large public companies, in terms of actual numbers, the private company enterprises are still dominant (Department of Statistics, 1971-72, Table 14), particularly the Scours and the Hosiery and Knitting Mills.

These large groups, however, have a large hold on the new material supplies.

In terms of production, the small private companies are tending to develop 'one line' production, to a highly specialised degree, such as men's or ladies' outerwear or pantyhose only; whereas the large groups are developing versatility and diversification within their organisations. The specialisation is more noticeable in the Hosiery and Knitwear divisions, but this is not exclusively so. In group 269, some narrow woven fabrics are produced in these 'one product' factories.

#### LINKAGES PURCHASE AND SALES

With the main 'base' mills for the industry largely located in the south, and the population dominance in the north, flow of products can be assumed to be northwards. An attempt was made to identify the nature of the flow of materials.

(Tables 22 and 23) This was not easy for a number of reasons:

- 1) Not all factories in an area completed the questionnaire fully.
- 2) Not all the purchases and markets were given. Some gave major materials or markets only, e.g. Auckland area, 70 percent.
- 3) Not all areas referred to were synonymous e.g. some would state they sent 80 percent of goods to the lower North Island, while others would state 80 percent to Wellington.
- 4) Wool scourers operate in different ways. Most are commission only and others are subsidiary companies. Very few actually trade in wool, as well as scour. The scourers therefore are excluded from the table.
- 5) In order to respect confidentiality in some areas where only one plant gave a return or operates, the figures are included with a contiguous area.

Table 22  
Purchase patterns - 1975 (by percentage)

Bought from	Otago Southland	Canterbury	Other S.I.	Wellington	Hawkes Bay	Wanganui	Auckland	Imported	Totals
REGION									
Auckland	17	-	-	21	4	-	13	45	100
Hawkes Bay/ Wairarapa	-	1	-	1	31	-	4	63	100
Manawatu/ Wanganui	12	14	5	25	-	4	5	35	100
Levin	7	10	-	33	-	-	25	25	100
Wellington	2	2	-	61	4	6	1	24	100
Canterbury	-	-	90	-	-	-	-	10	100
Otago/ Southland	-	-	90	-	-	-	-	10	100

Source: Survey, 1975

Table 23  
Sales patterns - 1975 (by percentage)

Sold to	Otago Southland	Canterbury	Other S.I.	Wellington	Hawkes Bay	Wanganui	Auckland	National Retail	National Wholesale	Export	Total
REGION											
Auckland	-	3	-	1	-	-	29	46	12	9	100
Hawkes Bay/ Wairarapa	-	-	2	24	20	-	52	-	2	-	100
Palmerston North/ Wanganui	2	4	-	21	-	4	13	31	17	8	100
Levin	-	-	1	36	-	-	27	-	30	6	100
Wellington	-	-	-	21	8	13	3	2	35	18	100
Canterbury	-	13	5	29	-	-	19	34	-	-	100
Otago/ Southland	5	25	7	-	-	-	26	-	7	30	100

Source: Survey, 1975



6) Raw materials vary, e.g. Auckland has many synthetic imports, whereas Otago has few.

7) It was not possible to make the table balance in total between origins and destinations because of the different figures. The percentages given by companies do not state the total volume or value of the trade. Hence, though one region may sell 50 percent of its products to a second region, the goods traded may represent only 10 percent of the second region's purchases.

The tables were developed from the percentages supplied in the survey questions. Percentages were recorded by areas, and then summed. The 'weight' for each region was then recalculated as a percentage of that region's trade, and rounded to the nearest whole. As accurate tables, they leave a lot to be desired, but as an indicator, they serve a very useful purpose. The general flow of materials toward the North Island and Auckland is apparent. In the purchase section (Table 22) it is clear that South Island purchasing is within the island. However, the vertical linkages already discussed would tend to indicate a virtual self-sufficiency of materials in the South Island.

In comparison (Table 23), sales are more specific and show that less than a quarter of the total South Island production remains there. Almost the same amount goes to Auckland area alone, and when the proportion of the National Distributors is accounted for on a population basis, this is even higher. The high degree of export from Otago and Southland is interesting. The comment from several companies was to acknowledge increasing export proportions, especially in carpet yarns or wool, providing that freight costs do not make prices too prohibitive.

The 'import' portion of purchases continues to increase the further north the location, but noticeably Hawkes Bay/Wairarapa has a higher proportion than the rest of New Zealand. This is not just because of synthetics which are an important

aspect, but there are also large cotton imports to supply several units in the Wairarapa area. Chemical goods, including dyestuffs, are imported in quite large quantities.

Hawkes Bay/Wairarapa sales show the reliance upon the two major markets, Auckland and Wellington. The influence of the port helps direct trade with Auckland especially. If the influence of the woolscours was included, exports would be much higher, as many of the scours are commissioned by agents for overseas sales.

The three central regions, particularly Manawatu/Wanganui are much more diverse in their trading patterns. Purchases are made in all regions except Hawkes Bay/Wairarapa from whence the volume of trade is so small that it is not significant. The reasonably high proportion of imports is largely attributed to synthetics, and chemicals, though cotton goods are also significant. A number of hosiery knitters, and a nylon manufacturer help raise the percentage. The presence of several large woollen mills using local raw materials from auction raises Wellington's own purchase percentage links. Wellington's low volume of purchases from Auckland also indicates greater self-sufficiency of raw materials.

Sales linkages in these regions show diversity also, but the lack of direct sales to the South Island emphasises the single direction of flow linkages. What sales are made would appear to be through the National distributors, or direct to small retail outlets. If these are similar to estimates given by a number of firms, less than 25 percent of finished products are sold in the South Island. Some estimates gave as low as ten percent of sales from the North Island go to the South. Allowing for differences in population of the two islands, it would appear that the South Island market must be reasonably satisfied from elsewhere, i.e. South Island factories.

Auckland's purchases are not really widespread. The reliance on imported goods accentuates the intrusion of synthetics to the New Zealand market, and is consistent with

the type of textile industry located there, i.e. significant growth of the floor covering industry, which have a proportion of synthetic yarns incorporated. In addition, a number of narrow woven fabric plants, and elastomeric laces and ribbon manufacturers are located there, which have a very high imported content, as do many hosiery products.

Auckland's sales patterns are in accordance with population (Table 2, Chapter 2) and with the fact that many 'end' manufacturers are located there. The high proportion of 'direct' to retailers further accentuates this point. Very little direct South Island trade is apparent. The Wellington figure corresponds with what Wellington producers stated they purchase.

It is regrettable that individual components of the industry could not be analysed in the same fashion because from the returns which were obtained, and by checking the location and nature of the products from the factories, it is evident that the flow of materials is from south to north. Whilst each region has some proportion of each component of the industry (excepting Flax) the greatest proportion of the 'base' material factories are found in the South Island, whilst the greatest proportion of 'end' materials are to be found in the North Island, and especially in the Auckland area. Wellington appears to be midway in this transition, and also appears to have the greatest diversification of components in the industry (see also Chapter 4) and the material flows seem to correspond with this.

A further influence which is modifying the material flow is the growth of the large companies (largely public owned) and their rationalisation programme. Their inter-branch material flows are quite sizeable and are increasing as these companies take over firms or establish new branches. As high as 100 percent of a branch's raw materials or production can be affected and may be moved between distant branches. Flows of material may be counter to the general northward shift. Some movements appear, though, to be of a small volume, or over

smaller distance (e.g. Kakariki to Lower Hutt). Sufficient information was not forthcoming to enable accurate assessment of the intra-branch flow.

### Transport

Shifting the raw materials requires large scale transport facilities. Over the 20 years considerable changes have occurred, and transport facilities have had, and still play, an important role in location.

The need of the scours to be located near a port, especially commission scourers, has been mentioned earlier, but woollen mills too, handle large quantities of bulky, heavy, relatively low value products. Transport of these products remains very largely in the hands of the New Zealand Railways both inwards and outwards. It would appear that the railways have recently provided a good service, with the introduction of small containers and palletised handling. Few of these mills are located any distance from the rail and, in fact, many have a shunting line into their properties. Those who do not, have trucks. Delays in rail transport can be a problem and sometimes interrupts production. At least two mill managers spoke of an increasing use of air freight. It speeds up acquisition of raw materials and delivery of finished products, with consequent savings by having less capital tied up during shipment.

The emergence of the very large, highly specialised factories, both single companies and branch operations, has in part been a result of the development of more efficient and adequate transport systems, including freight subsidies (particularly from South Island mills) and inter-island links. Palletisation and containerisation (international and local) are also thought to have reduced handling costs, and delays, but no statistical data on this aspect is available at present, nor could firms provide this information. Nevertheless, materials and products appear to be moving with increasing ease

throughout the whole of New Zealand. If transport costs continue to rise, as they have done recently with increased fuel costs, small scale specialised local factories may be able to effectively compete in centres removed from the main markets or manufacturing centres.

As transport costs depend on weight and bulk, and are a proportion only of the final cost of the article, their impact is only evenly felt throughout the industry. Scours have already been mentioned. At the other end of the manufacturing chain, such as carpets, which have a high unit value, transport costs are a much smaller percentage than for a product such as knitted apparel, which has a lower unit value. Therefore, carpets and similar products with high ex-factory values can be transported further before the transport cost factor becomes too great. Perhaps this is one of the reasons why Auckland has so many of the floor covering manufacturers.

It is in road transport that big changes have occurred. A large majority of companies stated that it is now economically unsound to run a number of 'company' trucks and they have, therefore, sold all, or all but one, and now rely on local carriers, or national operators, such as 'Alltrans' to provide their transportation. Quite a number of large firms have only a company van for light local deliveries, others own none at all.

Further up the production chain, other changes have occurred. Like many other manufacturers, textile manufacturers complain about New Zealand's transport systems, regardless of progress which has been made. Two main aspects are apparent; delays in transit, and non-delivery (either through damage or pilferage). Knitted goods and floor coverings appeared to be most affected. Rail was used almost exclusively by these manufacturers, but now, a majority of knitting and hosiery mills sampled are using postage or bus direct to retailers; or for bulk orders, air freight, to speed delivery of goods. Feltex carpets have changed their system from four warehouses to a centralised warehouse, and direct road transport contract operators, and feel that they are saving in time, freight

costs and insurance claims on their high value, single unit items. The same sort of problems are being solved in other centres. Several manufacturers complained that dramatically increasing shipping costs are forcing them to quit exporting. As costs are increasing, competition becomes prohibitive. As one Auckland manufacturer said, "Cost of finance will force N.Z. out of world markets as freight is killing already established markets".

### Future Developments

From the comments of management, and the patterns noted within the industry, several trends are emerging and are likely to continue in the foreseeable future.

The large scale rationalisation of the woollen mills is almost completed, and little major change is likely with regard to location. Production within the units is rapidly becoming far more specialised. This is made possible because of the longer runs in production, less direct competition, and increasing automation. Intra-company linkages are also likely to become greater with this growth of specialisation and vertical integration, but greater overall diversification is also becoming possible through additional related activities and outlets.

A drive for increased quality and lighter weight fabrics is noted as a result of public demand. Some managers feel that undercapitalised companies are not very likely to be able to continue production because of the swing away from traditional 'lines', and the fact that machinery to handle finer yarns and materials is very costly. That in turn virtually necessitates long production runs to make unit costs economic and competitive, but other factors also contribute. They include the following:

- 1) Equal pay, and a uniform scale of pay for all regions throughout the country, which will mean that there will be little advantage in locating away from the main markets.



The exception to this is higher value per unit proportionately to the finished product unit. Thus a large weight or volume loss in production will continue to favour location near raw materials.

2) Transport costs, as outlined earlier.

3) The effect of these could also be controlled or modified by continued or increasing government influence in the form of regional development incentives or subsidies.

The most recent operations to start in New Zealand, i.e. Dannevirke, Wanganui and Invercargill, would tend to confirm that the regional development programme is having some effect on location outside the main market areas. However, the type of operation, spinning and yarn production, appears to be one that fits neither 'raw material' or 'market' location dominance, and so the incentive of government assistance makes the difference in the decision making process. However, the extent of the influence has not yet been fully established.

### Summary

All these factors influence the decision of location. There is clear evidence to show that as technology advances and capital investment in the textile industry increases, large units and greater specialisation are developing. Intra-company linkages have resulted in vertical integration, but have also promoted greater diversification in the total operation. Smaller units have also tended to specialise in order to give economies in production. This applies especially in the hosiery and knitting divisions of the industry, but examples of similar changes are also found in other sectors. Transport linkages have helped speed up the changes as well, but their impact is not spread evenly through all components. Recent government policy appears to be having some effect on location decisions, but it is too early yet to assess the full extent of this.

## CHAPTER 4

THE NATURE OF THE TEXTILE INDUSTRY IN THE  
WELLINGTON REGION

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The Wellington Region in this study includes those regions included by the Department of Statistics under Taranaki, East Coast, Hawkes Bay and Wellington. The region's textile manufacturing industry differs little totally from the New Zealand patterns of development, yet within the area, some very interesting changes have occurred; spatially, structurally, and in social impact. Of particular note has been the development of several important urban centres, Hawkes Bay, Palmerston North and Levin. At the same time Wellington/Hutt Valley area appears to have declined in importance.

Table 24 analyses the structure and location of the industry and clearly shows the difference in structure of the industry in each centre. The main difference between the sample and the Department of Statistics figures for 1971/72 appears to be the lack of woollen mills in the 'Wellington' area. The Kaiapoi-Petone mills at Petone and Dannevirke are known to have closed since then, but the absence of the others could not be accounted for.

Location

The main location information for the area has already been detailed in earlier chapters, but spatially some important features emerge. Levin has a disproportionately high number of factories for the size of its urban population. Palmerston North also ranks high, whereas Wellington City has only a small number of factories.

Table 24

Location and structure of textile manufacturing units in Greater Wellington area - 1975

Town or Centre	Taranaki	Wanganui	Feilding	Palmerston North	Foxton	Gisborne	Napier/Hastings	Dannevirke	Masterton	Hutt Valley	Wellington/Porirua	Levin	Shannon	TOTALS	Department of Statistics 1971/72, East Coast/Hawke's Bay/Taranaki/Wellington
GROUP															
269 Textiles n.e.i.	-	1	-	2	1	-	-	-	1	2	1	2	1	11	11
260 Hosiery and Other Knitting	2	1	-	6	-	1	-	-	1	1	3	8	-	23	23
254 Other Spinning and Weaving	-	-	-	1	-	-	1	-	1	2	-	1	-	6	7
251 Woollen Mill	-	1	1	-	-	-	-	1	-	-	-	-	-	3	9
250 Wool Scouring	1	-	2	-	-	1	4	-	-	2	-	-	1	11	9
TOTALS	3	3	3	9	1	2	5	1	3	7	4	11	2	54	59

Source: Survey, 1975

Note: Does not include two new plants to commence 1975: 1 Feltex - Wainuiomata Spinning Mill  
 2 Alliance/Kimberley Carpets - Spinning plant Wanganui

### Hawkes Bay/Gisborne: Hawkes Bay - A Mixture of Old and New Operations

A large number of scour<sup>are</sup><sub>A</sub>s based on the available raw materials wool from the hinterland (excellent artesian and river water, fairly easy effluent disposal and good port facilities for exporting scoured wool). Water and effluent disposal accounts largely<sup>for</sup><sub>A</sub> their location, along the seafront at Awatoto, and along the banks of the Ngaruroro River. Labour too is generally plentiful, if transient at times. All these factors, plus the fact that Napier is a Wool Auction centre, has made this a very attractive scouring centre, but because the bulk of this wool is for export on a commission basis, they have little real impact on the remainder of New Zealand textile manufacturing industry.

The region has lately received a boost through the operations of the U.E.B. Spinning plant at Napier and the recent commencement of New Zealand Woolspinners Limited in Dannevirke. The U.E.B. plant had been planned by the Napier Woollen Mills before its take over in 1965, and the intention to shift the plant to Awatoto was carried out. Whether or not Napier Woollen intended to close the 'mother' mill or not, as a result of the takeover, the new company concentrated on the production of tops and spun yarns for their Auckland carpet mills, and closed the mill in Napier. The Dannevirke mill of New Zealand Woolspinners Ltd. likewise is designed largely to supply carpet yarns mainly for the Auckland market, and its greatest shareholder is an Auckland company (Autex). Using wool materials, and residual skilled labour from the spinning mill which closed when the Kaiapoi-Petone takeover eventuated in 1972 the new plant will operate with government assistance and shareholding. The mill is already having an impact in Dannevirke, as has recently been mentioned through the news media (radio television and papers). It is bringing employment opportunities directly through wages, and indirectly through supplementary services and materials.

Palmerston North/Feilding

Although the textile trade has been associated with Palmerston North since 1884, through the forerunner of Manawatu Knitting Mills, only two factories, the above, and Jacquard Knitting Mills, were operating before 1950. Since 1957, considerable development has occurred.

The ownership of five of the companies is in the hands of local private residents, but the others have shareholding links with companies outside the area. The bulk of the companies are knitting mills (Table 19) though Mosgiel operates a spinning plant which was inherited from Kaiapoi-Petone. The two Textiles n.e.i. plants were both constructed to supply raw materials to their 'parent' companies but in addition Ralta Textiles has also branched out into a new and different field of Industrial Textiles, and is apparently supplying a unique service in Australasia in that regard.

Palmerston North appears to have attracted the textile factories because of available labour. A steady labour pool, with the infrastructure of a city already established, but without the problems associated with a large city, has apparently provided the impetus for growth in textiles.

Without fail, firms have labour availability or better labour available, as one of the main reasons for establishing, and most also mentioned cheaper building and land. The textile factories aren't large, the average employment being only 67, but one plant employs nearly 200 staff.

Purchases are made from a wide area, but wool yarns do flow largely from the South Island mills. (Table 18) Increasingly however, purchases are being made from Lower Hutt (Feltex and Woolyarns).

In this area, the greatest percentage of products goes northward, and of this, the majority is handled by national wholesalers. Some large companies however prefer to use postage or buses direct to the customers.

Palmerston North has several other advantages. It is on the main trunk railway, is a customs centre for importing, has regular air services and is a distribution centre. Within Palmerston North, sites are scattered throughout the city, some close in, others in the new industrially zoned areas, yet each company felt that their site had many advantages, and no-one wanted to shift. One central mill felt that its expansion was being threatened however by off-street parking restrictions. Another felt that its building was not really suitable because of an unstable floor, which could be overcome except that the buildings were only leased. One company had its own research section, but nearly all others claimed that research was completed on the floor to meet customer's requirements.

Seventy-five percent of the industry in Palmerston North has intra-industry linkages, either in the city, or beyond. Mosgiel received most of the raw material needed from its main South Island mills, but the majority of the manufacturing plant has been established in order to supply onward manufacturing units. Three of the units are built adjacent to their markets, and one other is only a few blocks away.

Feltex's operations at Kakariki are somewhat unique, in that there is no urban centre adjacent, all its raw materials have to be brought in, and its products move out by rail. Yet the major extensions to the top-making factory emphasises satisfaction with the present site. Reliable labour, with very little absenteeism and good site facilities (space and abundant water) are seen as major advantages. Perhaps the fact that nearly all its production goes on to the Lower Hutt factories, makes transport linkages easier.

The growth of a number of similar operations within Palmerston North has facilitated the development of a 'Buddy' system, which greatly assists solving problems of production. These are mainly of a technical nature, but helping out with raw materials or information occurs also on a much smaller basis. The fierce competition and secrecy of the days up to



the mid 1950's has largely disappeared, as each company's production has been geared to specific requirements of 'their' market.

#### Levin (Including Shannon)

The expansion of Levin as a centre of knitting and hosiery mills has many similarities with Palmerston North but has also some unique developments. The first factory didn't commence until the early 1930's, to utilise a source of labour, close in to Levin's shopping area, but it was not until after 1950, that development really began. All other companies commenced business since that date, three are only a year or two old, and others have expanded dramatically since that time.

Another large company was planning to locate in Levin also at the beginning of the expansion time, and had commenced building but because of delays at the time machinery arrived, it located in available buildings in Masterton. Like Palmerston North, all companies gave available labour as a major, if not first, reason for locating there, but there appears to be many more subtle reasons for the 'move' to Levin. 'Move' is used deliberately because many of the managers did come to live in Levin, when establishment was afoot. Although not directly stated, at the beginning of the 1950's the Levin Borough Council was actively attracting industry. Cheap land in industrial 'parks' scattered around Levin, mainly near the rail, available labour, promises of services to be developed, and good transport links (rail and road) were claimed as advantages. As Wellington was having expansion problems and labour shortages, several now large companies decided that Levin offered a solution. (The Masterton company was another).

These same factors are still seen as major points in Levin's favour, but in addition, the development of knitting skills in the labour force has attracted other companies, some supplementary to the knitting industry.

The creation of a commission dyehouse is seen as a result of the number of knitting and hosiery mills in proximity (Levin, Palmerston North, and some from other centres) and it is thought that this will even further accentuate Levin's specialisation. Allied to the dye house, and as a result of the demand for synthetic yarn variations is a texturising, or throwing plant. Although some managers have differences of opinion of the definition of a 'throwster', little doubt is left that the ability to dye and texturise synthetic filaments, and blended yarns, in Levin will reduce delays and costs of transporting raw materials.

Further coupled with this, is the proximity at Shannon of one of New Zealand's major synthetic yarn producers. Once producing only a poor quality nylon, under new management and technology the Holeproof mill is diversifying its range of products, and even now is exporting almost half of its production, as well as supplying an increasing New Zealand knitting industry, whilst its own production capacity has continued to increase yearly for the last ten years.

This degree of specialisation has also meant that the industry in the area is becoming increasingly capital intensive. One of these major industries stated that they had in excess of \$50,000 per worker in capital equipment investment, and that this was still increasing. Others too had expansion programmes or new equipment installed, which was giving a far higher degree of automation, but at the same time, increasing automation is meaning a more highly skilled operator was required. Levin has these at the moment.

A further newcomer to the industry has been established by two former employees of Lane's Hosiery, Levin. Using skills they had developed, they decided to branch out on their own three years ago, and are competing successfully with other manufacturers in the same town by selling to a slightly different market. The main point from all this is the degree of skills and specialisation that is beginning to result in inter-industry links within the same area.

Within this one area, a number of plants have developed a great deal of vertical integration e.g. Lane's Hosiery and Lane's Fabrics, but there is also multiple development occurring e.g. elastomeric fabric weaving at Lanes, and Penn Elastic, though the final products may differ.

Most raw materials are brought in by rail, but road transport from Wellington is also efficient and used, but to a lesser extent. Imports tend to come through Wellington, and woollen yarns from the South Island manufacturers, but synthetics are mainly purchased from Auckland. This is changing, however, with the improved quality and variety of production from Shannon.

Sales linkages are mainly northward. Over 60 percent goes to Auckland, and a further percentage to national distributors, some in Auckland and some in Wellington, by a variety of means. (Chapter 3) Very little goes directly to the South Island.

Again like Palmerston North, most of the companies in Levin have shareholding interests. Four are subsidiaries of companies outside Levin, and all but two have connections with some other factory in the town.

As could be expected, therefore, social contacts play an important part in the general development of the factories. Only three of these companies could be called small by New Zealand standards, and the economic impact on a town of Levin's size must be large, with a total of 745 (61% males) being employed directly in textile manufacturing. Wages and salaries alone would generate considerable associated activities. The number of businesses affected by the presence of the textile plants would also be considerable. Such businesses as transport operators, printers, electricians and town services would all be clearly affected, but the indirect links would be incalculable. It is worth noting in passing that because a large number of females are employed (291), many of the mills work shortened lunch hours, and close early on Fridays so that the female staff can shop.

Wellington/Hutt Valley

The number of establishments in such a large population is not great. Six companies are large but the remaining five companies employ less than sixty people between them. Feltex operates three main factories in textiles here, (the carpet mill, spinning and weaving and John Grants (flock and waddings)) and has a new mill almost ready to commence spinning at Wainuiomata to utilise available labour there.

Bonds Hosiery Mills, and Prestige Hosiery Mills are both large establishments, and both head offices have large branch companies in Auckland recently opened. Bond's Wellington branch employs only 24 percent of its total staff. Prestige has a new mill opened in Stratford.

The fact that these companies have located branches out of Wellington indicates the rejection of Wellington central as a textile manufacturing location, in spite of its port and urban concentration. Three companies have located in the region since 1972 if Feltex's branch opening soon, is included. One, a small hosiery mill, is looking for an alternative location, mainly because they are housed temporarily in rented accommodation two floors up, but are looking further up Wellington's West Coast, to avoid staffing difficulties. The other, a spinning mill, has relocated in the Hutt Valley from Wellington, to stay near their established operation centre, and to gain staffing benefits in the Hutt Valley, as well as gain suitable site facilities. Of the remaining companies two are scours, one established before the turn of the century, the other in 1972. One is a very small privately owned knitting mill, and two are flock mills.

Wellington central is obviously not desired as a textile centre. In spite of the large population for a market, labour is difficult to obtain, or hold, and raw materials have to be brought in. Capital investment and inertia seem to be holding existing operations, but few independent operations are located there by desire.

### Other Areas

Although labour availability is very desirable, it is not the only factor necessary for location, nor apparently is the availability of raw materials. Even these combined factors have apparently been insufficient, because a centre like Wanganui, or Gisborne has not attracted new textile industries in recent years.

Wanganui has had both labour, and plenty of raw materials available for many years, but Regional Development Council's incentives have been sufficient to encourage a new plant to be opened shortly as a joint venture of Alliance and Kimberley Carpets.

Similarly the carpet mill at Foxton replaced the Phormium Flax operation after some official encouragement, but so far Gisborne appears to be lacking an entrepreneur.

### Summary

Within greater Wellington area, a number of linkage patterns have developed:

1) A few inter-industry links are forming, particularly in Palmerston North and Levin, where similar types of operations are located. Social contacts within the industry are strong and are assisting technical and product improvements.

2) A large number of companies have intra-industry links. In a few cases these are largely dormant shareholdings but in a majority, active controls, purchasing and sales links direct the development of the manufacturing units. Some units were developed largely to supply other branch needs and have little surplus production, but the majority produce for integrated units as well as outside customers.

3) Very few companies have technical or research linkages. Most product development is done on the floor, or by way of reacting to consumer demand.

4) Some urban areas are developing a specialised core of plants, some of which are unique, such as Levin, and mark a new phase of textile manufacture in this area.



## CHAPTER 5

CONCLUSION

The period covered by this study has been one of considerable change. Although the actual number of factories has not grown significantly, the number of employees, and the nature of the factories has shown change. This change is also found in the location of the factories, in the degree of technology involved, and in organisation of major companies.

Structure of Industry Components

The number of factories involved in textile manufacture has increased only slightly, but with the decline of the flax component, growth has occurred in the Spinning and Weaving, and floor covering components. Recent growth has occurred also in the number of scours operating. This growth is also indicated by the size of the factories and mills. Over the 19 years there has been a 99.89 percent increase in the number of employees. Some of the increase in size has occurred in the traditional woollen mills, but they have also changed in organisation. Most growth, however, has taken place in the components mentioned, i.e. Spinning and Weaving, and floor coverings, (Textiles, n.e.i.).

The flax component of the industry showed considerable decline, largely as the result of competition of alternative synthetic materials, both imported and locally made. Synthetic materials have also caused considerable changes in the structure of companies and the nature of their products. Few man-made yarns were used at the beginning of the study period, but most companies used blended yarns and materials at the conclusion of the period. The shift in emphasis at the company level was also a factor in the growth of the components above.

### Location Changes and Factors

Present location is the result of the impact of a number of factors. Historical patterns are still largely existent; but now raw materials, technology, changes of market and labour, (concomitant with the population drift), together with company rationalisation and re-organisation contribute. The traditional mills in the south have undergone takeovers and mergers on a large scale which have assisted in maintaining their efficiency and place within the organisation of the industry. Other regions have seen the growth of the new components, particularly Wellington and Auckland. The flow of materials northward to markets and customers has become evident as the North Island population share has increased, especially that in Auckland. This flow also appears to be along the chain of production, i.e. from greasy wool to fabrics and knitted materials and garments, though the existence of small factories in each region from each component modifies the generalisation.

Available labour remains a very important location factor, but increasing importance is being made upon greater abilities and skills, as well as stability of the labour force. In this regard, the smaller regional centres such as Palmerston North and Levin are highlighted. However, the impact of equal pay and regional variations of wage rates is at present not certain. They may alter patterns which have developed. (Refer also to the summary at the end of Chapter 3).

### Technology

Technological impact has been manifold and widespread. New materials and processes have necessitated the installation of expensive and sophisticated equipment. In some cases, this has meant greater specialisation of production, but in others, a complete re-organisation of the company. Capital investment of the scale required, especially in the woollen mills, resulted in takeovers and mergers to rationalise and integrate the company's structure and production. Vertical integration has

been common but some horizontal linkages are beginning to develop.

Buildings to house the new equipment are also becoming more sophisticated. In order to handle synthetics, a stable relatively dry atmosphere is required. To handle woollens, a humid moving atmosphere is preferred. Larger, heavier machines, and better lighting, have also specific requirements which have resulted in major reconstruction, alterations, or extensions to many company premises.

The spread of technology occurs in many ways but trade bulletins, visits from trade representatives, and travel to other factories are the main means. Social contacts form a very important means for solving problems. The interest shown in development, and the general feeling of optimism within the industry indicates a progressive attitude.

Transport improvements have permitted greater flexibility of material flows, and have opened up market boundaries and increased competition, but recent trends in escalating costs, in loss through damage, pilferage or disappearance has caused concern, particularly with the high value finished goods. Export trade is increasing in 'tops' of carpet yarns, and in floor coverings, but it is felt that recent transport charge increases may put New Zealand once more at a disadvantage.

Within the industry some linkages have formed along the chain of production from raw materials to the end consumer, in vertical linkages. It would appear that intra-company linkages are developing and becoming increasingly important in some of the larger companies, to guarantee markets and form steady trading patterns, but the extent to which this has occurred was beyond the scope of this study.

Technological innovation through formal research is not indicated in departments or specialist personnel, but research to meet consumer demands continually occurs 'on the floor'. Generally, this results in specific demands being made in reverse linkages. In this regard, the smaller manufacturers

continue to provide quick efficient response for small production runs, but the large companies are increasingly concentrating on longer run production.

### The Wellington Region

In addition to those points mentioned at the end of Chapter 4, two other points emerge. Within the smaller centres of Palmerston North and Levin, the textile manufacturing industry has developed as a recognisable proportion of the industrial labour force, and as such plays a substantial role in the life of the community. Levin would represent the most specialised textile centre in New Zealand and has resulted from a combination of available labour (now with a good degree of skill), land and transport.

Overall the Wellington Region has a wide variety of components. On the surface, it would appear to have the most diversified industry structure in New Zealand. It receives raw materials from nearly all other regions, but a large proportion from imports and the South Island. Its markets, however, seem to be mainly northward and especially to Auckland.

Because of the degree of diversification that is apparent now, and the patterns of trading linkages, it could be argued that the Wellington region is developing as a central, or midway manufacturing centre, drawing partially processed raw materials from the South Island, and adding value through further processing before selling in northern markets. However, it could not be established at this time whether the pattern is a consistent one, whether this has arisen in recent years only, or whether the pattern is likely to develop to an even greater degree. Confirmation or rejection of this pattern could form the focus of further study on the geographical patterns of the industry.

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Appendix 1.Sample of Questionnaire UsedPlease return to:

E.W. Vickery,

[REDACTED]

[REDACTED]

[REDACTED] 1975.

TEXTILE MANUFACTURING INDUSTRY SURVEY

Company Name:

Location of all branches in company:In which industrial category is your company?

- |  |                                 |
|--|---------------------------------|
| ..... Wool scouring                    | ..... Linen flax                |
| ..... Woollen milling                  | ..... Carpet weaving            |
| ..... Other spinning and weaving       | ..... Carpet Tufted             |
| ..... Hosiery and other knitting mills | ..... Textiles not listed above |
| ..... Phormium flax                    |                                 |

ESTABLISHMENT & OWNERSHIP

When was the company established? Year:

Has the ownership structure changed since company established?

.....

If yes, in what way?

What is the present ownership structure?

- ..... private
- ..... public company(N.Z)
- ..... public company (overseas)

What were the reasons for the formation of your original branch or company?

LOCATION

Why were the present location areas of each branch chosen by the company?

Location

Location factors(including  
merger decisions)

Why were the present branch sites selected?

If given the opportunity to locate your present branch without restrictions of any kind, would the company locate in:

..... same site	..... a South Island town (specify)
..... same location, different	..... a North Island town (specify)

Comments:

What does the company regard as the main disadvantages of the present site of this branch? (list in order)

Did government assistance influence the establishment of this branch Yes/No Comment:

Does government assist the company to maintain the present branch operation? Specify



PRODUCTS

What products does the branch (company) produce?

What changes in products have occurred over the last 10 years?

What is the company's main problem of production in this branch?

MACHINERY

Indicate any change in the type of machinery in your factory to increase/decrease production.

No change

Additional machinery (for extra output)

Modernisation of machinery (replacing old only)

Decrease by sale of machinery

Specialisation of production

1965-70	1970-75

Indicate where the main processing machinery in this branch was obtained.

..... Direct from overseas manufacturer

..... N.Z. manufacturers

..... Through N.Z. representatives

..... Second hand

Comments:

Please indicate main machinery N.Z. representatives.

From where did you obtain the original information about the machinery you installed?

- |                                      |   |
|--------------------------------------|---|
| ..... visiting sales representatives | ..... specifications compiled by your company |
| ..... house journals                 | ..... management word of mouth                |
| ..... trade advertising bulletins    |   |
| ..... other                          |   |

Comments:

### BUILDINGS

Indicate the main ways in which your buildings have changed in the last 10 years.

- |  |  |
|--|--|
| ..... new plant                                | ..... reorganisation of material flow in plant |
| ..... no change                                |  |
| ..... general maintenance (e.g. painting only) | ..... additional space on another site.        |
| ..... additional floor space on same site      | ..... other                                    |

Comments:

### TECHNOLOGY

How does management keep abreast of latest developments?  
(Please rank where necessary)

- |                                  |   |
|----------------------------------|---|
| ..... house journals             | ..... communication with top management         |
| ..... trade journals             |   |
| ..... conferences and seminars   | ..... own company research                      |
| ..... travel to other plants     | ..... use of university and government research |
| ..... "Buddy or "old boy" system | ..... other                                     |

Comments:

Indicate if recent research and development by your company has affected company policy or production. (Detail in what way)

If technical problems develop within the operations of the branch/company beyond normal experience capability, how are these usually solved?

- ..... use published technical information
- ..... use technical consultants
- ..... manager contact with other branches
- ..... manager contact with other companies in industry in this town
- ..... industry research association
- ..... social contacts in town
- ..... other research institutions
- ..... other

Specify location of contact:

#### STAFF CHANGES

Indicate the numbers of staff in each category

	1965		1970		1975	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
Management						
Office						
Research and specialist						
Factory skilled						
Factory semi-skilled						
Factory unskilled						
Other						

Indicate the numbers of staff who were brought into the area by the company in the last 10 years

	<u>M</u>	<u>F</u>		<u>M</u>	<u>F</u>
Management			Factory skilled		
Office			Factory unskilled		
Research and specialist			Other		

MARKET LINKS

Please indicate the approximate percentage changes (increase of decrease) in raw material inputs and total outputs for your own firm for the periods listed.

	<u>Inputs</u>		<u>Outputs</u>	
	Percentage change		Percentage change	
	Increase	Decrease	Increase	Decrease
from 1965 to 1970				
from 1970 to 1975				

Please indicate any changes in the geographic size of supply and market areas of your firm. Example: if your firm purchased raw Materials from firms located at greater distances from your factory, compared to the beginning of the period listed, please check box marked "increase in size of supply area"

	<u>Raw Material Inputs</u>		
	Increase in size of supply area	Decrease in size of supply area	No significant change
from 1965-1970			
from 1970-1975			

	<u>Inputs</u>		
	Increase in size of supply area	Decrease in size of supply area	No significant change
from 1965 - to 1970			
from 1970 - to 1975			

Please indicate for 1965, 1970 and 1975 changing purchasing linkages

<u>Material Purchased Supplying Industry</u>	<u>Intra-company purchases</u>	<u>Origin of purchase</u>	<u>\$ or % of total</u>
Brief description	Yes/No	Town	purchases
1965			
1970			
1975			

Please indicate the approximate percentages of inputs shipped by type of transport. Use arrows to link if necessary e.g. rail local truck.

	N.Z. Railways	Company truck	Local Trucking companies	National Transport operators
1965				
1970				
1975				

Please indicate for 1965, 1970 and 1975 changing sales linkages.

<u>Market</u>	<u>Product supplied</u>	<u>Destination of Product</u>	<u>\$ or % of total sales</u>
(Brief description including whether intra-company sale)			
1965			
1970			
1975			

Please indicate the approximate percentages of output shipped by type of transport.

	N.Z. Railways	Company truck	Local Trucking companies	National Transport operators
1965				
1970				
1975				

Please specify annual sales, annual payroll and Research and Development figures for the years below.

	1965	1970	1975
Annual sales(either \$ or units of production)			
Annual payroll			
R & D expenditures			

In your opinion, what are the most likely changes in purchasing and sales patterns in the next five years?



## Appendix 2

### Brief History of Major Companies

#### Alliance Textiles Limited

Alliance now has controlling influence in mills at Oamaru, Timaru and Milton; a wool top plant at Timaru; a double knit plant at Levin (Levana Jersey Fabrics Ltd.); printing works at Dunedin (part of Paragon Alliance Ltd.); a garment manufacturer at Waitara (John Mack 1973 Ltd - making Swannndri garments); branches at Waimate and Dunedin; (also thought to be part of Paragon Alliance Ltd.); and associate wool scouring plants at Timaru and Dunedin (Walter Taylor & Co. Ltd). Recently, they have also entered into agreement with Kimberley Manufacturing Company Limited of Auckland (makers of Cavalier carpets) to establish a joint (50/50) carpet wool spinning plant at Wanganui.

Alliance's first move in specialised diversification came with a merger with Timaru Woollen Company. Subsequently, in 1961 there was a merger between it and the Oamaru Woollen Mills. The Bruce Woollen Mills in Milton joined the group in 1963 and since then a re-organisation of production capacity, acquisition of outlets such as Levana and John Mackie, and supply through Walter Taylor's scours, have exercised the Company's skills. The main subsidiary, Alliance Textiles (N.Z.) Ltd., operates the three mills at Oamaru, Milton and Timaru, and its main activities are Woollen Milling, and Spinning and Weaving.

#### Mosgiel Limited

Mosgiel has recently separated from partnership with U.E.B. in Roslyn Mills and subsequent shareholding. It controls mills at Mosgiel, Roslyn and Kaiapoi; a top making

division at Mosgiel and a knitwear division (Crestknit) at Dunedin. There is also a spinning plant in Palmerston North, and subsidiaries Kaiapoi Textiles Limited, Shepherd Wools Limited (Auckland) and Arbi Monograms Limited (Auckland). Altogether in 1974 Mosgiel employed over 2,000 personnel; over 1,500 in Dunedin/Mosgiel.

The Roslyn Mill, established in 1879, and always a strong Dunedin based competitor, was merged in 1968 after U.E.B. had taken it over unexpectedly in 1966 and had found the woollen industry not as successful as other operations. These two mills at Roslyn and Mosgiel were closely geared so that greater specialisation of production would result. U.E.B. eventually withdrew its 50 percent shareholding at the end of 1973-74 financial year.

In 1972, Mosgiel took over Kaiapoi Textiles Ltd. which had been in difficulties, largely from synthetic fibre competition. The Kaiapoi-Petone merger had not proven successful, the Petone mill was becoming too outdated. When Mosgiel took over, the Petone mill was closed, and its Dannevirke section also, though the Palmerston North plant was maintained. How long this will function has not yet been determined.

#### Lane Walker Rudkin Limited

The exact nature and size has not been established, but from sources available, it appears that there are nine branches, involving production of woollens, synthetics and knitted goods. It is a major garment manufacturer also, in an integrated mill. There are shareholdings in at least three other companies, a narrow fabric producer in Christchurch and two knitting companies in Auckland.

Feltex New Zealand Limited

For economic diversification the company has over recent years spread its operations into rubber and plastic production as well as textiles, but even within the textile section there are several divisions. Plants are located as follows:

## Divisions:

Wools - Scour and buying Kakariki.

Yarns - Wool tops - Kakariki and Lower Hutt (both vastly extended and modernised in 1975).

Underlays - Auckland, Christchurch, Wanganui, Lower Hutt.

Cordage - Auckland, Palmerston North.

Carpets - Christchurch, Auckland and Lower Hutt.

New spinning plant at Wainuiomata, opening 1975.

United Empire Box Industries Limited

This company entered the textile field in 1965, and expansion has been through takeovers and expansion of existing operations via Bremner Carpets, Napier Woollen Mills, Marlin Carpets (see also Rosyn Mill - Mosgiel).

Present plant operated - Tufted carpet - Auckland, Spinning Plant - Auckland, Papatoetoe Tufted plant, Christchurch Spinning Plant and Christchurch Woven Plant. In addition to the Hawkes Bay Spinning and Scouring Plants at Awatoto.

It is also noted that Sallee Carpets were formerly part of the operations but have since become a separate entity with specialist production.

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